

UNCLASSIFIED

DEPARTMENT OF THE AIR FORCE  
FISCAL YEAR (FY) 2009 BUDGET ESTIMATES  
RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)  
DESCRIPTIVE SUMMARIES, VOLUME II  
BUDGET ACTIVITIES 4 - 6  
FEBRUARY 2008



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**Fiscal Year 2009 Program And Budget Estimates  
RDT&E Descriptive Summaries, Volume II  
Scientific and Technology Budget Activities 4 - 6  
February 2008**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

1. (U) GENERAL

- A. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY 2009 President's Budget.
- 1) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exception:
    - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
  - 2) Other comments on exhibit contents in this document:
    - a) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2009 RDT&E program with the exception of classified program elements. The formats and contents of this document are in accordance with the guidelines and requirements of the Congressional committees insofar as possible.
    - b) The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
    - c) "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E are included in this submission.

2. (U) CLASSIFICATION

- A. All exhibits contained in Volumes I, II, and III are unclassified. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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Distributed Training and Exercises	0207697F	1493
WEATHER SERVICE	0305111F	1671
Wideband MILSATCOM (Space)	0603854F	629
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1589

UNCLASSIFIED  
DEPARTMENT OF DEFENSE  
FY 2009 RDT&E PROGRAM

23 JAN 2008

SUMMARY  
(\$ IN THOUSANDS)

APPROPRIATION -----	FY 2007 -----	FY 2008 -----	FY 2009 -----
Research, Development, Test & Eval, AF	24,491,745	26,069,228	28,066,617
Tanker Replacement Transfer Fund, AF		150,000	
Total Research, Development, Test & Evaluation	24,491,745	26,219,228	28,066,617

UNCLASSIFIED  
DEPARTMENT OF DEFENSE  
FY 2009 RDT&E PROGRAM

23 JAN 2008

SUMMARY  
(\$ IN THOUSANDS)

Summary Recap of Budget Activities -----	FY 2007 -----	FY 2008 -----	FY 2009 -----
Basic Research	395,300	571,095	452,300
Applied Research	1,115,280	1,169,833	1,044,495
Advanced Technology Development	1,030,162	663,931	578,263
Advanced Component Development & Prototypes	2,479,567	2,692,835	2,440,136
System Development & Demonstration	4,559,857	4,245,953	4,953,574
RDT&E Management Support	1,405,050	1,049,026	1,084,345
Operational Systems Development	13,506,529	15,826,555	17,513,504
Total Research, Development, Test & Evaluation	24,491,745	26,219,228	28,066,617
 Summary Recap of FYDP Programs -----			
Strategic Forces	209,259	135,620	120,289
General Purpose Forces	4,013,382	3,514,541	4,358,254
Intelligence and Communications	9,277,447	11,653,705	12,794,513
Mobility Forces	680,872	1,039,049	678,316
Research and Development	10,035,375	9,573,424	9,806,908
Central Supply and Maintenance	209,939	222,286	233,783
Training Medical and Other	3,369	3,222	3,330
Administration and Associated Activities	58,315	73,365	67,314
Support of Other Nations	3,787	4,016	3,910
Total Research, Development, Test & Evaluation	24,491,745	26,219,228	28,066,617

UNCLASSIFIED  
DEPARTMENT OF THE AIR FORCE  
FY 2009 RDT&E PROGRAM

SUMMARY  
(\$ IN THOUSANDS)

23 JAN 2008

Summary Recap of Budget Activities -----	FY 2007 -----	FY 2008 -----	FY 2009 -----
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Applied Research	1,115,280	1,169,833	1,044,495
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Intelligence and Communications	9,277,447	11,653,705	12,794,513
Mobility Forces	680,872	889,049	678,316
Research and Development	10,035,375	9,573,424	9,806,908
Central Supply and Maintenance	209,939	222,286	233,783
Training Medical and Other	3,369	3,222	3,330
Administration and Associated Activities	58,315	73,365	67,314
Support of Other Nations	3,787	4,016	3,910
Total Research, Development, Test & Eval, AF	24,491,745	26,069,228	28,066,617

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DEPARTMENT OF THE AIR FORCE  
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 23 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
---	-----	----	---	-----	-----	-----	-
1	0601102F	Defense Research Sciences	01	271,481	288,601	309,926	U
2	0601103F	University Research Initiatives	01	111,803	119,938	125,949	U
3	0601108F	High Energy Laser Research Initiatives	01	12,016	12,556	13,425	U
4	0301555F	Classified Programs	01				
5	0301556F	Special Program	01				
6	0305172F	Combined Advanced Applications	01				
		Basic Research		-----	-----	-----	
				395,300	421,095	452,300	
7	0602015F	Medical Development	02		4,670		U
8	0602102F	Materials	02	151,438	179,516	117,143	U
9	0602201F	Aerospace Vehicle Technologies	02	115,423	139,855	122,870	U
10	0602202F	Human Effectiveness Applied Research	02	106,435	92,068	82,091	U
11	0602203F	Aerospace Propulsion	02	220,143	217,172	218,049	U
12	0602204F	Aerospace Sensors	02	130,517	121,242	109,048	U
13	0602601F	Space Technology	02	101,316	128,397	117,519	U
14	0602602F	Conventional Munitions	02	60,150	58,632	55,963	U
15	0602605F	Directed Energy Technology	02	48,487	56,915	62,871	U
16	0602702F	Command Control and Communications	02	125,791	121,417	109,492	U
17	0602890F	High Energy Laser Research	02	55,580	49,949	49,449	U
		Applied Research		-----	-----	-----	
				1,115,280	1,169,833	1,044,495	
18	0603112F	Advanced Materials for Weapon Systems	03	83,546	54,871	41,926	U
19	0603203F	Advanced Aerospace Sensors	03	56,634	62,332	56,916	U
20	0603211F	Aerospace Technology Dev/Demo	03	45,443	66,884	44,918	U

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APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 23 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
---	-----	----	---	-----	-----	-----	-
21	0603216F	Aerospace Propulsion and Power Technology	03	150,123	142,543	170,856	U
22	0603231F	Crew Systems and Personnel Protection Technology	03	39,503	38,406	26,630	U
23	0603270F	Electronic Combat Technology	03	27,599	26,762	21,056	U
24	0603311F	Ballistic Missile Technology	03	9,128			U
25	0603401F	Advanced Spacecraft Technology	03	105,422	100,600	80,958	U
26	0603444F	Maui Space Surveillance System (MSSS)	03	49,502	42,160	4,838	U
27	0603601F	Conventional Weapons Technology	03	38,602	18,379	11,813	U
28	0603605F	Advanced Weapons Technology	03	74,683	74,383	44,507	U
29	0603680F	Manufacturing Technology Program	03			39,729	U
30	0603789F	C3I Advanced Development	03	47,352	32,821	30,103	U
31	0603801F	Special Programs	03	299,029			U
32	0603924F	High Energy Laser Advanced Technology Program	03	3,596	3,790	4,013	U
		Advanced Technology Development		----- 1,030,162	----- 663,931	----- 578,263	
33	0603260F	Intelligence Advanced Development	04	4,757	5,892	4,988	U
34	0603287F	Physical Security Equipment	04	1,248	2,847	477	U
35	0603421F	NAVSTAR Global Positioning System III	04	291,556	482,845		U
36	0603423F	Global Positioning System III - Operational Control Segment	04			2,975	U
37	0603427F	GPS Operational Control Segment - Backwards Compatibility	04			304,360	U
38	0603430F	Advanced EHF MILSATCOM (SPACE)	04	617,294	599,353	388,041	U
39	0603432F	Polar MILSATCOM (SPACE)	04	33,983	177,535	237,749	U



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APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 23 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
40	0603438F	Space Control Technology	04	23,605	66,182	76,845	U
41	0603742F	Combat Identification Technology	04	23,389	25,875	29,400	U
42	0603790F	NATO Research and Development	04	4,003	4,253	4,334	U
43	0603791F	International Space Cooperative R&D	04	574	610	627	U
44	0603845F	Transformational SATCOM (TSAT)	04	700,429	804,739	842,974	U
45	0603850F	Integrated Broadcast Service	04	24,471	21,058	21,105	U
46	0603851F	Intercontinental Ballistic Missile	04	56,286	31,121	65,629	U
47	0603854F	Wideband Global SATCOM RDT&E (Space)	04	43,998	19,091	12,422	U
48	0603858F	Space Radar	04	183,201			U
49	0603859F	Pollution Prevention	04	6,829	10,968	2,877	U
50	0603860F	Joint Precision Approach and Landing Systems	04	9,524	7,451	7,479	U
51	0604015F	Next Generation Bomber	04	37,476			U
53	0604796F	Alternative Fuels	04			28,464	U
54	0604830F	Automated Air-to-Air Refueling	04			9,889	U
55	0604856F	Common Aero Vehicle (CAV)	04	31,523	3,974		U
56	0604857F	Operationally Responsive Space	04	42,131	96,516	110,032	U
57	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	343,290	332,525	289,469	U
		Advanced Component Development & Prototypes		2,479,567	2,692,835	2,440,136	
58	0603840F	Global Broadcast Service (GBS)	05	23,157	29,098	18,790	U
59	0604222F	Nuclear Weapons Support	05	14,839	20,191	20,166	U
60	0604226F	B-1B	05	153,757	152,164	128,871	U

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Date: 23 JAN 2008

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2007 -----	FY 2008 -----	FY 2009 -----	
61	0604233F	Specialized Undergraduate Flight Training	05	4,112	14,927	7,462	U
62	0604240F	B-2 Advanced Technology Bomber	05	214,649	295,945	351,417	U
63	0604261F	Personnel Recovery Systems	05	103,337	104,289		U
64	0604270F	Electronic Warfare Development	05	95,949	102,601	54,995	U
65	0604287F	Physical Security Equipment	05	90	34	52	U
66	0604329F	Small Diameter Bomb (SDB)	05	122,276	144,279	125,067	U
67	0604421F	Counterspace Systems	05	44,596	63,819	74,918	U
68	0604425F	Space Situation Awareness Systems	05	166,696	196,363	210,501	U
69	0604429F	Airborne Electronic Attack	05	12,033	23,826	34,279	U
70	0604441F	Space Based Infrared System (SBIRS) High EMD	05	677,926	583,317	529,771	U
71	0604443F	Third Generation Infrared Surveillance (3GIRS)	05	67,552	75,410	149,064	U
72	0604602F	Armament/Ordnance Development	05	13,039	3,165	2,095	U
73	0604604F	Submunitions	05	8,304	1,976	1,730	U
74	0604617F	Agile Combat Support	05	9,715	12,146	5,790	U
75	0604618F	Joint Direct Attack Munition	05	20,959			U
76	0604706F	Life Support Systems	05	11,273	13,563	10,998	U
77	0604735F	Combat Training Ranges	05	16,325	17,546	28,047	U
78	0604740F	Integrated Command & Control Applications (IC2A)	05	26,507	26,593	177	U
79	0604750F	Intelligence Equipment	05	4,907	5,037	1,488	U
80	0604762F	Common Low Observables Verification System (CLOVerS)	05	4,361			U
81	0604800F	Joint Strike Fighter (JSF)	05	2,074,021	1,991,537	1,524,016	U

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Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
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82	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	19,083		33,719	U
83	0605011F	RDT&E for Aging Aircraft	05	36,144	20,491	13,828	U
84	0605221F	Next Generation Aerial Refueling Aircraft	05			831,759	U
85	0605277F	CSAR-X RDT&E	05			305,062	U
86	0605278F	HC/MC-130 Recap RDT&E	05			11,692	U
87	0207434F	Link-16 Support and Sustainment	05	156,169	194,652	186,213	U
88	0207450F	E-10 Squadrons	05	351,924	39,032	42,215	U
89	0207451F	Single Integrated Air Picture (SIAP)	05	37,874	4,857	66,909	U
90	0207701F	Full Combat Mission Training	05	34,046	71,643	135,152	U
91	0401138F	Joint Cargo Aircraft (JCA)	05	9,781	20,869	26,777	U
92	0401318F	CV-22	05	12,756	16,583	18,562	U
93	0401845F	Airborne Senior Leader C3 (SLC3S)	05	11,700		1,992	U
		System Development & Demonstration		4,559,857	4,245,953	4,953,574	
94	0604256F	Threat Simulator Development	06	37,411	39,639	34,568	U
95	0604759F	Major T&E Investment	06	63,417	63,855	61,818	U
96	0605101F	RAND Project Air Force	06	33,611	30,802	28,676	U
97	0605502F	Small Business Innovation Research	06	359,706			U
98	0605712F	Initial Operational Test & Evaluation	06	34,554	30,011	29,537	U
99	0605807F	Test and Evaluation Support	06	713,419	720,952	787,737	U
100	0605860F	Rocket Systems Launch Program (SPACE)	06	26,503	19,023	14,895	U
101	0605864F	Space Test Program (STP)	06	48,801	47,129	48,072	U

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Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
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102	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	55,473	59,750	46,234	U
103	0605978F	Facilities Sustainment - Test and Evaluation Support	06	28,073	33,849	28,898	U
105	0804731F	General Skill Training	06	295			U
106	1001004F	International Activities	06	3,787	4,016	3,910	U
		RDT&E Management Support		1,405,050	1,049,026	1,084,345	
107	0604263F	Common Vertical Lift Support Platform	07			3,868	U
108	0605024F	Anti-Tamper Technology Executive Agency	07	7,791	10,861	20,987	U
109	0605798F	Analysis Support Group	07				
110	0101113F	B-52 Squadrons	07	88,420	42,121	38,651	U
111	0101120F	Advanced Cruise Missile	07	6,767			U
112	0101122F	Air-Launched Cruise Missile (ALCM)	07	3,620	4,642	396	U
113	0101313F	Strat War Planning System - USSTRATCOM	07	24,774	20,130	17,553	U
114	0101314F	Night Fist - USSTRATCOM	07	4,963	5,263	5,299	U
115	0101815F	Advanced Strategic Programs	07				
116	0102326F	Region/Sector Operation Control Center Modernization Program	07	14,642	23,262	23,858	U
117	0102823F	Strategic Aerospace Intelligence System Activities	07			15	U
118	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	29,613	14,155	20,807	U
119	0205219F	MQ-9 UAV	07		63,862	43,557	U

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Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
--	-----	----	---	-----	-----	-----	-
120	0207131F	A-10 Squadrons	07	42,491	1,951		U
121	0207133F	F-16 Squadrons	07	124,761	70,172	123,979	U
122	0207134F	F-15E Squadrons	07	134,253	114,519	184,213	U
123	0207136F	Manned Destructive Suppression	07	499		5,585	U
124	0207138F	F-22A Squadrons	07	459,464	607,515	700,305	U
125	0207141F	F-117A Squadrons	07	11,718			U
126	0207161F	Tactical AIM Missiles	07	8,596	7,876	5,748	U
127	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	33,411	33,425	54,239	U
128	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	07	3,220	5,304	3,192	U
129	0207247F	AF TENCAP	07	11,160	11,452	11,578	U
130	0207248F	Special Evaluation Program	07	557,253			U
131	0207253F	Compass Call	07	9,586	8,549	4,670	U
132	0207268F	Aircraft Engine Component Improvement Program	07	152,969	138,159	150,956	U
133	0207277F	CSAF Innovation Program	07	1,554			U
134	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	32,995	12,074	13,035	U
135	0207410F	Air & Space Operations Center (AOC)	07	74,841	100,173	118,834	U
136	0207412F	Control and Reporting Center (CRC)	07	9,202	24,791	60,590	U
137	0207417F	Airborne Warning and Control System (AWACS)	07	157,751	151,593	126,300	U
138	0207418F	Tactical Airborne Control Systems	07	2,262	3,366	1,530	U
139	0207423F	Advanced Communications Systems	07	38,215	33,372	29,782	U

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				FY 2007	FY 2008	FY 2009	
--	-----	----	---	-----	-----	-----	-
140	0207424F	Evaluation and Analysis Program	07	2,518	646,380	794,036	U
141	0207433F	Advanced Program Technology	07	302,972			U
142	0207438F	Theater Battle Management (TBM) C4I	07	35,950	9,898	19,437	U
143	0207445F	Fighter Tactical Data Link	07	88,094	38,944	62,788	U
144	0207446F	Bomber Tactical Data Link	07	87,613	36,875	11,702	U
145	0207448F	C2ISR Tactical Data Link	07	4,126	1,795	1,727	U
146	0207449F	Command and Control (C2) Constellation	07	41,725	44,582	32,151	U
147	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	171,628	81,978	97,641	U
148	0207590F	Seek Eagle	07	16,299	22,823	21,645	U
149	0207591F	Advanced Program Evaluation	07	584,563			U
150	0207601F	USAF Modeling and Simulation	07	22,609	22,814	28,981	U
151	0207605F	Wargaming and Simulation Centers	07	6,270	6,421	3,870	U
152	0207697F	Distributed Training and Exercises	07	5,943	7,474	7,137	U
153	0208006F	Mission Planning Systems	07	139,217	104,575	97,560	U
154	0208021F	Information Warfare Support	07	28,028	11,965	12,220	U
155	0208161F	Special Evaluation System	07		765,525	1,077,970	U
156	0301310F	National Air Intelligence Center	07				
157	0301314F	COBRA BALL	07				
158	0301315F	Missile and Space Technical Collection	07				
159	0301324F	FOREST GREEN	07				
160	0301386F	GDIP Collection Management	07				

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Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2007 -----	FY 2008 -----	FY 2009 -----	
162	0302015F	E-4B National Airborne Operations Center (NAOC)	07	2,728	19,406	4,069	U
163	0303112F	Air Force Communications (AIRCOM)	07		2,009		U
164	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	64,556	88,224	70,995	U
165	0303140F	Information Systems Security Program	07	156,125	186,255	187,933	U
166	0303141F	Global Combat Support System	07	22,530	11,756	4,320	U
167	0303150F	Global Command and Control System	07	3,204	4,471	3,218	U
168	0303158F	Joint Command and Control Program (JC2)	07	5,651	5,745	3,234	U
169	0303601F	MILSATCOM Terminals	07	257,226	384,652	337,098	U
170	0304111F	Special Activities	07				
171	0304260F	Airborne SIGINT Enterprise	07	119,646	135,162	173,631	U
172	0304311F	Selected Activities	07				
173	0304348F	Advanced Geospatial Intelligence (AGI)	07				
174	0305099F	Global Air Traffic Management (GATM)	07	12,115	6,638	6,275	U
175	0305103F	Cyber Security Initiative	07			2,083	U
176	0305110F	Satellite Control Network (SPACE)	07	21,238	26,898	16,758	U
177	0305111F	Weather Service	07	41,676	40,959	47,347	U
178	0305114F	Air Traffic Control, Approach, and Landing System (ATCALIS)	07	3,670	8,293	6,867	U
179	0305116F	Aerial Targets	07	4,041	7,329	34,777	U
180	0305124F	Special Applications Program	07				

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				FY 2007	FY 2008	FY 2009	
--	-----	----	---	-----	-----	-----	-
181	0305127F	Foreign Counterintelligence Activities	07				
182	0305128F	Security and Investigative Activities	07	493	825	786	U
183	0305142F	Applied Technology and Integration	07				
184	0305146F	Defense Joint Counterintelligence Activities	07			39	U
185	0305159F	Defense Reconnaissance Support Activities (SPACE)	07				
186	0305160F	Defense Meteorological Satellite Program (SPACE)	07	936			U
187	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	130,254	154,581	127,513	U
188	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	160,555	119,089	91,277	U
189	0305172F	Combined Advanced Applications	07				
190	0305173F	Space and Missile Test and Evaluation Center	07	2,526	3,070	1,985	U
191	0305174F	Space Warfare Center	07	703	1,667	3,003	U
192	0305182F	Spacelift Range System (SPACE)	07	45,633	27,095	12,376	U
193	0305193F	Intelligence Support to Information Operations (IO)	07	1,290	5,927	1,237	U
195	0305206F	Airborne Reconnaissance Systems	07	51,842	64,441	149,752	U
196	0305207F	Manned Reconnaissance Systems	07	37,015	21,387	12,819	U
197	0305208F	Distributed Common Ground/Surface Systems	07	124,007	107,048	107,834	U
198	0305219F	MQ-1 Predator A UAV	07	77,885	33,781	24,773	U
199	0305220F	Global Hawk UAV	07	224,126	274,742	284,292	U



## UNCLASSIFIED

DEPARTMENT OF THE AIR FORCE  
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 23 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
---	-----	----	---	-----	-----	-----	-
200	0305221F	Network-Centric Collaborative Targeting	07	18,466	8,586	8,807	U
201	0305265F	GPS III Space Segment	07			420,342	U
202	0305887F	Intelligence Support to Information Warfare	07	5,121	5,305	5,438	U
203	0305906F	NCMC - TW/AA System	07	42,152	11,720		U
204	0305913F	NUDET Detection System (SPACE)	07	59,917	38,279	41,292	U
205	0305924F	National Security Space Office	07	17,351	10,745	10,797	U
206	0305940F	Space Situation Awareness Operations	07	29,476	23,827	16,166	U
207	0307141F	Information Operations Technology Integration & Tool Development	07	14,759	15,582	15,726	U
208	0308699F	Shared Early Warning (SEW)	07	2,896	3,127	3,152	U
209	0401115F	C-130 Airlift Squadron	07	185,554	250,020	172,560	U
210	0401119F	C-5 Airlift Squadrons (IF)	07	137,565	178,990	125,063	U
211	0401130F	C-17 Aircraft (IF)	07	170,527	180,581	236,047	U
212	0401132F	C-130J Program	07	34,765	73,753	52,354	U
213	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	35,349	19,201	32,100	U
214	0401218F	KC-135s	07	1,092	8,710	7,133	U
215	0401219F	KC-10s	07	4,696	13,703		U
216	0401221F	KC-135 Tanker Replacement	07	68,340	113,728		U
217	0401314F	Operational Support Airlift	07		4,837		U
218	0401839F	Air Mobility Tactical Data Link	07	6,785			U
219	0408011F	Special Tactics / Combat Control	07	1,962	8,074	5,728	U
220	0702207F	Depot Maintenance (Non-IF)	07	1,411	1,501	1,531	U

UNCLASSIFIED

DEPARTMENT OF THE AIR FORCE  
FY 2009 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 3600F Research, Development, Test & Eval, AF

Date: 23 JAN 2008

Line No	Program Element Number	Item	Act	Thousands of Dollars			S E C
				FY 2007	FY 2008	FY 2009	
--	-----	----	---	-----	-----	-----	-
221	0702806F	Acquisition and Management Support	07	26,645	22,141	34,428	U
222	0708011F	Industrial Preparedness	07	65,543	50,186		U
223	0708012F	Logistics Support Activities	07	2,132			U
224	0708610F	Logistics Information Technology (LOGIT)	07	90,557	114,599	189,679	U
225	0708611F	Support Systems Development	07	23,651	33,859	8,145	U
226	0804757F	Joint National Training Center	07	2,964	3,108	3,214	U
227	0808716F	Other Personnel Activities	07	110	114	116	U
228	0901202F	Joint Personnel Recovery Agency	07	960	5,342	5,768	U
229	0901212F	Service-Wide Support (Not Otherwise Accounted For)	07		6,454	3,016	U
230	0901218F	Civilian Compensation Program	07	13,160	8,019	8,123	U
231	0901220F	Personnel Administration	07	18,787	16,714	18,625	U
232	0901538F	Financial Management Information Systems Development	07	25,408	36,836	31,782	U
		Operational Systems Development		-----	-----	-----	
				13,506,529	15,826,555	17,513,504	
		Total Research, Development, Test & Eval, AF		-----	-----	-----	
				24,491,745	26,069,228	28,066,617	

**PROGRAM ELEMENT COMPARISON SUMMARY**

**PROGRAM ELEMENT (By BUDGET ACTIVITY)**

**BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)**

**BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)**

**BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume 1)**

**REMARKS**

0603216F Aerospace Propulsion and Power Technology

In FY 09, funding is higher to support ground demonstrations and fabrication of test vehicles for flight demonstrations. The funding in this project has been increased due to emphasis on component development in support of adaptive cycle technologies alternative hydrocarbon jet fuel, and improved fuel efficiency.

0603680F Manufacturing Technologies

In FY 09, the AF Manufacturing Technologies program will transfer to PE 0603680F, Manufacturing Technologies, from PE 0708011F, Industrial Preparedness, to focus on long-term manufacturing and processes.

**BUDGET ACTIVITY #4: ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPE (Volume 2)**

0604796F Alternative Fuels  
Operationally Responsive Space

In FY 09, PE 0604796F is a new PE. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE (0605011F).

0604857F

In FY 09, Project 64A020, AF-funded ORSSats is being established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements. Project 64A015 is renamed ORS Common Services from Tactical Satellites. This is to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

**BUDGET ACTIVITY #5: SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD) (Volume 2)**

0207450F E-10 Squadrons

In FY09, The Global Hawk (GH) MP-RTIP sensor development continues in the sensors project line. The E-10 program was terminated in FY08.

0207451F Single Integrated Air Picture (SIAP)

In FY09, Project 5275, Joint SIAP System Engineering and Development efforts were transferred from Army PE 0603327A - Air and Missile Defense Systems Engineering, Project S32, Joint SIAP System Engineering, into Air Force PE 0207451F in accordance with DoD designation of the Air Force as the SIAP Acquisition Executive. These funds support the research, development and testing of the Integrated Architecture Behavior Model (IABM), conduct Joint System-of -Systems Engineering for air and cruise missile defense, and operation of the SIAP Joint Program Office (SIAP JPO) and SIAP Joint Program Executive Office (SIAP JPEO).

0604261F Personnel Recovery Systems

In FY09, the CSAR-X and HC-130Recap projects separate into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. Procurement funding for CSAR-X remains in PE 0207224F and is reported in P-Docs. Procurement funding for HC/MC-130 Recap is included in Air Combat Command PE 0207224F and Air Force Special Operations Command PE 0207230F, as reported in P-Docs.

0604617F	Agile Combat Support
0605221F	KC-X, Next Generation Aerial Refueling Aircraft
0605277F	CSAR-X

In FY09, \$3.5M was transferred to PE 0603112F, Advanced Materials for Weapon Systems, to support technology evaluation for Airfield Damage Repair (ADR) and Rapid Parking Ramp Expansion (RPRE)

In FY09, \$239.8M in Transfer Fund. These transfer funds will be used to fund KC-X acquisition after contract award.

In FY09, CSAR-X is in this new PE to provide more budget clarity.

**BUDGET ACTIVITY #6: RDT&E MANAGEMENT SUPPORT (Volume 2)**

**BUDGET ACTIVITY #7: OPERATIONAL SYSTEM DEVELOPMENT (Volume 3)**

0401221F	KC-135 Replacement Tanker
0604263F	CVLSP
0708011F	Industrial Preparedness

In FY 09, \$239.8M in Transfer Fund. These transfer funds will be used to fund KC-X acquisition after contract award.

In FY 09, Project Number 5277, CVLSP, includes new start efforts

In FY09, the program will transfer from PE 0708011F, Industrial Preparedness, to Budget Activity 3 in PE 0603680F, Manufacturing Technologies, to better align with the Office of the Secretary of Defense's ManTech PE.

The following are Program Elements not providing RDT&E exhibits due to classification:

<u>No.</u>	<u>Title</u>
0101314F	Night Fist
0101815F	Advanced Strategic Program
0207248F	Special Evaluation Program
0207424F	Evaluation and Analysis Program
0207433F	Advanced Program Technology
0207591F	Advance Program Evaluation
0208161F	Special Evaluation System
0301310F	National Air Intelligence Center
0301314F	COBRA BALL
0301315F	Missile and Space Technical Collection
0301324F	FOREST GREEN
0301386F	GDIP Collection Management
0301555F	Classified Programs
0301556F	Special Program
0304111F	Special Activities
0304311F	Selected Activities
0304348F	Advanced Geospatial Intelligence (AGI)
0305124F	Special Applications Program
0305127F	Foreign Counterintelligence Activities
0305142F	Applied Technology and Integration
0305159F	Defense Reconnaissance Support Activities (SPACE)
0305172F	Combined Advanced Applications
0603801F	Special Programs
0605798F	Analysis Support Group

**In accordance with the President's Management Agenda, Budget and Performance Integration initiative, these programs have been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the [Expectmore.gov](http://Expectmore.gov) website.**

**UNCLASSIFIED**

PE NUMBER: 0603260F  
 PE TITLE: Intelligence Advanced Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.757	5.892	4.988	5.095	5.156	5.255	5.363	Continuing	TBD
3479 Advanced Sensor Exploitation	1.290	1.807	1.835	1.860	1.883	1.900	1.910	Continuing	TBD
3480 Automated Imagery Exploitation	0.994	0.641	0.853	0.927	0.929	0.952	0.980	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1.753	1.506	1.581	1.584	1.606	1.652	1.720	Continuing	TBD
3482 Science & Tech Intelligence Methodology	0.720	1.938	0.719	0.724	0.738	0.751	0.753	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) Program Element (PE) Intelligence Advanced Development (IAD) demonstrates and validates advanced technologies required to support warfighter needs for timely all-source intelligence information. IAD research supports global awareness, consistent battlespace knowledge, precision information, and the execution of time-critical missions. IAD projects provide better on-time information to the warfighter by using new and existing data sources, streamlining data analyses, reducing the required intelligence footprint, and by extending the life of sensors in place as well as enhancing their performance. The Air Force Research Laboratory, Rome Research Site, Information and Intelligence Exploitation Division (AFRL/RIE) works directly with users, employing a rapid prototyping evolutionary approach, then integrating finished modules directly into the field. The programs are oriented towards specific shortfalls and deficiencies as documented by the major commands, combatant commands, and intelligence organizations in their mission and functional area plans. The goal of this PE is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF PE is focused on technology insertion to correct AF intelligence deficiencies at tactical and operational levels. The PE bridges the transition of new technologies from Advanced Technology Demonstrations and Integrated Technology Thrust Programs into current/new systems, and also supports the associated Defense Technology Objectives. IAD may reallocate existing resources to support out-of-cycle new/updated warfighter requirements.

This PE is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technologies that enhance information / intelligence systems' capabilities and techniques.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.757	4.930	5.030
(U) Current PBR/President's Budget	4.757	5.892	4.988
(U) Total Adjustments	0.000	0.962	
(U) Congressional Program Reductions		0.038	
Congressional Rescissions			
Congressional Increases		1.000	
Reprogrammings			
SBIR/STTR Transfer			
(U) <b><u>Significant Program Changes:</u></b>			
In FY08 Congress Added \$1M for Multilingual Text Mining Platform (MTMP) for Intel Analyst			



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3479 Advanced Sensor Exploitation</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3479 Advanced Sensor Exploitation	1.290	1.807	1.835	1.860	1.883	1.900	1.910	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The project objectives are to develop, demonstrate and evaluate a near-real-time all source correlation/fusion capability by applying state-of-the-art data processing techniques for the receipt, correlation, templating, and analysis of battlefield information. Capabilities will be developed in an open systems architecture environment allowing for the greatest efficiency in terms of integrating or interfacing with other systems. There are Air Force, DoD, and Coalition needs to correlate various sources of intelligence information (Communications Intelligence - COMINT, Electronic Intelligence - ELINT, Imagery Intelligence - IMINT and Measurement and Signature Intelligence - MASINT) within seconds/minutes as opposed to hours/days with current manual and semi-automated methods. The project includes development of data correlation and predictive intelligence algorithms as well as target analysis and prioritization, air order of battle update, and tactical analysis techniques. This computerized approach will speed up the correlation of data from diverse sources of intelligence information, including COMINT, ELINT, IMINT and MASINT; providing faster situational awareness and threat assessment, and replace manual systems with automated capabilities.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue / Complete Predictive Battlespace Awareness (Live Electronic Order of Battle)	1.032	0.586	
(U) Initiate / Complete Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)	0.258	0.390	
(U) Initiate / Continue Ubiquitous Collaboration		0.831	0.877
(U) Initiate Semi-Autonomous Intelligence Fusion			0.958
(U) Total Cost	1.290	1.807	1.835

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None									

**(U) D. Acquisition Strategy**

Requirements for new advanced sensor exploitation technologies are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency). Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratory

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603260F Intelligence Advanced  
Development**

PROJECT NUMBER AND TITLE

**3479 Advanced Sensor Exploitation**

(Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603260F Intelligence Advanced Development</b>	<b>3479 Advanced Sensor Exploitation</b>

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Predictive Battlespace Awareness (Live Electronic Order of Battle)	C/CPFF	Northrop-Gru mman, Bellevue, NE and Intelligent Software Solutions, Colorado Springs, CO	2.701	1.032	Jan-07	0.586	Nov-07	0.000		0.000	4.319	4.334
Web Automated Assistance with Intelligence Preparation of the Battlefield (WA2IPB)	C/CPFF	Zel-Tech, LLC, Hampton, VA	0.000	0.258	Feb-07	0.390	Nov-07	0.000		0.000	0.648	0.648
Ubiquitous Collaboration	C/TBD	TBD	0.000	0.000		0.831	Mar-08	0.877	Nov-08	4.332	6.040	TBD
Semi-Autonomous Intelligence Fusion	C/TBD	TBD	0.000	0.000		0.000		0.958	Jan-09	2.400	3.358	TBD
Subtotal Product Development			2.701	1.290		1.807		1.835		6.732	14.365	TBD
Remarks:												
<u>(U) Total Cost</u>			2.701	1.290		1.807		1.835		6.732	14.365	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

### Intelligence Advanced Development Program—Advanced Sensor Exploitation Schedule

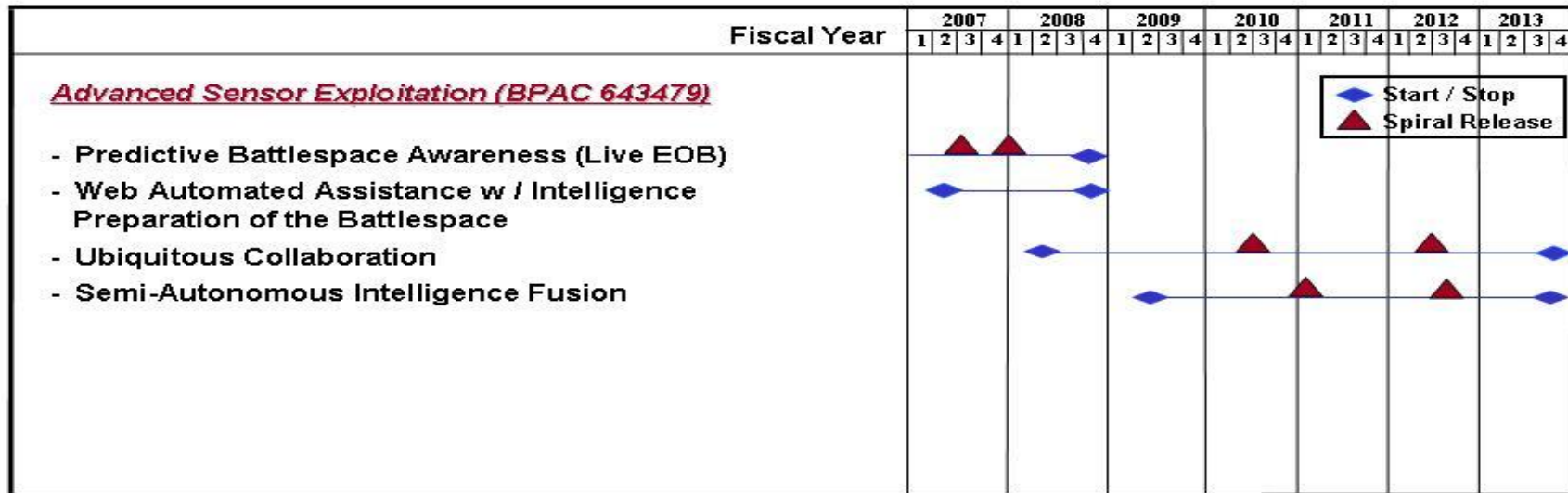


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3479 Advanced Sensor Exploitation

(U) Schedule Profile

(U) Continue / Complete Predictive Battlespace Awareness (Live Electronic Order of Battle)

FY 2007

1-4Q

FY 2008

1-4Q

FY 2009

(U) Initiate / Complete Web Automated Assistance with Intelligence Preparation of the Battlespace (WA2IPB)

2-4Q

1-4Q

(U) Initiate / Continue Ubiquitous Collaboration

2-4Q

1-4Q

(U) Initiate Semi-Autonomous Intelligence Fusion (a.k.a Dynamic Models)

2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3480 Automated Imagery Exploitation</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3480 Automated Imagery Exploitation	0.994	0.641	0.853	0.927	0.929	0.952	0.980	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This project demonstrates and validates the capability to more accurately and quickly interpret digital imagery and video by developing/evaluating computer-assisted techniques to manipulate and overlay imagery, cartographic data, signals intelligence (SIGINT), and on-line intelligence data. The result of this effort will be more precise target locations and identifications, precise target reference scenes, and more accurate damage assessments for the operator; all developed for easy supportability on low-cost, commercially-available computer workstations.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete Dynamic Motion Imagery Annotation & Exploitation Tools	0.330		
(U) Continued / Complete Operational Imagery Protection and Authentication	0.357		
(U) Initiate / Continue / Complete Multi-View Toolkit for Imagery Assessment and Exploitation	0.307	0.350	0.551
(U) Initiate / Continue Persistent Surveillance		0.291	0.302
(U) Total Cost	0.994	0.641	0.853

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None									

**(U) D. Acquisition Strategy**

Requirements for new computer assisted techniques for interpretation of digital imagery and video are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency. Development of new / improved capabilities to meet these requirements is managed by AF Research Laboratory (Rome Research Site). The prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603260F Intelligence Advanced Development</b>				<b>3480 Automated Imagery Exploitation</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Dynamic Motion Imagery Annotation & Exploitation Tools	C/CPFF	SAIC, Fairborn, OH	0.610	0.330	Nov-06	0.000		0.000		0.000	0.940	0.940
Operational Imagery Protection and Authentication	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.618	0.357	Nov-06	0.000		0.000		0.000	0.975	0.976
Multi-View Toolkit for Imagery Assessment and Exploitation	C/CPFF	PAR Government Systems Corp., New Hartford, NY	0.000	0.307	Feb-07	0.350	Nov-07	0.551	Nov-08	0.000	1.208	TBD
Persistent Surveillance	C/CPFF	ITT, Rochester, NY	0.000	0.000		0.291	Jul-08	0.302	Nov-08	3.777	4.370	TBD
Subtotal Product Development			1.228	0.994		0.641		0.853		3.777	7.493	TBD
Remarks:												
(U) Total Cost			1.228	0.994		0.641		0.853		3.777	7.493	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

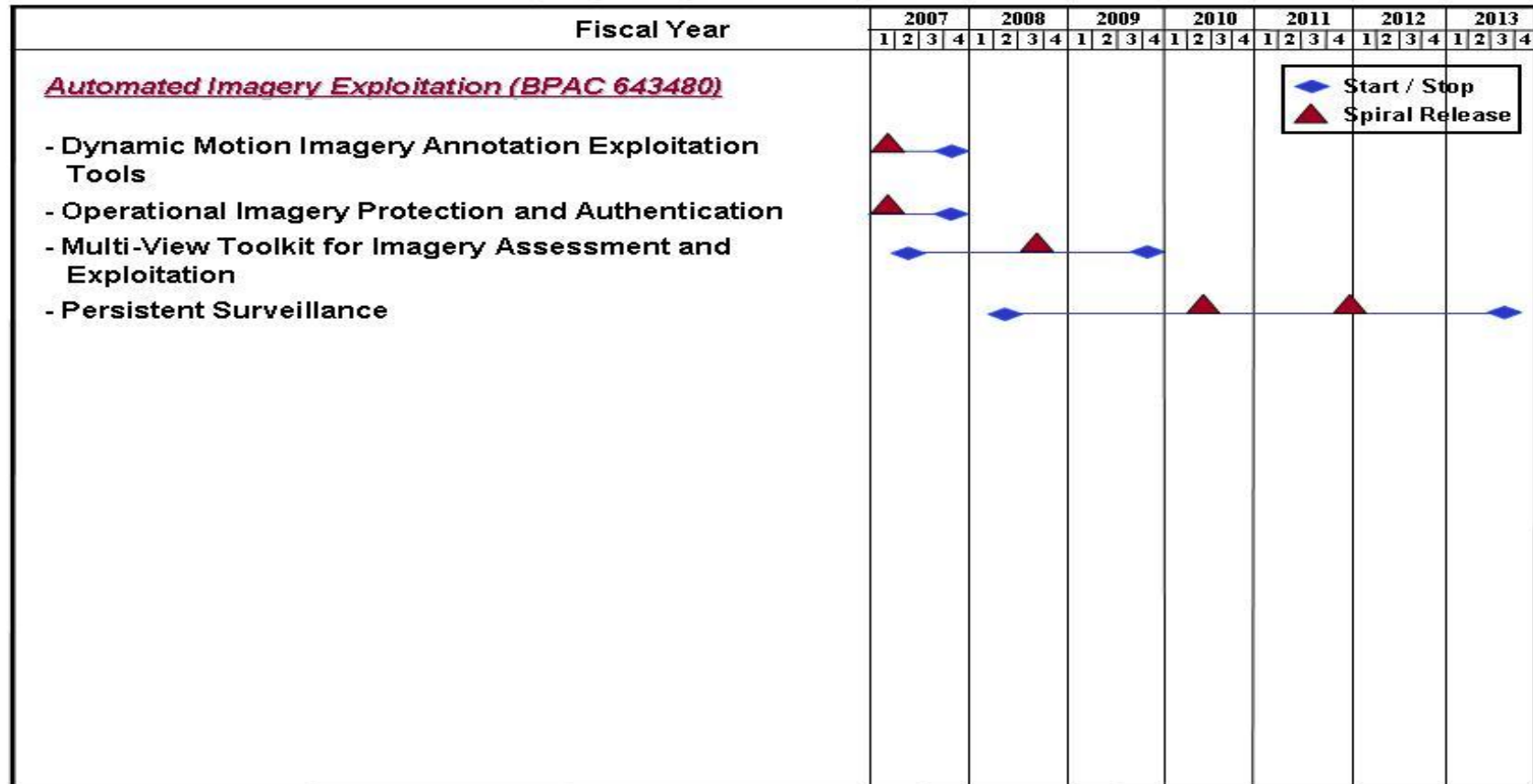
PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3480 Automated Imagery Exploitation

**Intelligence Advanced Development Program—Automated Imagery Exploitation Schedule**





<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>	PROJECT NUMBER AND TITLE <b>3480 Automated Imagery Exploitation</b>
--	--	--

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Continued / Complete Dynamic Motion Imagery Annotation Exploitation Tools	1-4Q		
(U) Continued / Complete Operational Imagery Protection and Authentication	1-4Q		
(U) Initiate / Continue / Complete Multi-View Toolkit for Imagery Assessment and Exploitation	2-4Q	1-4Q	1-4Q
(U) Initiate / Continue Persistent Surveillance		2-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603260F Intelligence Advanced Development</b>		PROJECT NUMBER AND TITLE <b>3481 Knowledge Based Tech For Intelligence</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3481 Knowledge Based Tech For Intelligence	1.753	1.506	1.581	1.584	1.606	1.652	1.720	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This project improves Global Awareness, Dynamic Planning, and Execution by providing knowledge bases and inference engines to exploit collected data for nine major commands and AF intelligence organizations. The development of the analytical aids is based on artificial intelligence techniques. The increased timeliness, efficiency and effectiveness derived will provide enhanced warning time and accuracy, allowing national/military authorities a greater range of options to avert, diminish or control a crisis.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information/intelligence systems' capabilities and techniques.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete High Throughput Imagery Guard (H-TIG)	0.100		
(U) Continued / Complete Enterprise Workflow Management (EWM)	0.453	0.150	
(U) Initiated / Continue / Complete Non-Traditional Intelligence / Surveillance / Reconnaissance (ISR) Production Management	1.200	0.890	
(U) Initiate / Continue Dynamic ISR for Non-Traditional Adversarial Methods		0.466	0.625
(U) Initiate Net Enabled Dynamic Security (a.k.a. Enhanced Notional - to - Technical Integration ENTI)			0.956
(U) Total Cost	1.753	1.506	1.581

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN None									

**(U) D. Acquisition Strategy**

Requirements for new / improved analytical aids to exploit collected intelligence data are gathered and prioritized by the Air Force Intelligence, Surveillance and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency. Development of new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603260F Intelligence Advanced Development</b>					<b>3481 Knowledge Based Tech For Intelligence</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> High Throughput Imagery Guard (H-TIG)	C/IDIQ	Dolphin Technology, Inc., Rome, NY	0.492	0.100	Dec-06	0.000		0.000		0.000	0.592	0.592
Enterprise Workflow Management	C/CPFF	Northrop Grumman Corp, Bellevue, NE	1.112	0.453	Nov-06	0.150	Nov-07	0.000		0.000	1.715	1.716
Non-Traditional ISR Production Management (NTIPM)	C/IDIQ	Northrop-Grumman Corp, Bellevue NE & Intelligent Software Solutions, Colorado Springs, CO	0.426	1.200	Nov-06	0.890	Nov-07	0.000		0.000	2.516	2.523
Dynamic ISR for Non-Traditional Adversarial Methods	C/IDIQ	Northrop-Grumman Corp, Bellvue, NE	0.000	0.000		0.466	Feb-08	0.625	Nov-08	3.745	4.836	TBD
Net-Enabled Dynamic Security	C/TBD	TBD	0.000	0.000		0.000		0.956	Jan-09	2.800	3.756	TBD
Subtotal Product Development			2.030	1.753		1.506		1.581		6.545	13.415	TBD
Remarks:												
(U) Total Cost			2.030	1.753		1.506		1.581		6.545	13.415	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE  
3481 Knowledge Based Tech For Intelligence

**Intelligence Advanced Development Program—Knowledge Based Technologies for Intelligence Schedule**

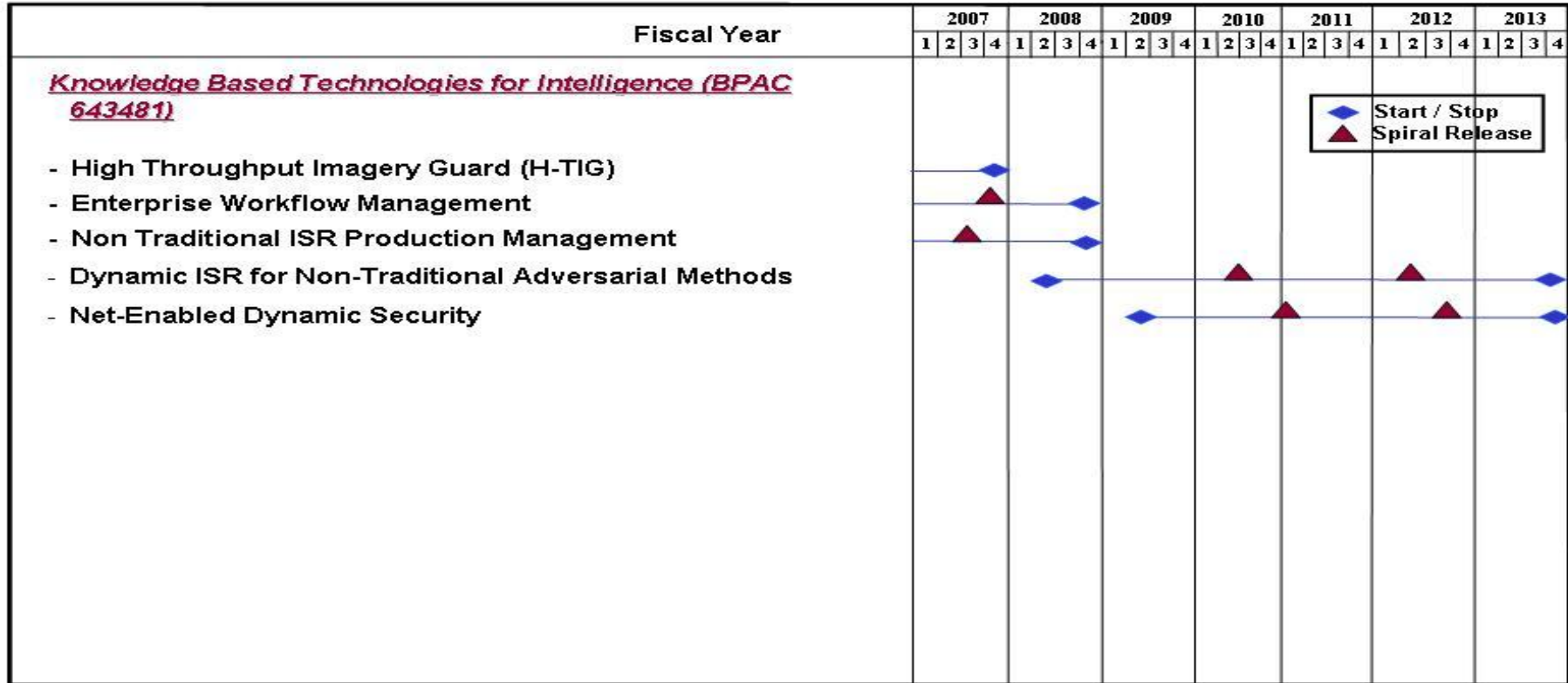


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3481 Knowledge Based Tech For Intelligence

(U) Schedule Profile

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete High Throughput Imagery Guard (H-TIG)	1-4Q		
(U) Continued / Complete Enterprise Workflow Management Tool	1-4Q	1-4Q	
(U) Initiated / Continue / Complete Non-Traditional ISR Production Management	1-4Q	1-4Q	
(U) Initiate / Continue Dynamic ISR for Non-Traditional Adversarial Methods		2-4Q	1-4Q
(U) Initiate Net-Enabled Dynamic Security (a.k.a. ENTI)			2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>			<b>PROJECT NUMBER AND TITLE</b> <b>3482 Science &amp; Tech Intelligence Methodology</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3482 Science & Tech Intelligence Methodology	0.720	1.938	0.719	0.724	0.738	0.751	0.753	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The project demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency, requirements. The methods and techniques will help AFISRA improve their analysis of current and future foreign weapon systems, and prevent technological surprises to our warfighters with regard to the capabilities of these systems.

This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued / Complete Dynamic Information Operations Decision Environment / Automated Correspondence Analysis System (DIODE / ACAS)	0.100		
(U) Continued / Complete Command & Control (C2) Process Models	0.280		
(U) Initiated/ Continue / Complete Integrated Denial & Deception Signatures and Materials (IDMATS)	0.184	0.626	
(U) Initiate / Continue Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)	0.156	0.350	0.719
(U) Congressional Add - Multilingual Text Mining Platform for Intel Analyst (MTMP)		0.962	
(U) Total Cost	0.720	1.938	0.719

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None									

**(U) D. Acquisition Strategy**

Requirements for new / improved techniques for operational employment of simulation models are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), formerly the Air Intelligence Agency. Development of the new / improved capabilities to meet the requirements is managed by AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals. All major contracts within this project are awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603260F Intelligence Advanced Development</b>				<b>3482 Science &amp; Tech Intelligence Methodology</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> DIODE / ACAS	C/CPFF	Prediction Systems, Inc., Spring Lake, NJ	0.680	0.100	Nov-06			0.000		0.000	0.780	0.780
Command and Control (C2) Process Models	C/CPFF	Northrop-Gru mman, Dayton OH	0.602	0.280	Nov-06	0.000		0.000		0.000	0.882	0.883
Integrated Denial & Deception Signatures and Materials (IDMATS)	C/CPFF	SAIC, Dayton OH	0.051	0.184	Nov-06	0.626	Nov-07	0.000		0.000	0.861	0.861
Adversary Tactics, Training, and Readiness Knowledge Base	C/CPFF	Northrop-Gru mman, Fairborn, OH	0.000	0.156	Apr-07	0.350	Nov-07	0.719	Nov-08	0.398	1.623	TBD
Multilingual Text Mining Platform for Intel Analyst (MTMP)						0.962					0.962	
Subtotal Product Development			1.333	0.720		1.938		0.719		0.398	5.108	TBD
Remarks:												
(U) Total Cost			1.333	0.720		1.938		0.719		0.398	5.108	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

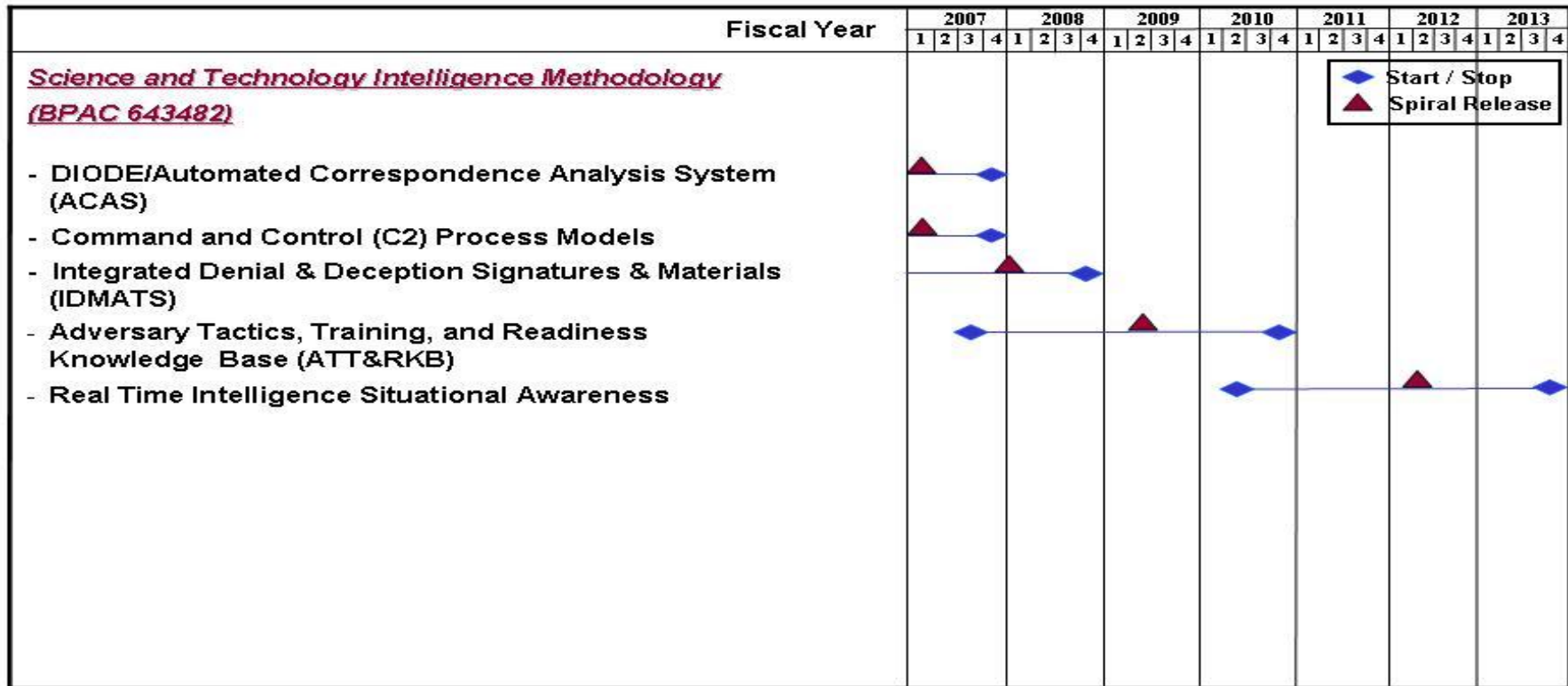
PE NUMBER AND TITLE

0603260F Intelligence Advanced Development

PROJECT NUMBER AND TITLE

3482 Science & Tech Intelligence Methodology

### Intelligence Advanced Development Program—Science & Technology Intelligence Methodology Schedule





**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603260F Intelligence Advanced Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3482 Science &amp; Tech Intelligence Methodology</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Continued / Complete DIODE / ACAS	1-4Q		
(U) Continued / Complete Command and Control (C2) Process Models	1-4Q		
(U) Initiate / Continue / Complete IDMATS Program	1-4Q	1-4Q	
(U) Initiate / Continue Adversary Tactics, Training, and Readiness Knowledge Base (ATT&RKB)	3-4Q	1-4Q	1-4Q

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PE NUMBER: 0603287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603287F Physical Security Equipment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.248	2.847	0.477	0.478	0.492	0.502	0.512	Continuing	TBD
5121 Physical Security Equipment	1.248	2.847	0.477	0.478	0.492	0.502	0.512	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consist of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Intelligence (USD(I)). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security use.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	1.284	0.466	0.481
(U) Current PBR/President's Budget	1.248	2.847	0.477
(U) Total Adjustments	-0.036		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.036		

**(U) Significant Program Changes:**

In FY 2007, Project Number 0603287F, Physical Security Equipment, efforts will transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment, in order to recognize the synergy between nuclear weapons and conventional physical security and to leverage common solutions to common capability gaps.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

These residual funds will be reprogrammed.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>			PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5121 Physical Security Equipment	1.248	2.847	0.477	0.478	0.492	0.502	0.512	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program is a budget activity level 4 based on the concept/technology development activities ongoing within the program. The purpose of this program is to develop physical security equipment (PSE) systems, to include Force Protection, for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consist of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight is provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Intelligence (USD(I)). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. Beginning with FY 1997, this PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD physical security use.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

## (U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT

- Awarded LKMD SDD contract. Conduct Production Qualification LKMD testing.
- Issued Federal Business Opportunities Announcement for the Tactical Video Surveillance System (TVSS).
- Conducted market survey for the TVSS.
- Conducted Concept Exploration for the best technical approach to integrate TVSS with other phenomenology for tactical intrusion detection.
- Conducted operational testing of ASPSS.
- Refined and researched improvements for the Smart Gate program.
- Continued TASS P3I efforts including improvements to the annunciator.
- Continued to manage, develop, evaluate, and test Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to research technological advances at DoD, DoE, University Labs, DARPA, within industry, etc., with PSE utility.
- Continued to prepare operational systems improvement plans; develop technology roadmap, update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

Exhibit R-2a, RDT&E Project Justification		DATE
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>February 2008</b>
PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>		PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2007</u> <u>FY 2008</u> <u>FY 2009</u>
- Began to develop the XML Wide Area Sensor.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		1.248
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		2.847
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.		
(U) FORCE PROTECTION/TACTICAL SECURITY EQUIPMENT		0.477
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
- Demonstrated ability to network robotic systems to provide enhanced detection, surveillance, and response in all aspects of installation force protection and installation security.		
- Continued efforts to improve the operational capability and safety of integrated weapon systems and robotics platforms employed in force protection and security missions.		
- Continues imagery improvements for the FPASS.		
- Developed a Digital Network Centric capability for the Remotely Operated Weapons System (ROWS).		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F, Physical Security Equipment, efforts transferred to PE 603161D, Nuclear and Conventional Physical Security Equipment. Please see PE 603161D for FY 2008 plans.		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.		
(U) WATERSIDE SECURITY SYSTEM		
- Began the C3 integration of Pierside and Shipboard Security Systems.		
- Began the upgrade of Swimmer Detection sonars.		
(U) WATERSIDE SECURITY SYSTEM		
In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.		

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603287F Physical Security  
Equipment**

PROJECT NUMBER AND TITLE

**5121 Physical Security Equipment****(U) B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009**(U) WATERSIDE SECURITY SYSTEM**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.

**(U) WATERSIDE SECURITY SYSTEM**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

**(U) EXPLOSIVE DETECTION EQUIPMENT**

- Invested in the integration of image and chem/bio detection to counter the WMD threat.
- Invested in the reduction of the manpower footprint associated with the detection of vehicle and cargo explosive threats.
- Awarded the development contract for Video/Radar Concealed Bomb Detection.
- Began to build the infrastructure to test Shaped Energy X-Ray Detection Systems.

**(U) EXPLOSIVE DETECTION EQUIPMENT**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.

**(U) EXPLOSIVE DETECTION EQUIPMENT**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.

**(U) EXPLOSIVE DETECTION EQUIPMENT**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

**(U) LOCKS, SAFES, VAULTS**

- Completed the light-wight weapons armory door ILD prototype.
- Developed ILD design improvements to increase operational capability and improved resistance against forced entry.
- Continued evaluating Lock technology and attack tools.

**(U) LOCKS, SAFES, VAULTS**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.

**(U) LOCKS, SAFES, VAULTS**

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.

**(U) LOCKS, SAFES, VAULTS**

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

FY 2007

FY 2008

FY 2009

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

(U) COMMERCIAL-OFF-THE-SHELF TESTING

- Delivered FPED V After Action Report
- Distributed FPED V CDs
- Launched FPED VI on-line registration
- Prepared to execute FPED VI.
- Continued to seek near-term (commercial) solutions for immediate force protection needs.

(U) COMMERCIAL-OFF-THE-SHELF TESTING

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2007 plans.

(U) COMMERCIAL-OFF-THE-SHELF TESTING

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2008 plans.

(U) COMMERCIAL-OFF-THE-SHELF TESTING

In FY 2006, Project Number 0603287F - Physical Security Equipment efforts transferred to PE 603161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 603161D8Z for FY 2009 plans.

(U) Total Cost

1.248

2.847

0.477

(U) **C. Other Program Funding Summary (\$ in Millions)**

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

Cost to

Total Cost

Actual

Estimate

Estimate

Estimate

Estimate

Estimate

Estimate

Complete

(U) Not Applicable

(U) **D. Acquisition Strategy**

Not Applicable



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603287F Physical Security Equipment</b>	<b>5121 Physical Security Equipment</b>

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
HQ ESC (Air Force)	PO			1.248	Nov-07	2.847		0.477		Continuing	TBD	TBD
PM-PSE (US Army)	MIPR									Continuing	TBD	TBD
CNO-N34 (US Navy)	MIPR									Continuing	TBD	TBD
DTRA	MIPR									Continuing	TBD	TBD
Subtotal Product Development			0.000	1.248		2.847		0.477		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Program Office Support										Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Not Applicable</u>												
<u>(U) Total Cost</u>			0.000	1.248		2.847		0.477		Continuing	TBD	TBD
Remarks:												





Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

Date: January 2006

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

PE0603287F Physical Security Equipment

PROJECT NUMBER AND NAME

5121 Physical Security Equipment

Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate LRIP of the Laser IMS Handheld Explosive Detector.								▲																												
Award development contract for Video/Radar Concealed Bomb Detection.												▲																								
Develop Test for Hybrid System																▲																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile

Date: January 2006

BUDGET ACTIVITY  
04 Advanced Component Development and  
Prototypes (ACD&P)

PE NUMBER AND TITLE  
PE0603287F Physical Security  
Equipment

PROJECT NUMBER AND NAME  
5121 Physical Security Equipment

Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Continue evaluating Lock technology and attack																▲																				
Begin upgrade of																▲																				
Executed FPED V												▲																								
Integrate biometric technology with high security lock technology																▲																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: January 2006																
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)										PE NUMBER AND TITLE PE0603287F Physical Security Equipment										PROJECT NUMBER AND NAME 5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Market Survey for TVSS																																				
TVSS Prototype Design, Fabrication, & Integration																																				
PAS Market Survey and Investigation																																				

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE  
5121 Physical Security Equipment

Exhibit R-4, Schedule Profile																				Date: January 2006																
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)										PE NUMBER AND TITLE PE0603287F Physical Security Equipment										PROJECT NUMBER AND NAME 5121 Physical Security Equipment																
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Refine MMW technology to counter standoff and suicide bomber threats												▲																								
C3 integration of Pierside and Shipboard Security Systems																▲																				
Initiate LRIP of Laser IMS HH ED												▲																								

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603287F Physical Security Equipment</b>	PROJECT NUMBER AND TITLE <b>5121 Physical Security Equipment</b>
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(U) <b>Schedule Profile</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Conduct market survey for the TVSS	1-4Q		
(U) TVSS Prototype Design, Fabrication, & Integration		2Q	
(U) PAS Market Survey and Investigation		2Q	3Q
(U) Continue TASS P3I efforts including the annunciator			3Q
(U) Conduct a Leap Ahead assessment of current PSE technology	3Q		
(U) Follow-on Early User Appraisal for MDARS			1-4Q
(U) Buy Equipment to build a Hybrid Image/Trace EDE system		2-3Q	
(U) C3 integration of Pierside and Shipboard Security Systems	3-4Q	1-2Q	



**UNCLASSIFIED**

PE NUMBER: 0603421F  
 PE TITLE: GLOBAL POSITIONING SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	291.556	482.845	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4993 GPS III	291.556	482.845	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation GPS Control Segment (OCX) through FY08. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, modernized control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, developmental test resources, and technology needs forecasting.

No FY09 funding is requested. Beginning in FY09, remaining funding from this PE is divided and transferred into the following PEs:

- PE 0305265F - GPS III Space Segment (RDT&E and MPAF for GPS III Space Vehicles)
- PE 0603427F - GPS Operational Control Segment - Backwards Compatibility (RDT&E for GPS III OCX Block I)
- PE 0603423F - Global Positioning System III - Operational Control Segment (GPS III OCX Blocks II, III & IV)

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	313.401	587.226	868.852
(U) Current PBR/President's Budget	291.556	482.845	0.000
(U) Total Adjustments	-21.845	-104.381	
(U) Congressional Program Reductions		-104.381	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-9.999		
SBIR/STTR Transfer	-11.846		

**(U) Significant Program Changes:**

FY07: -\$9.999M for higher Air Force priorities; FY08: -\$104.381M Congressional reduction; FY09: Remaining program funding transferred to multiple PEs.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4993 GPS III</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4993 GPS III	291.556	482.845	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS III space vehicles (SV) and the next generation GPS Control Segment (OCX) through FY08. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems, modernized control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, developmental test resources, and technology needs forecasting.

No FY09 funding is requested. Beginning in FY09, remaining funding from this PE is divided and transferred into the following PEs:

- PE 0305265F - GPS III Space Segment (RDT&E and MPAF for GPS III Space Vehicles)
- PE 0603427F - GPS Operational Control Segment - Backwards Compatibility (RDT&E for GPS III OCX Block I)
- PE 0603423F - Global Positioning System III - Operational Control Segment (GPS III OCX Blocks II, III & IV)

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue GPS III Space Vehicle (SV) Development	186.033	217.337	0.000
(U) Continue Next Generation Control Segment (OCX)	78.503	251.522	0.000
(U) Continue Program Support for GPS III SV/OCX, to include Systems Engineering and Integration	27.020	13.986	0.000
(U) Total Cost	291.556	482.845	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) PE 0305165F Navstar GPS (Space & Ground), (Project 673030; BA-07; R-179)	160.555	119.089	91.277	56.335	35.414	35.699	36.417	Continuing	TBD
(U) PE 0305265F GPS III Space Segment, (Project 67A019; R-XXX)	0.000	0.000	420.342	284.973	262.810	299.210	247.075	Continuing	TBD

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603421F GLOBAL POSITIONING SYSTEM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4993 GPS III</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) PE 0603427F GPS Operational Control Segment Backwards Compatibility (Project 64A022; BA-04; R-XXX)	0.000	0.000	304.360	212.962	0.000	0.000	0.000	0.000	517.322
(U) PE 0603423F Global Positioning System III Operational Control Segment (OCX), (Project 64A021; BA-04; R-XX)	0.000	0.000	2.975	236.734	359.524	330.812	310.996	Continuing	TBD
(U) Other APPN Operations and Maintenance: PE 0305165F, BA-01, SAG 11M, 13D	62.936	77.264	83.326	92.168	98.214	100.103	102.492	Continuing	TBD
(U) Missile Procurement: PE 0305165F, BA 5, P-22, 23	84.576	207.826	110.443	167.801	355.160	66.553	297.178	Continuing	TBD
(U) Missile Procurement: PE 0305265F, BA-04, P-XX	0.000	0.000	0.000	0.000	139.484	650.029	482.004	Continuing	TBD
(U) Other Procurement: PE 0305165F, BP 83, WSC 836790, P-70; WSC 836730, P-71; BP 86 WSC 86190A, P-62	11.087	11.599	25.111	10.802	18.215	27.624	20.470	Continuing	TBD

**(U) D. Acquisition Strategy**

The Air Force is pursuing a "Block" approach to GPS III space vehicle (SV) development and the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach follows the "Back to Basics" space program acquisition philosophy which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach, consistent with the National Security Space (NSS) 03-01 Acquisition Policy, focuses on mission success and on time delivery.

Beginning in FY09, GPS III SV development and OCX development will reside in separate Program Elements.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>				<b>PE NUMBER AND TITLE</b>				<b>PROJECT NUMBER AND TITLE</b>			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603421F GLOBAL POSITIONING SYSTEM</b>				<b>4993 GPS III</b>			

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> Prior to FY 2007 Cost	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				Cost	Award Date	Cost	Award Date	Cost	Award Date			
(U) <u>Product Development</u>												
Phase A Continuation Contracts											0.000	
Phase A Contracts - GPS III (Boeing)	CPFF	Huntington Beach, CA	31.613	74.607	Nov-06	0.000		0.000		0.000	106.220	24.257
Phase A Contracts - GPS III (Lockheed Martin)	CPFF	King of Prussia, PA	42.756	74.250	Nov-06	0.000		0.000		0.000	117.006	24.234
Phase A OCX (Raytheon)	CPFF	Aurora, CO	0.000	8.695	Nov-06	105.673	Nov-07	0.000		0.000	114.368	
Phase A OCX (Northrop Grumman)	CPFF	Carson, CA	0.000	8.695	Nov-06	105.673	Nov-07	0.000		0.000	114.368	
Block IIIA Subsystem Risk Reduction	CPAF	TBD	0.000	7.504	Nov-06	53.599	Nov-07	0.000		0.000	61.103	
GPS III Development PRDAs	Various	Various	7.012	6.525	Nov-06	0.000		0.000		0.000	13.537	
Mod System Engineering & Technical Support	Various	Various	93.981	84.260	Nov-06	70.867	Nov-07	0.000		0.000	249.108	
Anticipated Blk IIIA Contract	TBD	TBD	0.000	0.000		133.047	Apr-08	0.000		0.000	133.047	
Subtotal Product Development			175.362	264.536		468.859		0.000		0.000	908.757	48.491
Remarks:												
(U) <u>Support</u>												
Wing Support for GPS III / OCX	Various	Various	45.612	24.854	Nov-06	11.085	Nov-07	0.000		0.000	81.551	
Other Agency Support for GPS III/ OCX	Various	Various	14.605	2.166	Nov-06	2.901	Nov-07	0.000		0.000	19.672	
Subtotal Support			60.217	27.020		13.986		0.000		0.000	101.223	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			235.579	291.556		482.845		0.000		0.000	1,009.980	48.491

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE  
4993 GPS III

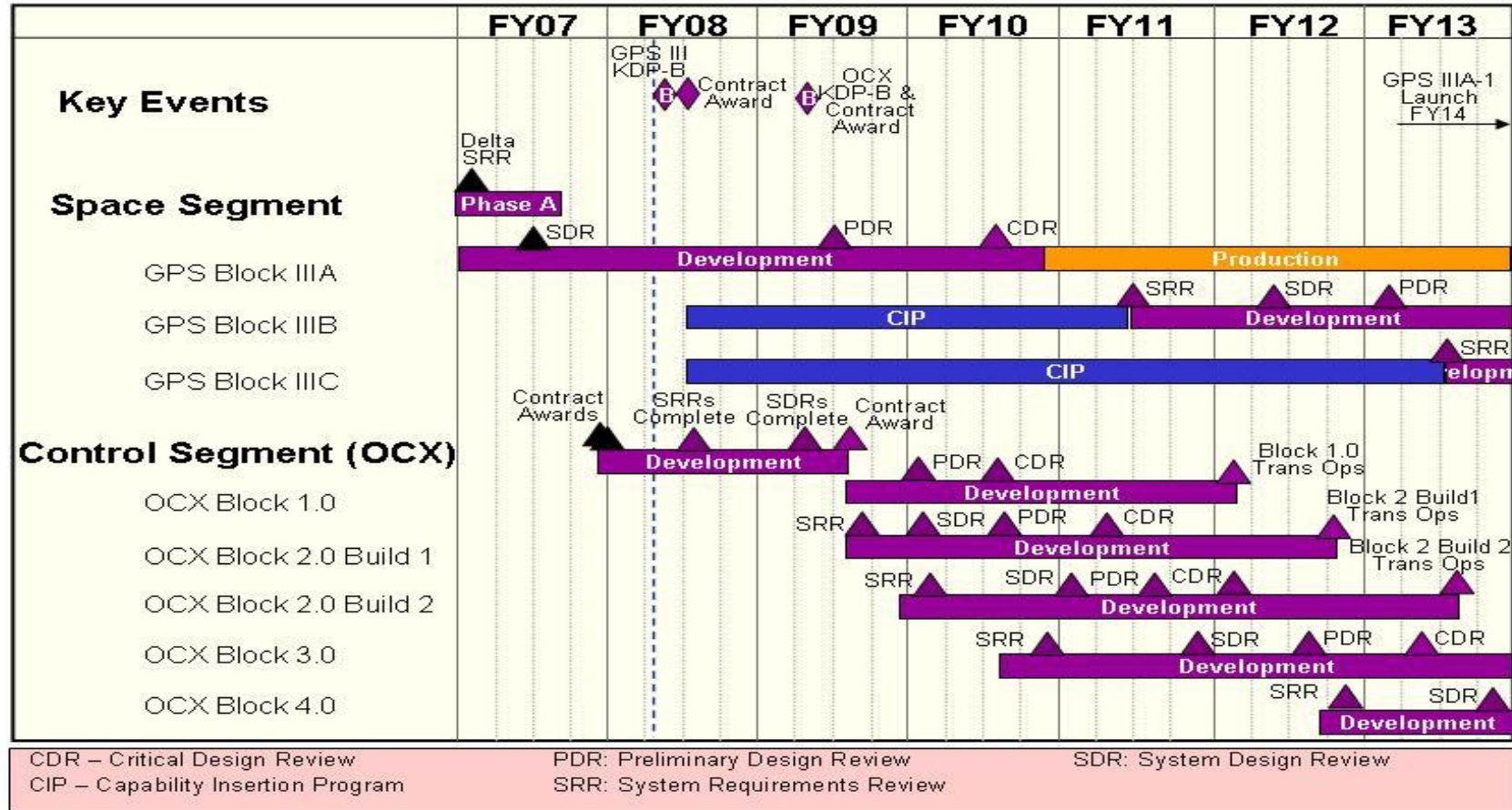


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603421F GLOBAL POSITIONING SYSTEM

PROJECT NUMBER AND TITLE

4993 GPS III

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Block IIIA Delta SRR	1Q		
(U) Block IIIA SDR	3Q		
(U) Block IIIA Award System Design Review (SDR)/Risk Reduction Contracts	4Q		
(U) OCX Award 2 Contracts		1Q	
(U) Block IIIA KDP-B		1Q	
(U) OCX SRRs		1Q	
(U) Block IIIA Contract Award		3Q	

**UNCLASSIFIED**

PE NUMBER: 0603423F

PE TITLE: Global Positioning System III - Operational Control Segment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603423F Global Positioning System III - Operational Control Segment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	2.975	236.734	359.524	330.812	310.996	0.000	0.000
A021 GPS III OCX	0.000	0.000	2.975	236.734	359.524	330.812	310.996	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program element funds the Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) productions, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate the GPS Operations Center (GPSOC) functionality into the GPS Control Segment and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development efforts.

Funding in this PE was previously part of the GPS III PE 0603421F. In the FY09 PB, OCX funding is separated out from PE 0603421F into two separate PEs for increased visibility. This PE contains funding for GPS III OCX Block II, III and IV. Funding for OCX Block I is contained in PE 0603427F, GPS Operational Control Segment Backwards Compatibility.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	2.975
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603423F Global Positioning System III - Operational Control Segment

OCX funding transferred from PE 0604321F beginning in FY09.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603423F Global Positioning System III - Operational Control Segment</b>			<b>PROJECT NUMBER AND TITLE</b> <b>A021 GPS III OCX</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A021 GPS III OCX	0.000	0.000	2.975	236.734	359.524	330.812	310.996	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program element funds the Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) productions, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate the GPS Operations Center (GPSOC) functionality into the GPS Control Segment and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities. Funds will support science and technology, technology development and systems development efforts.

Funding in this PE was previously part of the GPS III PE 0603421F. In the FY09 PB, OCX funding is separated out from PE 0603421F into two separate PEs for increased visibility. This PE contains funding for GPS III OCX Block II, III and IV. Funding for OCX Block I is contained in PE 0603427F, GPS Operational Control Segment Backwards Compatibility.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) OCX Block II Development	0.000	0.000	2.975
(U) Total Cost	0.000	0.000	2.975

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0305165F Navstar GPS (Space) (Project 673030; BA-07; R-179)	160.555	119.089	91.277	56.335	35.414	35.699	36.417	Continuing	TBD
(U) PE 0603421F Global Positioning	291.556	482.845	0.000	0.000	0.000	0.000	0.000	0.000	774.401

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603423F Global Positioning System III - Operational Control Segment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A021 GPS III OCX</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

System (Project 644993; BA-04; R-38)										
(U) PE 0603427F GPS Operational Control Segment Backwards Compatibility (Project 64A022; BA-04; R-XX)	0.000	0.000	304.360	212.962	0.000	0.000	0.000	0.000	517.322	
(U) PE 0305265F GPS III Space Segment (Project 67A019; BA-04; R-XX)	0.000	0.000	420.342	284.973	262.810	299.210	247.075	Continuing	TBD	
(U) Other APPN										
(U) Operations and Maintenance: PE 030165F, BA 1, SAG 11M, 13D	62.936	77.264	83.326	92.168	98.214	100.103	102.492	Continuing	TBD	
(U) Missile Procurement: PE 0305165F, BA 5, P-22, P-23	84.576	207.826	110.443	167.801	355.160	66.553	297.178	Continuing	TBD	
(U) Missile Procurement: PE 0305265F, BA 5, P-XX	0.000	0.000	0.000	0.000	139.484	650.029	482.004	Continuing	TBD	
(U) Other Procurement: PE 0305165F, BP 83, WSC 836790, P-70; WSC 836730, P-71; BP 86, WSC 86190A, P-62	11.087	11.599	25.111	10.802	18.215	27.624	20.470	Continuing	TBD	

**(U) D. Acquisition Strategy**

The Air Force is pursuing a "Block" approach to the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach follows the "Back to Basics" space program acquisition philosophy which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach, consistent with the National Security Space (NSS) 03-01 Acquisition Policy, focuses on mission success and on time delivery.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603423F Global Positioning System III - Operational Control Segment</b>					<b>A021 GPS III OCX</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
TBD	TBD	TBD	0.000	0.000		0.000		2.975	Nov-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		2.975		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		2.975		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603423F Global Positioning System  
III - Operational Control Segment

PROJECT NUMBER AND TITLE  
A021 GPS III OCX

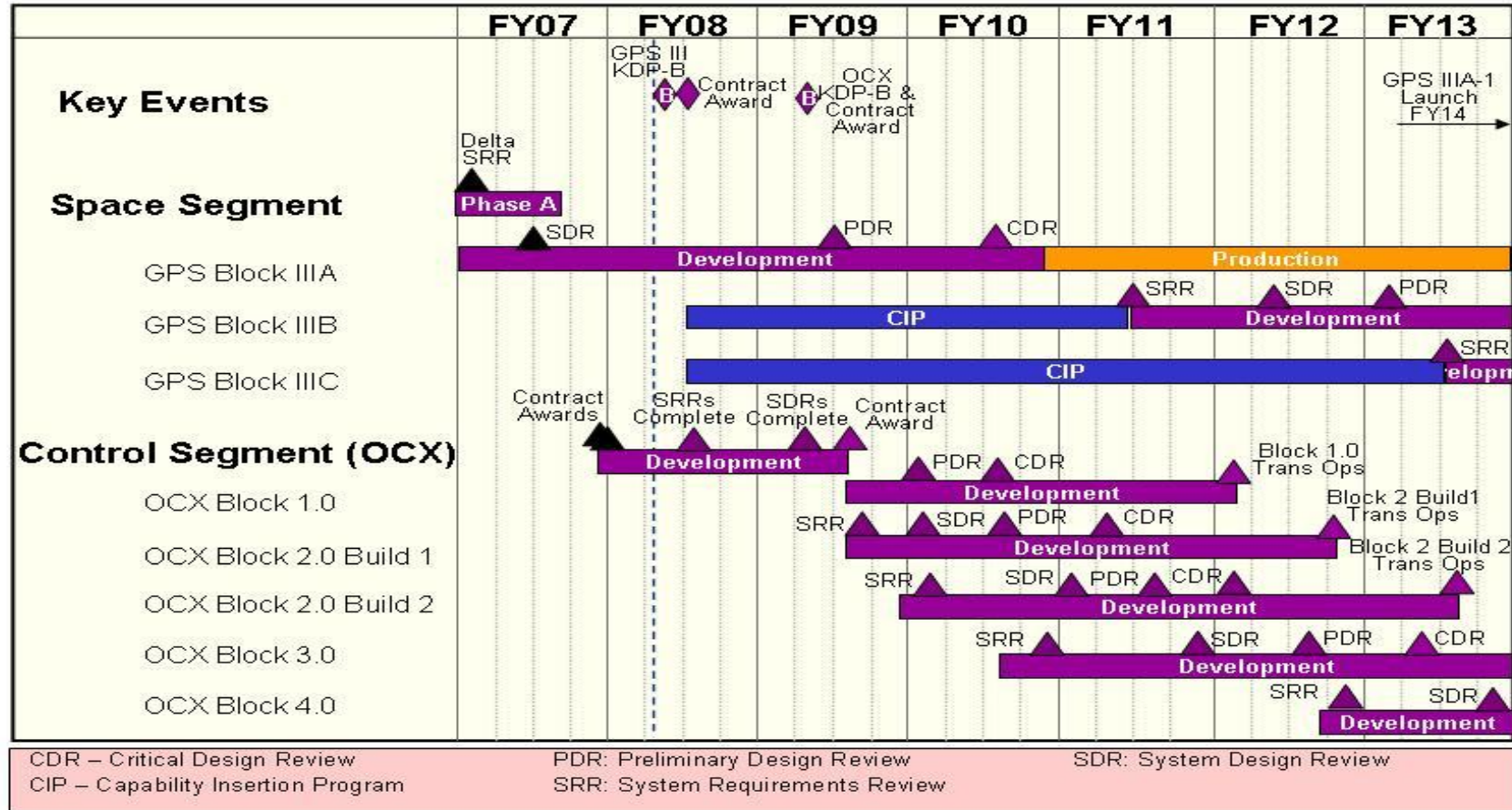


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603423F Global Positioning System  
III - Operational Control Segment

PROJECT NUMBER AND TITLE

A021 GPS III OCX

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U)

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PE NUMBER: 0603427F

PE TITLE: GPS Operational Control Segment Backwards Compatibility

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603427F GPS Operational Control Segment Backwards Compatibility</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	304.360	212.962	0.000	0.000	0.000	0.000	0.000
A022 GPS III OCX Block I	0.000	0.000	304.360	212.962	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for the next generation GPS control segment (OCX Block I). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) productions, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate the GPS Operations Center (GPSOC) functionality into the GPS Control Segment, and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

Funding in this PE was previously part of the GPS III PE 0603421F. In the FY09 PB, OCX funding is separated out from PE 0603421F into two separate PEs for increased visibility. This PE contains funding for OCX Block I only. Funding for OCX Blocks II, III and IV is contained in PE 0603423F, Global Positioning System III Operational Control Segment.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	304.360
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
OCX Block I funding transferred from PE 0604321F beginning in FY09.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603427F GPS Operational Control Segment Backwards Compatibility</b>		PROJECT NUMBER AND TITLE <b>A022 GPS III OCX Block I</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A022 GPS III OCX Block I	0.000	0.000	304.360	212.962	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for the next generation GPS control segment (OCX Block I). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) productions, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate the GPS Operations Center (GPSOC) functionality into the GPS Control Segment, and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

Funding in this PE was previously part of the GPS III PE 0603421F. In the FY09 PB, OCX funding is separated out from PE 0603421F into two separate PEs for increased visibility. This PE contains funding for OCX Block I only. Funding for OCX Blocks II, III and IV is contained in PE 0603423F, Global Positioning System III Operational Control Segment.

This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is in Phase A (Concept Development).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) OCX Block I Development	0.000	0.000	275.031
(U) Program Support	0.000	0.000	29.329
(U) Total Cost	0.000	0.000	304.360

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0305165F Navstar GPS (Space) (Project 673030; BA-07; R-179)	160.555	119.089	91.277	56.335	35.414	35.699	36.417	Continuing	TBD
(U) PE 0603421F Global Positioning System (Project 644993; BA-04;	291.556	482.845	0.000	0.000	0.000	0.000	0.000	0.000	774.401



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>							<b>DATE</b> <b>February 2008</b>			
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603427F GPS Operational Control Segment Backwards Compatibility</b>			<b>PROJECT NUMBER AND TITLE</b> <b>A022 GPS III OCX Block I</b>			

**(U) C. Other Program Funding Summary (\$ in Millions)**

R-38)										
(U)	PE 0603423F, Global Positioning System III Operational Control Segment (Project 64A021; BA-04; R-XX)	0.000	0.000	2.975	236.734	359.524	330.812	310.996	Continuing	TBD
(U)	PE 0305265F GPS III Space Segment (Project 67A019; BA-04; R-XX)	0.000	0.000	420.342	284.973	262.810	299.210	247.075	Continuing	TBD
(U)	Other APPN									
(U)	Operations and Maintenance: PE 030165F, BA 1, SAG 11M, 13D	62.936	77.264	83.326	92.168	98.214	100.103	102.492	Continuing	TBD
(U)	Missile Procurement (PE 0305165F, BA 5 - Space and Other Support, P-22, P-23)	84.576	207.826	110.443	167.801	355.160	66.553	297.178	Continuing	TBD
(U)	Missile Procurement (PE 0305265F, BA 5 - Space and Other Support, P-XX)	0.000	0.000	0.000	0.000	139.484	650.029	482.004	Continuing	TBD
(U)	Other Procurement (PE 0305165F, BP 83 Electronics and Telecommunications Equipment, WSC 836790, P-70, WSC 836730, P-XX, BP 86, Spares and Repair Parts WSC 86190A, P-62)	11.087	11.599	25.111	10.802	18.215	27.624	20.470	Continuing	TBD

**(U) D. Acquisition Strategy**

The Air Force is pursuing a "Block" approach to the GPS III next generation control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition approach follows the "Back to Basics" space program acquisition philosophy which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach, consistent with the National Security Space (NSS) 03-01 Acquisition Policy, focuses on mission success and on time delivery. The first block of GPS III ground control segment (OCX) will provide backwards compatibility to GPS Block II capability.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603427F GPS Operational Control Segment Backwards Compatibility</b>					<b>A022 GPS III OCX Block I</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Phase A OCX Development	CPFF	Carson, CA	0.000	0.000		0.000		121.750	Nov-08	Continuing	TBD	
Phase A OCX Development SE&I (SAIC)	CPFF	Aurora, CO	0.000	0.000		0.000		121.750	Nov-08	Continuing	TBD	
	CPAF	Huntington Beach, CA	0.000	0.000		0.000		10.036	Nov-08	Continuing	TBD	
Modernization/SE & Technical Support	Various	Various	0.000	0.000		0.000		21.495	Nov-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		275.031		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Wing Support	Various	Various	0.000	0.000		0.000		25.817		Continuing	TBD	
Other Agency Support	Various	Various	0.000	0.000		0.000		3.512		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		29.329		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		304.360		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603427F GPS Operational Control  
Segment Backwards Compatibility

PROJECT NUMBER AND TITLE  
A022 GPS III OCX Block I

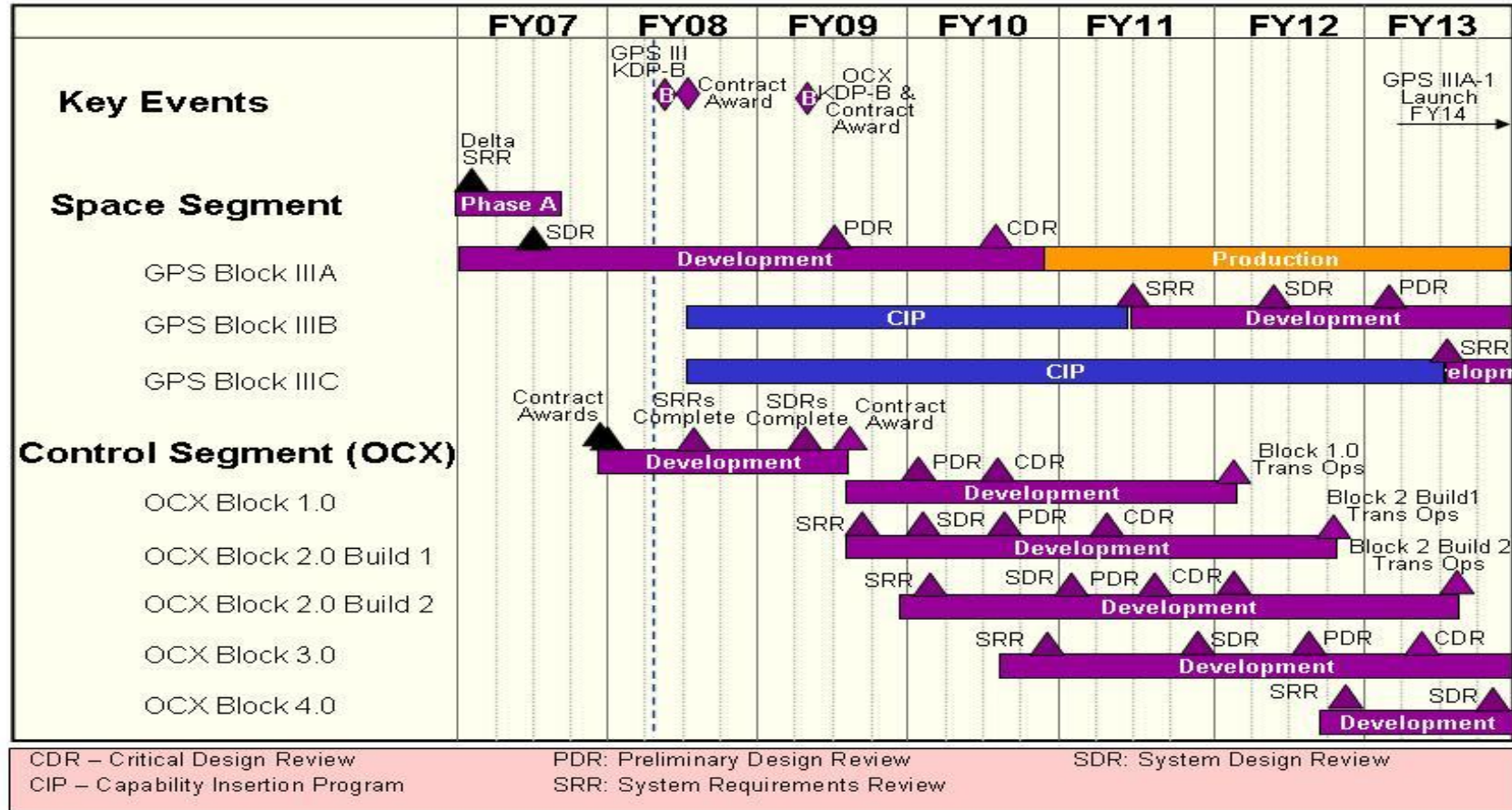


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603427F GPS Operational Control  
Segment Backwards Compatibility

PROJECT NUMBER AND TITLE

A022 GPS III OCX Block I

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) System Design Review

2Q

(U) Key Decision Point (KDP)-B

2Q

**UNCLASSIFIED**

PE NUMBER: 0603430F

PE TITLE: Advanced (EHF MILSATCOM (Space))

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603430F Advanced (EHF MILSATCOM (Space))</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830
4050 Advanced MILSATCOM	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830

**(U) A. Mission Description and Budget Item Justification**

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighters. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

In 2004, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. The recent Department of Defense Quadrennial Defense Review's approach was to buy three AEHF satellites and use the first TSAT satellite to complete an eXtended Data Rate (XDR) constellation. However, in the FY08 Appropriations Act, Congress directed the Department to purchase a fourth satellite and appropriated advance procurement.

The FY09PB funds satellite 1 launch and on-orbit testing; satellite 2 integration and test, launch, and on-orbit testing; technology needs forecasting; and incremental Mission Control Segment (MCS) integration and test/fielding.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	630.868	603.179	363.582
(U) Current PBR/President's Budget	617.294	599.353	388.041
(U) Total Adjustments	-13.574		
(U) Congressional Program Reductions			
Congressional Rescissions		-3.826	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-13.574		

**(U) Significant Program Changes:**

FY09 funds added to address AEHF 1 & 2 launch delays resulting from integration and test problems.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>		PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4050 Advanced MILSATCOM	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighters. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

In 2004, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. The recent Department of Defense Quadrennial Defense Review's approach was to buy three AEHF satellites and use the first TSAT satellite to complete an eXtended Data Rate (XDR) constellation. However, in the FY08 Appropriations Act, Congress directed the Department to purchase a fourth satellite and appropriated advance procurement.

The FY09PB funds satellite 1 launch and on-orbit testing; satellite 2 integration and test, launch, and on-orbit testing; technology needs forecasting; and incremental Mission Control Segment (MCS) integration and test/fielding.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue such efforts as SDD of the AEHF satellites and MCS, continue build of Satellite 1 and 2 flight hardware, and intermediate software increments for bus, payload and MCS	529.185	530.972	342.112
(U) Continue satellite cryptographic development	20.688	21.338	5.765
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	19.530		
(U) Government Furnished Property (such as, but not limited to Launch Prep, Radiation Hardening Testing, Communication Circuit)	3.302	4.429	2.025
(U) Continue Technical Analysis	22.135	21.684	22.551
(U) Continue Program Office and related support activities, such as, but not limited to, Systems Engineering and Integration	22.454	20.930	15.588
(U) Total Cost	617.294	599.353	388.041

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>	PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related Proc:									
(U) MPAF, PE 0303604F, Advanced EHF, P-17/18	0.000	124.894	16.564	826.635	22.098	12.277	34.056	Continuing	TBD
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-52	15.532	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD
(U) OPAF, PE 0303600F WGS, Project #836780, CCS-C	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	17.667
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-175	341.487	494.346	443.165	620.402	729.972	783.652	744.781	Continuing	TBD

**(U) D. Acquisition Strategy**

The Advanced MILSATCOM, also known as Advanced EHF (AEHF), program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of the satellite payload). This team will perform the Advanced Component Development and Prototypes (ACD&P) and SDD of three satellites and associated mission command and control ground capabilities under Cost Plus Award Fee line items on the contract. AEHF will incorporate lessons learned and improvements from Milstar and commercial SATCOM practices into the next generation EHF secure, anti-jam military communications satellite system.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603430F Advanced (EHF MILSATCOM (Space))</b>					<b>4050 Advanced MILSATCOM</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
NSA	MIPR	Camden, NJ	204.302	20.688	Dec-06	21.338	Dec-07	5.765	Dec-08	0.000	252.093	
JTEO	PR	San Diego, CA	15.491							0.000	15.491	
MIT/LL	MIPR	Hanscom AFB, MA	4.988							0.000	4.988	
Hughes	CPFF	El Segundo, CA	67.175							0.000	67.175	
TRW	CPFF	Redondo Beach, CA	62.083							0.000	62.083	
Various	Various	Various	66.659							0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011							0.000	225.011	
Hughes	FFP	El Segundo, CA								0.000	0.000	
SDD Contractor (Lockheed Martin)	CPAF		2,876.749	529.185	Dec-06	530.972	Dec-07	342.112	Dec-08	Continuing	TBD	
Radiation Hardened parts developers	Various		79.000	19.530							98.530	
Subtotal Product Development			3,601.458	569.403		552.310		347.877		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Various	Various		123.696							Continuing	TBD	
Technical Support			21.590	22.135	Dec-06	21.684	Dec-07	22.551	Dec-08	Continuing	TBD	
GFP			2.848	3.302		4.429		2.025		Continuing	TBD	
Program Office Support			52.549	22.454		20.930		15.588		Continuing	TBD	
Subtotal Support			200.683	47.891		47.043		40.164		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			3,802.141	617.294		599.353		388.041		Continuing	TBD	0.000



Exhibit R-4, RDT&E Schedule Profile

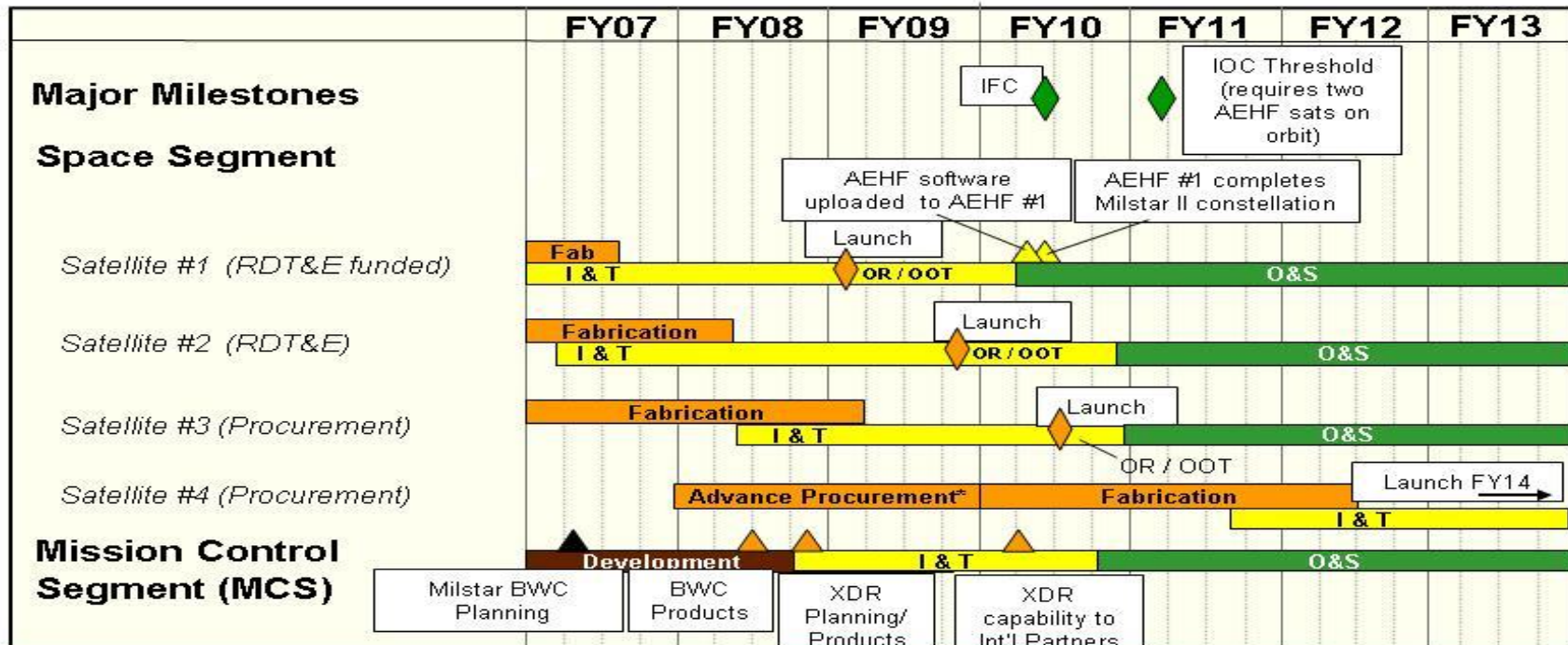
DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603430F Advanced (EHF MILSATCOM (Space)

PROJECT NUMBER AND TITLE  
4050 Advanced MILSATCOM



XDR: eXtended Data Rate    I&T: Integrate & Test    IFC: Initial Fielded Capability    BWC: Backwards Compatibility  
 IOC: Initial Operational Capability    O&S: Operations & Sustainment    OR/OOT: Orbit Raising /On-orbit Test

■ Concept activities    ■ Design / development    ■ Integration / test  
■ Production / fielding    ■ Operations / sustainment    △◇ Key events

\*Parts Obsolescence study for fourth AEHF satellite begins Jan 08, long-lead parts contract Award will follow.

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>	PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>
--	---	--

(U) <b>Schedule Profile</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Fielded Ground Segment Software Increment 3 (World-wide Planning for Resource Allocation of 5 Milstar payloads and 1st AEHF Comm Payload)	2Q		
(U) Payload delivered for integration onto Space Vehicle	2Q		
(U) Field Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5 Milstar satellites and 1 AEHF satellite)		2Q	
(U) Launch first AEHF satellite			1Q
(U) Field Ground Segment Software Increment 5 (XDR Planning/Products)		4Q	
(U) Launch second AEHF satellite			4Q

**UNCLASSIFIED**

PE NUMBER: 0603432F  
 PE TITLE: Polar MILSATCOM (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603432F Polar MILSATCOM (Space)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.983	177.535	237.749	257.059	168.738	106.544	57.292	Continuing	TBD
4052 Polar Satellite Communications	33.983	177.535	237.749	257.059	168.738	106.544	57.292	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Through FY05, Polar Satellite Communications had funded three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two packages are on-orbit, and the final LDR package will be available in FY08. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, Polar Satellite Communications began funding the next generation capability with two more polar packages via the same host (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document, Joint Requirements Oversight Council approved in September 2006, is based on a two-package, hosted XDR program with operational availability in FY14 and FY16. FY09 funds will complete the EPS package development and initiate fabrication of the two hosted EPS packages (EPS #1 and EPS #2); pursue technology needs forecasting; and begin development for the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 8 Dec 07 USD(AT&L) memorandum to develop the enhanced polar hosted solution.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	35.470	178.754	244.127
(U) Current PBR/President's Budget	33.983	177.535	237.749
(U) Total Adjustments	-1.487		
(U) Congressional Program Reductions		-0.086	
Congressional Rescissions		-1.133	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-1.487		
(U) <u>Significant Program Changes:</u>			
None.			

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603432F Polar MILSATCOM (Space)</b>			PROJECT NUMBER AND TITLE <b>4052 Polar Satellite Communications</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4052 Polar Satellite Communications	33.983	177.535	237.749	257.059	168.738	106.544	57.292	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti jam, anti scintillation, and low probability of intercept) for users in the north polar region.

Through FY05, Polar Satellite Communications had funded three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two packages are on-orbit, and the final LDR package will be available in FY08. Two satellites with hosted packages are required to provide the necessary 24 hour coverage.

Beginning FY06, Polar Satellite Communications began funding the next generation capability with two more polar packages via the same host (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology and the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document, Joint Requirements Oversight Council approved in September 2006, is based on a two-package, hosted XDR program with operational availability in FY14 and FY16. FY09 funds will complete the EPS package development and initiate fabrication of the two hosted EPS packages (EPS #1 and EPS #2); pursue technology needs forecasting; and begin development for the associated ground segment.

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 8 Dec 07 USD(AT&L) memorandum to develop the enhanced polar hosted solution.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Conduct requirements analyses and design trade studies for Enhanced Polar packages and associated ground segment	28.921	6.000	31.654
(U) Continue efforts such as, but limited to, design and development of Enhanced Polar packages		158.839	188.459
(U) Provide Program Office Support (such as, but not limited to other related support activities, including Systems Engineering and Integration)	3.129	4.095	4.035
(U) Provide Technical Analysis	1.933	3.601	3.601
(U) Government Furnished Property (such as, but not limited to Launch Prep, Radiation Hardened Testing, Communication Circuit)		5.000	10.000
(U) Total Cost	33.983	177.535	237.749

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) None.  
The Navy has used its own PE(s) to modify control systems and terminals to work with the Interim Polar System.

(U) **D. Acquisition Strategy**

Previously, the Air Force sent funds directly to the classified host program office to modify the host satellite system contract to include three Interim Polar (Low Data Rate) packages. The host program office had total acquisition responsibility for Interim Polar System (IPS).

The Enhanced Polar System (EPS) is the follow-on to the currently operational IPS and is a key component of the Extremely High Frequency SATCOM architecture providing secure, protected communications to worldwide users. The EPS acquisition will consist of four segments (Payload, Mission Control, Gateway, and Terminal) acquired by separate procurement actions. The Terminals used by EPS will be acquired by each Service's Terminal Program Office. The MILSATCOM Systems Wing (MCSW) will procure the Mission Control and Gateway segments. The EPS payloads will be hosted on a classified satellite and acquired by the organization hosting the EPS payloads.

Under the direction of the Program Executive Officer for Space, the EPS Program Office is developing the EPS Acquisition Strategy through studies and activities leading to a 1QFY09 Defense Space Acquisition Board for Key Decision Point B entry approval. Based on the successful December 2007 Acquisition Strategy review and an 8 December 2007 signed Acquisition Decision Memorandum, the classified host program office will award a contract to the host prime contractor for the design, procurement, and integration of two EPS packages during 2QFY08.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603432F Polar MILSATCOM (Space)</b>					<b>4052 Polar Satellite Communications</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Classified	Classified		299.594								299.594		
EPS Requirement Analyses and Design Trade Studies	Various	Various	4.412	28.921	Dec-06	6.000	Dec-07	31.654	Dec-08		70.987		
EPS Design/Development Contract	TBD	TBD	0.000			158.839	Mar-08	188.459	Dec-08	Continuing	TBD		
Subtotal Product Development			304.006	28.921		164.839		220.113		Continuing	TBD	0.000	
Remarks:													
(U) <u>Support</u>													
Technical Support	Various		0.000	1.933	Dec-06	3.601	Dec-07	3.601	Dec-08	Continuing	TBD		
Program Office Support	Various		1.616	3.129	Dec-06	4.095	Dec-07	4.035	Dec-08	Continuing	TBD		
Govt Furnished Property	Various	Various				5.000		10.000			15.000		
Subtotal Support			1.616	5.062		12.696		17.636		Continuing	TBD	0.000	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
N/A											0.000		
N/A											0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) <u>Management</u>													
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			305.622	33.983		177.535		237.749		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

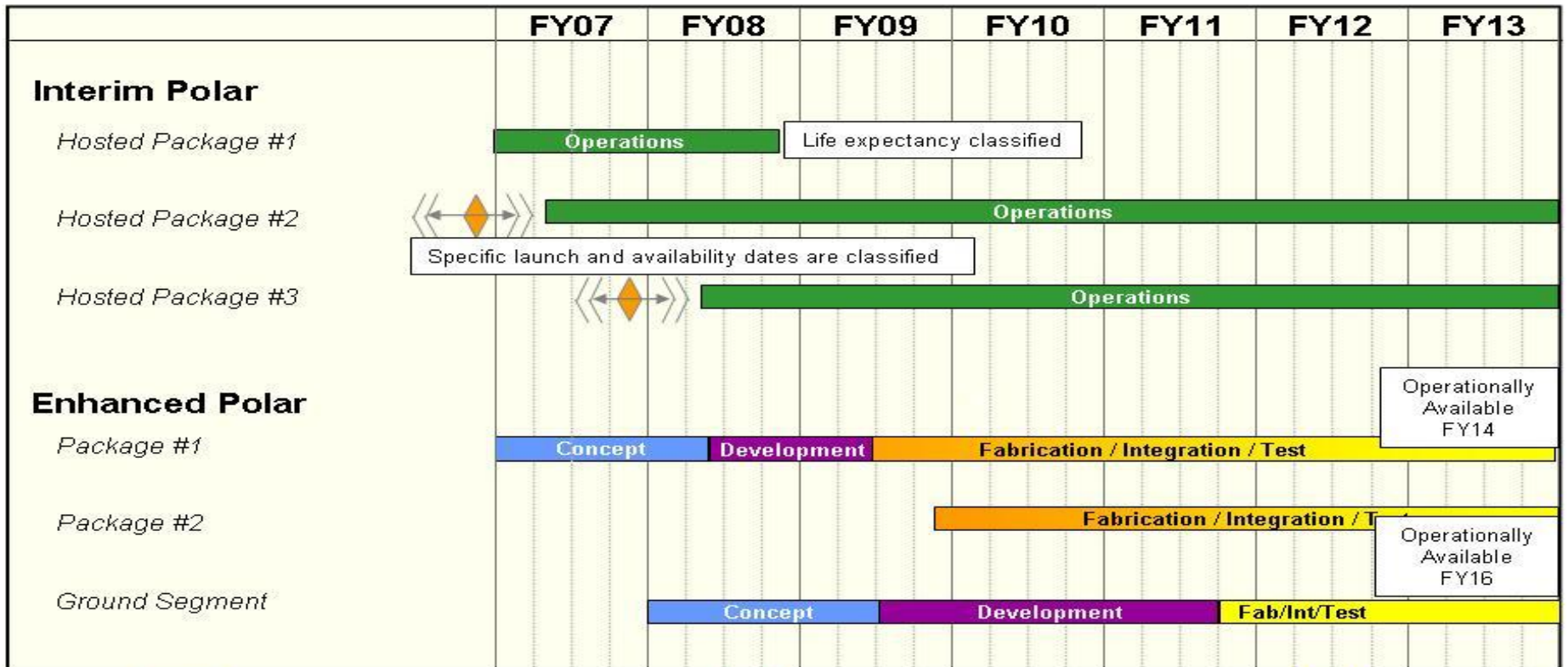
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications



■ Concept activities     
 ■ Design / development     
 ■ Integration / test  
■ Production / fielding     
 ■ Operations / sustainment     
 △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

PROJECT NUMBER AND TITLE

4052 Polar Satellite Communications

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Begin design and development of Enhanced Polar packages

2Q

(U) Begin ground segment concept studies

1Q

(U) Begin fabrication of first Enhanced Polar package

2Q

(U) Begin design and development of the ground segment

2Q

(U) Begin fabrication of second Enhanced Polar package

4Q



**UNCLASSIFIED**

PE NUMBER: 0603438F  
 PE TITLE: Space Control Technology

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.605	66.182	76.845	78.337	54.706	55.770	56.891	Continuing	TBD
2611 Technology Insertion Planning and Analysis	17.924	54.195	55.235	56.240	32.247	32.875	33.536	Continuing	TBD
A007 Space Range	5.681	11.987	21.610	22.097	22.459	22.895	23.355	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), Offensive Counterspace (OCS) and Command and Control and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and terrestrial based space capabilities. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to warfighter needs. Rapid Reaction Capabilities in response to immediate warfighter needs are developed within this program.

Also supported is the development of the technology and infrastructure for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

As a result of an FY08 \$25M Congressional add, the Air Force began the Self Awareness Space Situation Awareness (SASSA) technology demonstration that will build a payload to provide tactical space situational awareness (SSA) around a host satellite. SASSA is designed to demonstrate the ability to detect attacks, locate attacking sources, and communicate relevant information to the ground. SASSA will contain a suite of threat warning sensors designed to address a range of anti-satellite and environmental threats. SASSA will also have a communication package and common interface unit that eases integration and performs on-board sensor data processing. The interface unit and sensors can be configured into tailored sensing payloads for future space missions.

These projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603438F Space Control Technology

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	30.107	37.604	52.821
(U) Current PBR/President's Budget	23.605	66.182	76.845
(U) Total Adjustments	-6.502		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.422	
Congressional Increases		29.000	
Reprogrammings	-5.800		
SBIR/STTR Transfer	-0.702		
(U) <b><u>Significant Program Changes:</u></b>			
FY 2008: +\$25M Congressional add for Self Awareness Space Situation Awareness (SASSA)			
+\$4M Congressional add for Multi-mission Deployable Optical System (MDOS)			
FY 2009: +\$25M Air Force add to continue SASSA program			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)			0603438F Space Control Technology				2611 Technology Insertion Planning and Analysis		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2611 Technology Insertion Planning and Analysis	17.924	54.195	55.235	56.240	32.247	32.875	33.536	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), Offensive Counterspace (OCS) and Command and Control and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and terrestrial based space capabilities. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to warfighter needs. Rapid Reaction Capabilities in response to immediate warfighter needs are developed within this program.

Also supported is the development of the technology and infrastructure for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

As a result of an FY08 \$25M Congressional add, the Air Force began the Self Awareness Space Situation Awareness (SASSA) technology demonstration that will build a payload to provide tactical space situational awareness (SSA) around a host satellite. SASSA is designed to demonstrate the ability to detect attacks, locate attacking sources, and communicate relevant information to the ground. SASSA will contain a suite of threat warning sensors designed to address a range of anti-satellite and environmental threats. SASSA will also have a communication package and common interface unit that eases integration and performs on-board sensor data processing. The interface unit and sensors can be configured into tailored sensing payloads for future space missions.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2611 Technology Insertion Planning and Analysis</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies	1.289	4.899	5.460
(U) Defensive Counterspace efforts. Continue vulnerability assessments, development and demonstration of advanced techniques and technologies for space control prevention systems	7.308	13.127	11.842
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, critical signal processing technology and advanced counter surveillance, reconnaissance techniques.	0.000	0.000	0.000
(U) Continue Counterspace C2 efforts	0.000	0.000	1.515
(U) Continue to conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.	6.251	5.772	5.897
(U) Self Awareness Space Situation Awareness (SASSA)	0.000	25.000	25.000
(U) Program Office and Other Technical Support	3.076	5.397	5.521
(U) Total Cost	17.924	54.195	55.235

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**  
All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2611 Technology Insertion Planning and Analysis</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
SSA Development	Various	Various	13.013	1.289	Nov-06	4.899	Jan-08	5.460	Jan-09	Continuing	TBD	TBD
DCS Activities	Various	Various	25.126	7.308	Nov-06	13.127	Jan-08	11.842	Jan-09	Continuing	TBD	TBD
OCS Development	Various	Various	42.520	0.000	Nov-06	0.000					42.520	TBD
Counterspace C2			0.000	0.000				1.515	Jan-09	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	0.000	6.251	Nov-06	5.772	Jan-08	5.897	Jan-09	Continuing	TBD	TBD
SASSA	TBD	TBD	0.000	0.000		25.000	Jun-08	25.000	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			80.659	14.848		48.798		49.714		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office and Other Technical Support	Various	SMC- EI Segundo, CA	7.952	3.076	Nov-06	5.397	Jan-08	5.521	Jan-09	Continuing	TBD	TBD
Subtotal Support			7.952	3.076		5.397		5.521		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			88.611	17.924		54.195		55.235		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

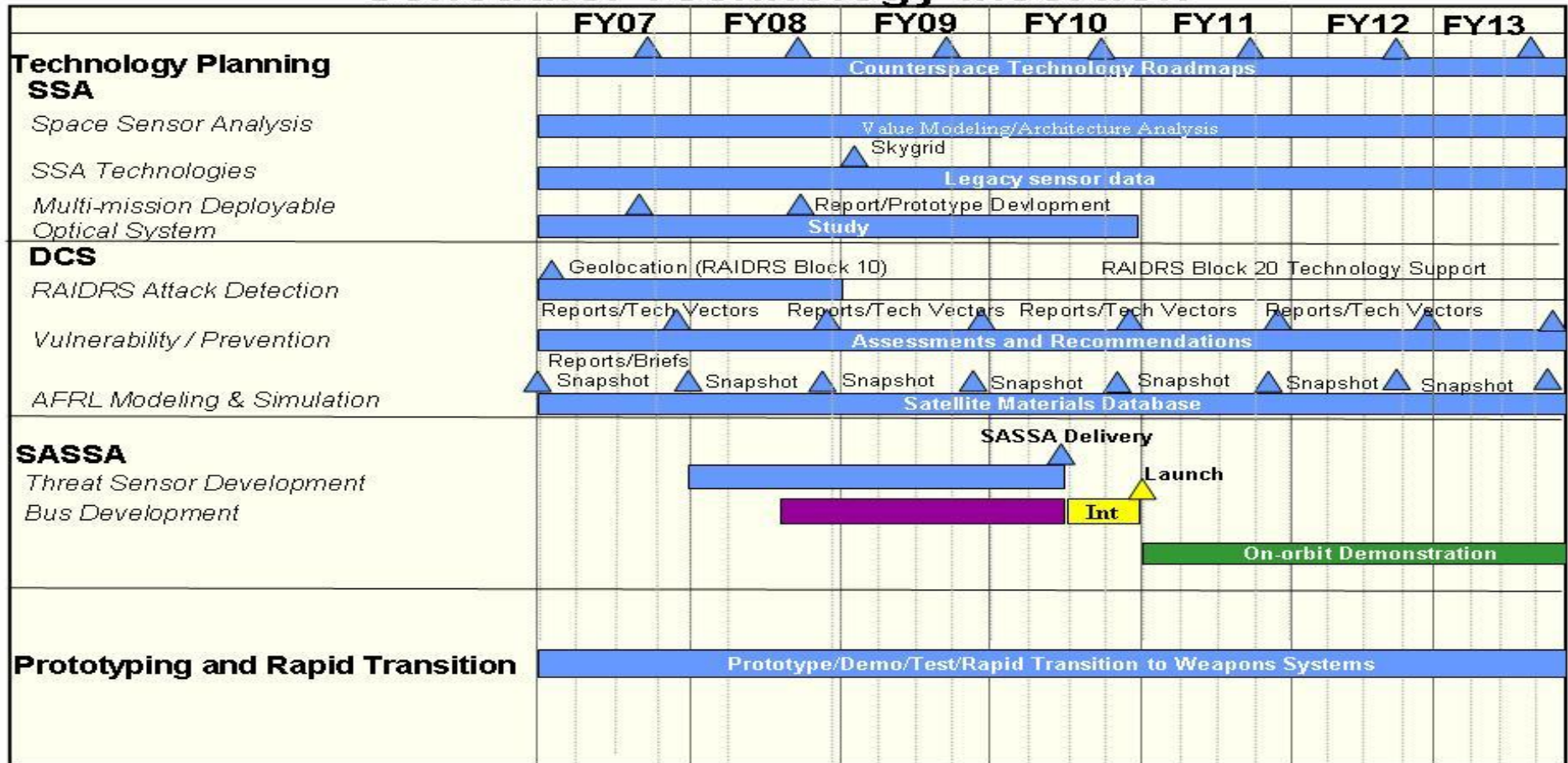
February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603438F Space Control Technology

PROJECT NUMBER AND TITLE  
2611 Technology Insertion Planning and Analysis

## SCT Schedule: Technology Insertion



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603438F Space Control Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2611 Technology Insertion Planning and Analysis</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Continue Technology Roadmaps & Planning	1-4Q	1-4Q	1-4Q
(U) SSA- Continue sensor development	1-4Q	1-4Q	1-4Q
(U) SSA - Continue Skygrid Report		4Q	
(U) SSA - Multi-mission Deployable Optical System Prototype		3Q	
(U) DCS - Continue RAIDRS/DCS technology development and evaluation	1-4Q	1-4Q	1-4Q
(U) DCS - Continue Vulnerability and threat assessment report	4Q	4Q	4Q
(U) DCS - Continue AFRL Modelling and Simulation	4Q	4Q	4Q
(U) DCS - Develop DCS Toolbox	2-4Q	1-4Q	
(U) Prototyping and Rapid Transition to Weapons Systems	1-4Q	1-4Q	1-4Q
(U) SASSA Pre-acquisition		1-3Q	
(U) SASSA Contract Award		3Q	
(U) SASSA Threat Sensors CDRs/PDRs			2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603438F Space Control Technology</b>			PROJECT NUMBER AND TITLE <b>A007 Space Range</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A007 Space Range	5.681	11.987	21.610	22.097	22.459	22.895	23.355	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program supports the development of space test and training range capabilities required to support developmental and operational test, training, exercises and tactics development for Space Control systems and related architecture.

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Test & Training Range technologies & infrastructure.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Range Control - Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities	1.248	5.414	11.620
(U) Targets - Development and acquisition of terrestrial-based and space-based target environments	2.550	2.800	6.500
(U) Threats - Development and acquisition of actual and representative threat systems and range protection and integration	0.000	1.000	0.488
(U) Program Office and Other Technical Support	1.883	2.773	3.002
(U) Total Cost	5.681	11.987	21.610

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603438F Space Control Technology</b>					<b>A007 Space Range</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>													
Leased Bandwidth	CPAF	G2 Satellite Systems, Long Beach, CA	5.360	2.550	Jan-07					0.000	7.910		
Leased Bandwidth	FFP	INTELSAT, Bethesda, MD				2.000	Dec-07	5.300	Jan-09	Continuing	TBD	TBD	
MCATS	CPAF	TMC, Las Cruces, NM	2.911	1.153	Jan-07	1.050	Jan-08				5.114		
MCATS (New Contract)	TBD	TBD				1.550	Jan-08	3.050	Jan-09	Continuing	TBD	TBD	
Signal Generation, Monitoring and Collection	TBD	TBD	4.519			2.000	Feb-08	5.500	Jan-09	Continuing	TBD	TBD	
Transportable Monitoring System (TMS II)	TBD	TBD				0.164	Mar-08	0.870	Jan-09	Continuing	TBD	TBD	
STTR Studies and Analysis	CPFF	Northrup Grumman, El Segundo, CA	0.742	0.095		2.450	Jan-08	3.888	Jan-09	Continuing	TBD	TBD	
Subtotal Product Development			13.532	3.798		9.214		18.608		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u>													
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	2.261	1.883	Dec-06	2.773	Dec-07	3.002	Dec-08	Continuing	TBD	TBD	
Subtotal Support			2.261	1.883		2.773		3.002		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
None											0.000		
None											0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) <u>Management</u>													
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			15.793	5.681		11.987		21.610		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

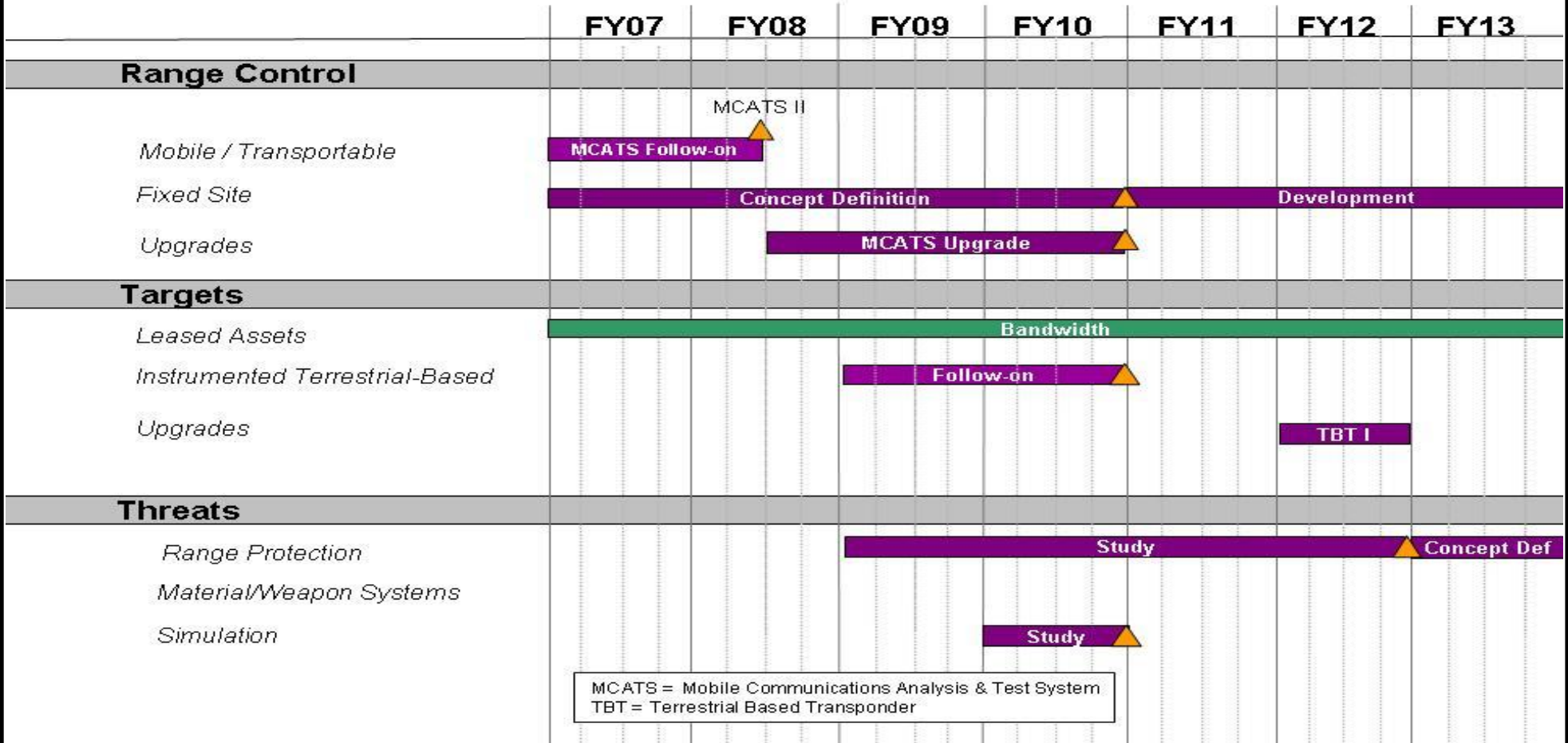
PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

A007 Space Range

STTR



MCATS = Mobile Communications Analysis & Test System  
 TBT = Terrestrial Based Transponder

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

PROJECT NUMBER AND TITLE

A007 Space Range

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) RANGE CONTROL			
(U) Develop Mobile /Transportable Systems	1-4Q	1-4Q	
(U) Deliver MCATS		2Q	
(U) Upgrade MCATS		3-4Q	1-4Q
(U) Develop fixed-site capability	1-4Q	1-4Q	1-4Q
(U) Deliver Leased Assets	1-4Q	1-4Q	1-4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>
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	Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	23.389	25.875	29.400	27.841	27.410	27.276	27.463	Continuing	TBD
2597	Noncooperative Identification Subsystems	15.819	20.135	20.396	20.740	20.919	21.310	21.735	Continuing	TBD
2599	Cooperative Identification Techniques	7.570	5.740	9.004	7.101	6.491	5.966	5.728	0.000	56.165

**(U) A. Mission Description and Budget Item Justification**

U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft, battlefield equipment and personnel in order to increase combat effectiveness and prevent fratricide. Numerous Joint needs statements, operational documents, lessons learned, and NATO requirements documents also state the need for positive combat identification (CID). High confidence CID enables combatant commanders to effectively command and control their forces in all weather and day/night.

The Combat Identification (CID) Technology program analyzes, develops, and demonstrates promising target identification technologies in order to transition them into Systems Development/Demonstration (SD/D) programs. These technologies include both cooperative and non-cooperative techniques that will improve our ability to positively identify ground and air targets in both Air-to-Surface and Air-to-Air engagements. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. These technologies include: (1) Laser Vision, an electro-optical imaging system that significantly increases ID ranges and includes (a) the Laser Target Imaging Program (LTIP) which will consist of radio-based, optical, and microwave cooperative ID systems, combat mode improvements, laser vibration development, and studies to support decisions on future work and (b) the Advanced (3D) Laser Sensing (ALS)/ATR Combat ID Program which includes advanced laser vibration, 3-dimensional LADAR, laser radar, synthetic aperture laser (SAL) radar, aided/automatic target recognition, and image fusion; (2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; (3) the High Range Resolution (HRR) algorithm development program that uses radar signals processing to increase ID range and confidence; (4) The Fusion Vision Program, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) The Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Within these programs the goal is to bring algorithm maturation to the point to allow for data fusion sufficient to support Aided Target Cueing (ATC) and Aided Target Recognition (ATR).

Current and future space-based systems can facilitate these processes leading ultimately to Aided Target Recognition (ATR) fusion and net-centric warfare. Fusion Vision focuses on combining the identifying features of several sensors that sample distinct signatures of air and surface targets, to better accomplish the CID mission. ATR focuses on development, demonstration, and integration of technologies drawing upon all available information data elements or platforms e.g. (national, tactical, fighter, bomber, ISR). The desired outcome would provide the operational-level decision maker a single, fused display of all threats or assets. These

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

technologies must provide near-real time information, to include Special Compartmented Information (SCI) and classified data information, to the operational and tactical level decision makers for both ground and airborne systems. Efforts, such as Blue Force Tracking (BFT) and Joint Blue Force Situational Awareness (JBFS), focus on development and approval of new technologies so all this information can be shared across security levels, services and with foreign participants.

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and surface-to-air setting, this program element funds the growth to Mark XIIA, the Next Generation Identification Friend or Foe (IFF) standard for NATO and Joint Services, through the development of Mode 5 capability within Mark XII equipment. IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. Mode 5 implementation within the Air Force began with the fielding of new digital Mark XII hardware capable of Mode S for Air Traffic Control (ATC), and upgradeable to Mode 5 with new cryptologic gear, processor cards, and software. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet. This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.407	26.054	26.046
(U) Current PBR/President's Budget	23.389	25.875	29.400
(U) Total Adjustments	-3.018		
(U) Congressional Program Reductions	-3.018	-0.014	
Congressional Rescissions		-0.165	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Mode 5 program increases in FY08, FY09, and FY10 fund Air Force synchronization and systems engineering effort as the AF integrates Mode 5 capability into various platforms.

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>			PROJECT NUMBER AND TITLE <b>2597 Noncooperative Identification Subsystems</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2597 Noncooperative Identification Subsystems	15.819	20.135	20.396	20.740	20.919	21.310	21.735	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Non-cooperative CID employs a number of sensing and signal processing techniques and compares the results against a database of known objects to determine identity. The non-cooperative CID techniques can be used for identifying surface or air threats from air platforms. These technologies include: (1) Laser Vision, an electro-optical imaging system that significantly increases ID ranges and includes (a) the Laser Target Imaging Program (LTIP) which will consist of th radio-based, optical, and microwave cooperative ID systems, combat mode improvements, laser vibration development, and studies to support decisions on futrue work and (b) the Advanced (3D) Laser Sensing (ALS)/ATR Combat ID Program which includes advanced laser vibration, 3-dimensional LADAR, laser radar, synthetic aperture laser (SAL) radar, aided/automatic target recognition, and image fusion; (2) Radar Vision, an air-to-ground radar imaging technique to identify objects using their radar signatures; (3) the High Range Resolution (HRR) algorithm development program that uses radar signals processing to increase ID range and confidence; (4) The Fusion Vision Program, a fusion of sensor data from multiple sources to create a higher confidence in CID of surface or air targets; and (5) The Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. The goal within these programs is to bring algorithm maturation to the point to allow for data fusion sufficient to support Aided Target Cueing (ATC) and Aided Target Recognition (ATR).

This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). It includes advanced technology demonstrations that help transition technologies from laboratory to operational use.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Transition / convert the High Range Resolution (HRR) synthetic target database developed in conjunction with National Air and Space Intelligence Center (NASIC) to the Target Signature Data Base for use on multiple platforms. Program awaiting target database development.	0.800	0.070	0.000
(U) Establish and develop the Target Signature (multispectral) Database Development Program. A robust database program of surface and air targets from various countries populated from multiple sources. Incorporate the analysis and database developed in prior years by the HRR program.	2.971	4.900	0.359
(U) Transition verified air-to-ground and air-to-air identification capabilities for reduced battle space fratricide and enhanced mission performance and develop/demonstrate promising future capabilities. Program candidates include the integration of Laser Vision/LTIP into designated platforms, to include Advanced LTIP projects, development of 1st generation Electro Optical/Automatic Target Cueing/Automatic Target Recognition (EO/ATC/ATR) Laser Vision capability, development/demonstration of advanced 3D Laser Sensing, and insertion of mature/hardened	10.229	12.589	15.239

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE

2597 Noncooperative Identification Subsystems

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b> camera technologies into alternate platforms. The Radar Vision technology applies Aided Target Recognition (ATR) algorithms to Radar Imagery and Radar Signature returns which puts target ID labels on the radar imagery and tracks using a common database of target signatures. Radar Vision is using spiral development to mature algorithms, add target signatures, and test/demonstrate. Future spirals will include hybrid algorithms, moving ground targets, advanced radar modes and frequencies, and exploitation of 3D characteristics.			
(U) Establish and develop Fusion Vision program, a fusion of sensor data from multiple sources to create a high confidence in CID of surface and air targets.	0.000	0.362	2.000
(U) Fund Air Traffic Control Radar Beacon Systems Identification Friend or Foe Mark XIIIA System (AIMS) Program Office support of the Mark XIIIA system to include current and next generation IFF equipment integration, including Mode 5 documentation and individual IFF system/box certification.	0.864	1.051	1.099
(U) Continue funding Combat Identification technology flight and other engineering support necessary for management of CID efforts.	0.923	1.080	1.113
(U) Conduct CID-related studies/demos and conferences. Execute Mode 5 IFF flight test preparations and demonstration to assess system operational capacity, interoperability, and equipment integration. Studies and demonstrations will include those directed by Joint Staff and OSD to research and evaluate a family of CID systems, linkage between airborne and ground-based non-cooperative CID technologies/systems, and quantify the relationship between CID and improved combat effectiveness.	0.032	0.083	0.586
(U) Total Cost	15.819	20.135	20.396

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		

(U) Not Applicable

(U) **D. Acquisition Strategy**

The acquisition strategy for CID programs is to investigate, develop, and transition CID capabilities via contract vehicles that provide the greatest benefit to the end-user in the areas of performance, value, and transition timeline.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2597 Noncooperative Identification Subsystems</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon Company	C/CPFF	El Segundo, CA	21.038	0.445	Nov-06					0.000	21.483	21.248
Northrop Grumman Corporation	C/CPFF	Linthicum Heights, MD	17.218	4.715	Jan-07	8.199	Oct-07	7.527	Jan-09	Continuing	TBD	TBD
Lockheed Martin	OTA	Orlando FL	15.791							0.000	15.791	15.791
Northrop Grumman Corporation (JSTARs support)	C/CPFF	Melbourne, FL	0.758	0.020	Jan-08					0.000	0.778	0.760
Science Applications Internation Corporation	SS/CPFF	Dayton, OH	22.187	1.990	Nov-06	3.559	Nov-07	0.678	Nov-08	Continuing	TBD	TBD
AIMS Program Office	MIPR/PO	Warner Robins, GA	4.076	0.864	Oct-06	1.051	Oct-07	1.099	Oct-08	Continuing	TBD	TBD
General Dynamics (formerly Veridian)	C/CPFF	Buffalo, NY	2.475	0.270	Nov-06	0.457	Nov-07	0.265	Nov-08	Continuing	TBD	TBD
Sverdrup Technology	C/CPFF	Ft Walton Beach, FL	2.372	0.849	Nov-06	0.724	Nov-07	0.540	Nov-08	Continuing	TBD	TBD
Wyle Lab Inc.	C/PO	El Segundo, CA		0.437	Apr-07						0.437	
SIREN & Litening Study	POs	SAF/FMBIB		0.794	Mar-07	0.130	Dec-07				0.924	
General Dynamics	C/CPFF	Beavercreek, OH		0.276	Aug-07	0.024	Feb-08				0.300	
Systems Research & Applications Corp	C/CPFF	Fairfax, VA		1.781	Jan-07	1.515	Nov-07				3.296	
Wyle Laboratories	C/PO	Dayton, OH	0.200	0.300	Apr-07					0.000	0.500	0.200
CISC Support	C/LH	Fairfax, VA	0.085			0.000		0.100	Feb-09	Continuing	TBD	TBD
DOE - Sandia National Labs	MIPR	Albuquerque, NM	1.090	0.370	Apr-07	0.301	Jan-08				1.761	1.090
AFIT	PO	WPAFB, OH	0.050	0.032	Nov-06	0.033	Nov-07	0.035	Nov-08	Continuing	TBD	TBD
AFRL/SNZ (Fusion Vision)	AF616	WPAFB, OH	0.000			0.362	Feb-08	2.000	Nov-08	Continuing	TBD	TBD
AFRL/SNJ (3D Laser)	AF616	WPAFB, OH	0.000	0.000		0.000		4.400	Nov-08	Continuing	TBD	TBD
Multi-Sensor DB Analysis	AF616	WPAFB, OH	0.000	0.000		0.000		0.359	Dec-08	Continuing	TBD	TBD
Combat ID Analysis	AF616	WPAFB, OH	0.000			0.050	Feb-08	0.551	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			87.340	13.143		16.405		17.554		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
SPO support	Various	Hanscom	10.538	0.939	Oct-06	1.893	Oct-07	1.950	Oct-08	Continuing	TBD	TBD
Air Force Research Laboratory	MIPR	WPAFB, OH	3.298	0.275	Oct-06	0.283	Oct-07	0.292	Oct-08	Continuing	TBD	TBD
MITRE	Various	Hanscom AFB, MA	0.914	0.283	Nov-06	0.379	Nov-07	0.300	Nov-08	Continuing	TBD	TBD
Subtotal Support			14.750	1.497		2.555		2.542		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												

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Exhibit R-3 (PE 0603742F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603742F Combat Identification Technology</b>				<b>2597 Noncooperative Identification Subsystems</b>				
46th Test Wing	MIPR/PO	Eglin AFB, FL	5.690	0.012	Apr-07	0.215	Apr-08	0.200	Apr-09	Continuing	TBD	TBD
412th Test Wing	MIPR/PO	Edwards AFB, CA	0.977	0.400	Nov-06	0.200	Apr-08	0.100	Apr-09	Continuing	TBD	TBD
Navy Systems Mgmt Activity	MIPR	Arlington, VA	0.161							0.000	0.161	0.161
Aberdeen Proving Ground	MIPR	Aberdeen Proving Ground, MD	0.075	0.025	Apr-07					0.000	0.100	0.100
Ft AP Hill	MIPR	Ft. Belvoir, VA	0.025							0.000	0.025	0.025
DIA & TSMO	MIPR	Redstone Arsenal, AL	0.058	0.077	Jun-07					0.000	0.135	0.058
Have Centaur	PO	Las Vegas, NV	0.110							0.000	0.110	0.110
Have Centaur	PO	WSMR, NM	0.055							0.000	0.055	0.055
Have Centaur	PO	Eglin AFB, FL	0.114							0.000	0.114	0.114
Naval Air Force	MIPR	San Diego, CA	0.031							0.000	0.031	0.031
JSTARS Test Facility	Suballotment	Patrick AFB, FL	0.548	0.629	Aug-07					0.000	1.177	0.548
AFRL - Northrop Grumman	C/CPFF	McLean, VA	0.000	0.036	Nov-06					0.000	0.036	0.036
ACTD JFCOM	MIPR	Norfolk, VA				0.760	Feb-08			0.760		
Subtotal Test & Evaluation			7.844	1.179		1.175		0.300		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			109.934	15.819		20.135		20.396		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603742F Combat Identification  
Technology

PROJECT NUMBER AND TITLE  
2597 Noncooperative Identification  
Subsystems

# Non-Cooperative CID Technology Schedule

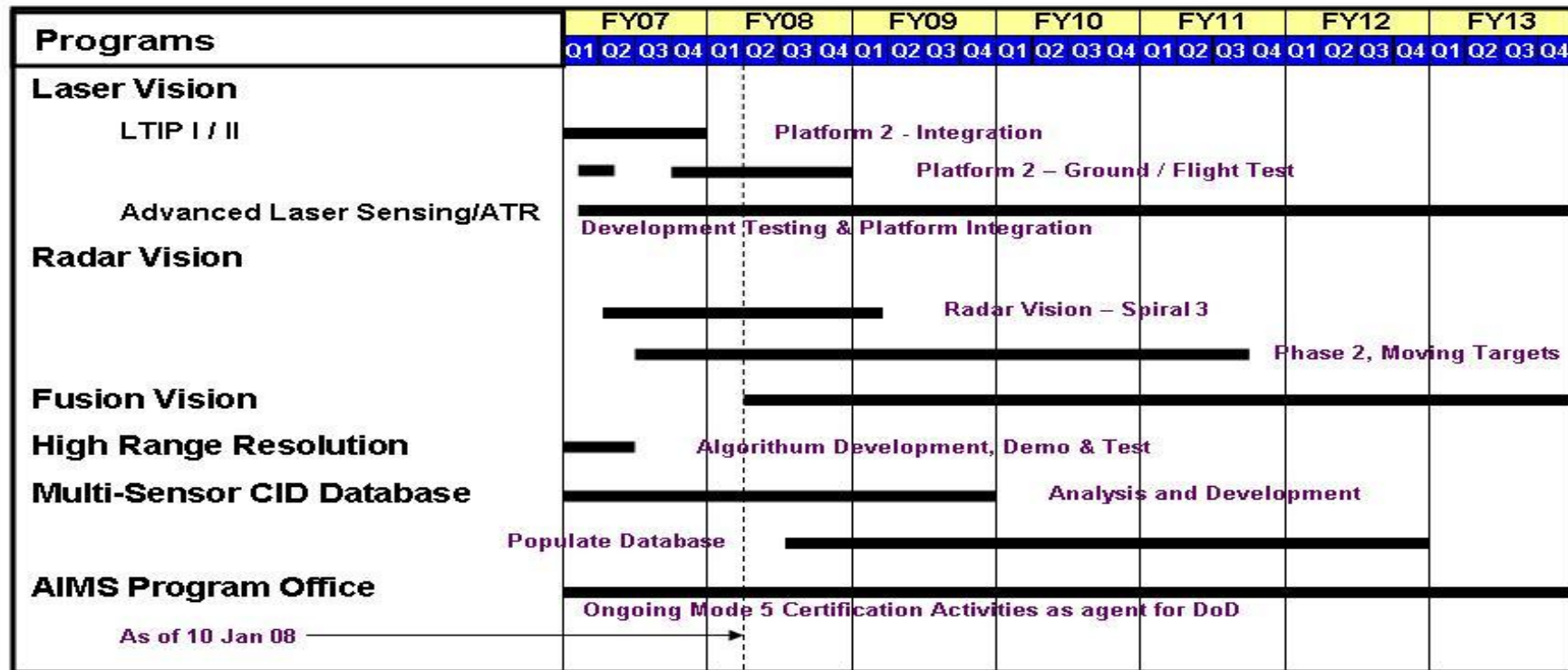


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE

2597 Noncooperative Identification Subsystems

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) LASER VISION - LTIP I / LTIP II Platform 2 Integration	1-4Q		
(U) LASER VISION - LTIP I / LTIP II Platform 2 Ground/Flt Test	1-4Q	1-4Q	
(U) LASER VISION - Advanced Laser Sensing/Aided Target Recognition	1-4Q	1-4Q	1-4Q
(U) RADAR VISION - Radar Vision Spiral 3	2-4Q	1-4Q	1Q
(U) RADAR VISION - Phase 2 - Moving Target Recognition	3-4Q	1-4Q	1-4Q
(U) FUSION VISION - AFRL Development and Demonstration		2-4Q	1-4Q
(U) HIGH RANGE RESOLUTION RADAR - Algorithm Development	1-2Q		
(U) MULTI-SENSOR CID DATABASE - Analysis & Development	1-4Q	1-4Q	1-4Q
(U) MULTI-SENSOR CID DATABASE - Database Population		3-4Q	1-4Q
(U) AIMSPO - IFF Certification Activities	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>			PROJECT NUMBER AND TITLE <b>2599 Cooperative Identification Techniques</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2599 Cooperative Identification Techniques	7.570	5.740	9.004	7.101	6.491	5.966	5.728	0.000	56.165	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Cooperative CID techniques require a system that allows rapid identification of a friendly system. In an air-to-ground setting, this can be in the form of unique markings on a vehicle or a radio-based reply that is activated by a directed signal. In both an air-to-air and surface-to-air setting, this program element funds the growth to Mark XIIA, the Next Generation Identification Friend or Foe (IFF) standard for NATO and Joint Services, through the development of Mode 5 capability within Mark XII equipment. IFF performance was highlighted as a significant deficiency in Operation Iraqi Freedom. Mode 5 implementation within the Air Force began with the fielding of new digital Mark XII hardware capable of Mode S for Air Traffic Control (ATC) and upgradeable to Mode 5 with new cryptologic gear, processor cards, and software. The development funded by this program element ensures availability of an upgrade path for implementing platforms across the Air Force fleet.

Joint Sensor Signature Database (JSSD) is a robust database program of surface and air targets from various countries populated from multiple sources. The goal is to bring algorithm maturation to the point to allow for data fusion sufficient to support Aided Target Cueing (ATC) and Aided Target Recognition (ATR).

This project is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use. Also, the project will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue the Mode 5 upgrade to the APX-119 transponder, the APX-114 interrogator, and the APX-113 Combined Interrogator/Transponder (CIT). Continue the Mode 5 upgrade to interrogators such as the UPX-40 interrogator on the AWACS. Provide systems engineering and program management to facilitate planned platform integrations, including interoperability testing.	7.570	5.740	5.554
(U) Continue development of Joint Sensor Signature Database (JSSD) while transitioning effort from Air Force Research Laboratories to National Air and Space Intelligence Center (NASIC). JSSD is a robust database program of surface and air targets from various countries populated from multiple sources. The goal is to bring algorithm maturation to the point to allow for data fusion sufficient to support Aided Target Cueing (ATC) and Aided Target Recognition (ATR).			3.450
(U) Total Cost	7.570	5.740	9.004

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603742F Combat Identification Technology

PROJECT NUMBER AND TITLE

2599 Cooperative Identification Techniques

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) D. Acquisition Strategy

To develop the Mode 5 capability in the digital Mark XII IFF equipment in or planned for use on AF platforms, and provide systems engineering and program management in order to facilitate the integration into all AF mission design series (MDS), or platforms, and transition the AF cooperative ID capability to Mark XIIA.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603742F Combat Identification Technology</b>					<b>2599 Cooperative Identification Techniques</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
BAE	C/CPFF	Greenlawn, NY	6.350	2.990	Jan-07	1.220	Jan-08	0.800	Nov-08	Continuing	TBD	TBD	
Boeing/Telephonics	C/CPFF	Farmingdale, NY	7.083					0.800	Nov-08	Continuing	TBD	TBD	
Raytheon	C/CPFF	Baltimore, MD	7.850	3.681	Mar-07	2.525	Nov-07	0.800	Nov-08	Continuing	TBD	TBD	
Joint Sensor Signature Database (JSSD)	TBD	TBD						3.450	Dec-08	Continuing	TBD	TBD	
Subtotal Product Development			21.283	6.671		3.745		5.850		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u>													
SPO Support	Various	Various	1.053	0.632	Oct-06	1.058	Oct-07	1.439	Oct-08	Continuing	TBD	TBD	
Subtotal Support			1.053	0.632		1.058		1.439		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
JFCOM	MIPR	Norfolk, VA	0.100			0.110	Mar-08	0.115	Mar-09	Continuing	TBD	TBD	
46 Test Wing	PO	Eglin AFB, FL	0.040	0.029	Jun-07	0.150	Dec-07	1.100	Mar-09	Continuing	TBD	TBD	
WR-ALC	AF616	Robins AFB, GA		0.038	Sep-07	0.177	Feb-08				0.215		
Subtotal Test & Evaluation			0.140	0.067		0.437		1.215		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u>													
Systems Engineering/Program Management (AIMS PO)	AF616	Robins AFB, GA	0.444	0.200	Feb-07	0.500	Feb-08	0.500	Feb-09	Continuing	TBD	TBD	
Subtotal Management			0.444	0.200		0.500		0.500		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			22.920	7.570		5.740		9.004		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

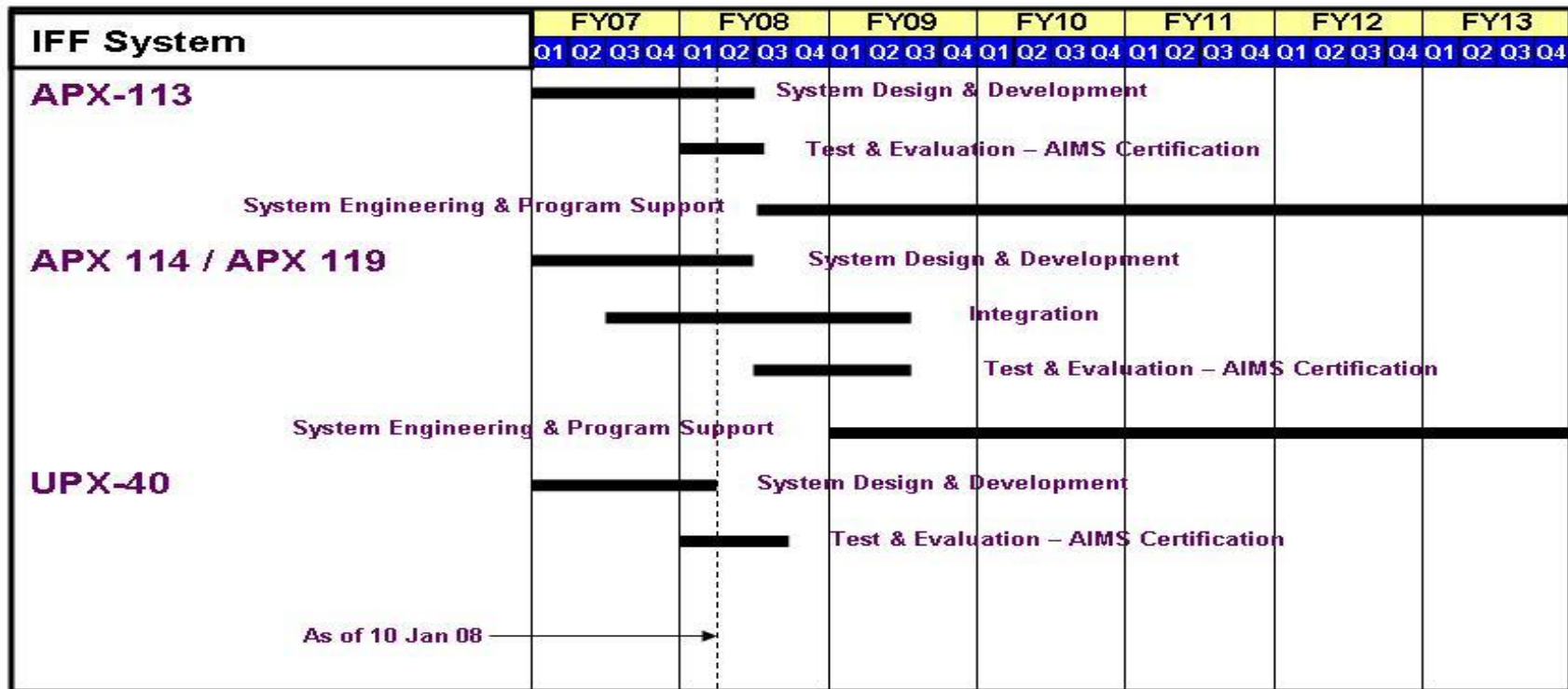
DATE  
**February 2008**

BUDGET ACTIVITY  
**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE  
**0603742F Combat Identification Technology**

PROJECT NUMBER AND TITLE  
**2599 Cooperative Identification Techniques**

## Cooperative CID Technology Schedule





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2599 Cooperative Identification Techniques</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) APX-113 - Systems Development/Demonstration	1-4Q	1-2Q	
(U) APX-113 - Test and Evaluation		1Q	
(U) APX-113 - AIMS Certification		1-3Q	
(U) APX-113 System Engineering & Program Support		3-4Q	1-4Q
(U) APX-114/APX-119 - Systems Development/Demonstration	1-4Q	1-2Q	
(U) APX-114/APX-119 - Systems Integration	3-4Q	1-4Q	1-2Q
(U) APX-114/APX-119 - Test and Evaluation		3-4Q	1-2Q
(U) APX-114/APX-119 - AIMS Certification			1-2Q
(U) APX-114 /APX-119 System Engineering & Program Support			1-4Q
(U) UPX-40 - Systems Development/Demonstration	1-4Q	1Q	
(U) UPX-40 - Test and Evaluation		1-3Q	
(U) UPX-40 - AIMS Certification		2-3Q	

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PE NUMBER: 0603790F  
 PE TITLE: NATO Cooperative R&D

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603790F NATO Cooperative R&amp;D</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.003	4.253	4.334	4.437	4.503	4.592	4.686	Continuing	TBD
NATO Nato Coop R&D	4.003	4.253	4.334	4.437	4.503	4.592	4.686	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Bahrain, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Phillipines, Taiwan and Thailand) and friendly foreign countries (Austria, Brazil, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.080	4.280	4.370
(U) Current PBR/President's Budget	4.003	4.253	4.334
(U) Total Adjustments	-0.077		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.077		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>			PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
NATO Nato Coop R&D	4.003	4.253	4.334	4.437	4.503	4.592	4.686	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Bahrain, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Phillipines, Taiwan and Thailand) and friendly foreign countries (Austria, Brazil, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Refractive Turbulence and Transient Electronic Disconnectivity (AFRL/VS / Australia) - This cooperative project falls with the AFRL/VS thrust areas of Surveillance and Force Projection, under which is the Optical Turbulence Program, a technical area driven by the operational requirements of the Airborne Laser (ABL) Program and the High Energy Laser-Joint Technology Office (HEL-JTO) AFRL/CC Memorandum for HQ AFMC/DR, stated requirement for stratospheric turbulence research and improved forecasting capability to support of U-2 and UAV operations. The projected use of directed energy weapons, high band-width laser communication (air-to-air, air-to-ground and air-to-space) and high resolution imagery from manned and unmanned aircraft requires knowledge of and the ability to forecast the location, severity, and duration of refractive turbulence structure that limit system performance.	0.200	0.000	0.000
(U) Aero-Engine Component Life Extension, Phase II (AFRL / Australia) - Ongoing cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY03, development of NDE techniques for characterization of residual stress profiles will conclude; activities to address the shortfalls in life prediction capabilities will conclude, and; the final report will be written.	0.250	0.000	0.000
(U) Hard Target Defeat (AFRL / Germany) - PA signed April 15th 1998, established the Hard Target Defeat Technology	0.200	0.000	0.000

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

Project as a Project in accordance with the Memorandum of Understanding between the Secretary of Defense on behalf of the Department of Defense of the United States of America and the Federal Minister of Defense of the Federal Republic of Germany for Research and Technology Projects. The objectives of the Hard Target Defeat (HTD) Technology Project are to investigate the lethality of conventional warheads against targets representative of hardened facilities. This new effort will be the next phase of that research and will improve the predictive accuracy of models that measure the functional degradation resulting from destruction of and/or damage to mission critical components and protective structural components due to internal and external detonations of conventional warheads. In addition, this new effort investigates methods for predicting the effect of engaging a facility containing chemical or biological materials, related research, or production equipment. The results of this proposed investigation are critical for the development, improvement and validation of computer-based methodologies used to predict the weapon effects against hard to defeat targets. Accurate predictions are necessary to provide operational command with targeting options against high value targets.

(U) Network-Centric Strike Controller (AFRL/HECP) - Planned cooperative project to design and develop interface technologies to extend the effectiveness and capabilities of Air Battle Managers (ABMs) working within a network-centric framework. Using simulated AWACS and MC2A work environments, it will make use of networked data, advance data visualization tools, knowledge and context management systems, decision-aiding and automation algorithms, and advance collaboration interface technologies. This approach will enable greater shared battlespace awareness, more efficient and effective individual and team decision-making, increased speed of command, and adaptability. Cognitive engineering and user-centered design methodologies will be employed to identify the appropriate information and interface requirement for operators working within the domain.	0.225	0.200	0.000
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research Program (AFRL / UK) - Planned cooperative project to conduct technical research to increase the level of protection to national and coalition force troops in military facilities worldwide in the event of a terrorist bombing. These research activities and full-scale experiments will involve US Air Force (USAF) and UK Home Office personnel developing and testing blast mitigating resilient structural systems for implementation into new construction and for retrofit of existing conventional facilities.	0.423	0.263	0.000
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft (AFRL / The Netherlands) - Planned project develops audio, visual, and tactile display symbology to increase situational awareness, decrease pilot workload, and reduce the risk of spatial disorientation in fast jet aircraft. Pilot-vehicle interface development is currently underway for the JSF, which will be the first USAF aircraft with a 3-D audio display capable of directionalizing the warning sounds presented to the pilot. AFRL/HE is currently researching how 3-D audio should be used, in conjunction with visual and tactile displays, to maximize pilot performance and minimize the likelihood of spatial disorientation in	0.350	0.250	0.000

Exhibit R-2a, RDT&E Project Justification		DATE February 2008		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
USAF aircraft. However, AFRL/HE is unable to evaluate its prototype display designs under the dynamic acceleration conditions that occur in maneuvering fast jet aircraft. This is a critical deficiency, because visual-vestibular and audio-vestibular interactions are known to cause sensory illusions that might enhance or compromise a pilot's ability to make use of audio and visual information presented in a cockpit display.				
(U) 3-Dimensional Laser Radar Technology and Phenomenology (AFRL / Sweden) - Planned development of FLASH (that is, a sensor that captures the entire image with a single laser pulse) 3-Dimensional laser radar receiver technology. This technology has tremendous potential for improving capabilities to quickly locate and to identify difficult targets (e.g. vehicles hidden behind camouflage or under foliage). However, the data produced by these sensors have many unique properties that do not lend themselves readily to processing and analysis using traditional algorithms and procedures. AFRL/SNJM has a program to characterize these sensors, develop metrics and procedures for quantifying the quality of these data and for extracting target identification information from these data. The results of these activities will be used to determine the utility of these sensors to address mission requirements as well as to identify technical issues that require additional development. Sweden (FOI) has had an extensive effort to develop software to model imaging laser radar performance. They have also developed tools for extracting useful information from these types of data (e.g. segmenting regions of interest from background and clutter, using filters developed from CAD data to identify targets). They have also been investigating atmospheric effects on laser propagation and data quality.		0.200	0.155	0.000
(U) Policy Enabled Coalition Communication Environment (PECC) (AFRL/IDCP) and Australia, Canada, United Kingdom - Planned cooperative project that will allow overarching "on Paper" mission objectives to be translated into a set of rules/policies (and machine executable code) which dictate the control level of resources at any level. Initially, policies capable of altering the network posture will be implemented for each INFOCON level (Normal, Alpha, Bravo, Charlie, Delta). Other policies could address operational requirements (e.g. higher network precedence given to a specific application for a short-term mission). In all cases, the cyber commander has an understandable interface for making real-time decisions. The Command and Control Enterprise Management System (C2EMS) will also be integrated to provide: real-time readiness; and understanding of how network degradation/failure impacts mission accomplishment.		0.325	0.175	0.000
(U) Material and Technologies for Laser Protection (AFRL/MLPJ) and Sweden - Planned cooperative agreement to conduct research, develop, and test passive and active laser protection materials. This will be accomplished by exchanging research expertise and novel nonlinear and electro-optic materials. Each country has specialized expertise in different aspects of passive and active laser protection materials. This exchange of materials, models and data obtained from characterization and testing experiments will facilitate the development of realistic laser protection devices. The US will provide expertise in the areas of nonlinear optical, electro-optical, and matrix		0.125	0.100	0.000

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>materials, US developed materials, experimental facilities, data, and analysis. The Swedish Defence Research Agency) will provide expertise in the area of nonlinear optical, electro-optical, and matrix materials, experimental facilities, data, and analysis. Data gathered on provided samples will be shared. The results of this ICR&amp;D project will be used by the participants, independently, in their own development of actual laser protection devices in future work.</p>			
<p>(U) Strike Information Displays (AFRL / UK) - Follow on project to The Strike Warrior Project Arrangement PA. Planned program was approved on 26 April 2000 and is valid through 26 April 2005. This PA has successfully enabled both nations to mutually develop and demonstrate several emerging display technologies. For example, off-boresight symbology improvements and the benefits of panoramic wide-field-of-view Night Vision Goggles (NVGs) over standard NVGs have both been demonstrated. As a result of this PA, there have been several "lessons learned" that serve as the justification for this follow-on proposal. This continuation effort will focus on 1) the exploitation of emerging display technologies that will enhance collaborative information sharing, and 2) the evaluation and implementation of common display symbologies that will foster increased warfighter effectiveness and achieve greater interoperability within the coalition. When considering display technologies, these areas have been identified as the greatest impediments in improving warfighter capabilities. Different phases of warfighter activity will be considered. The assessments will begin in the AWACS platform (AFRL MOLTKE lab) then migrate to Air Operations Centers and Strike Assets. Candidate collaborative display technologies will include on and off head, in and out of the cockpit, and wireless and tethered technologies.</p>	0.300	0.210	0.000
<p>(U) Theater Battle Management Core Systems (TBMCS) and NATO Air Command and Control System Interoperability Analysis and Demonstration (HQ/ESC/AC / NATO) - This planned project is to proactively design interoperability into the operational and technical architectures of the US Air Operations Center (AOC) and NATO's parallel Combined Air Operations Center (CAOC) construct, and to then develop, test and field middleware software that will support the successful prosecution of a combined/joint air operation. This 3-year co-operative effort will begin with a comprehensive study to examine the Command and Control Systems which are the operational backbone of the US AOC (Theater Battle Management Core Systems) and NATO (Air Command and Control System). The product of FY 06 activities will be a detailed analysis of each program's design, the identification of USMTF 2006 and AdatP-3 Baseline 14 message sets that will be implemented, message standards and rules application, data fields and elements structures, as well as data base designs. FY 07 efforts will concentrate on developing prototype middleware that will tested in US and NATO lab environments for potential fielding to provide a seamless exchange of NATO and US operational data used to plan and execute the air war. FY 08 funding will be to support remaining middleware development and to address network security issues and potential resolutions. In the end, the warfighters operating in coalition environments will be able to vastly reduce the time and duplicative effort currently</p>	0.150	0.150	0.150

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	FY 2007	FY 2008	FY 2009
required to manipulate multiple command and control and message standards to plan and execute the air war.			
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board (AFRL / Australia) - Planned collaborative project is to provide the capability for the Coalition/Joint Force Air Component Commander (C/JFACC) and senior staff to develop and continuously assess the progress and contribution of air operations to the coalition's air campaign in order to attain agile and stable control of distributed coalition military operations conducted in an uncertain and rapidly changing environment. The guiding vision of this research is a "Commanders' Virtual Collaboration Portal (CVCP)" or Battle Board (BB). The BB is a distributed, collaborative decision-making environment for commanders and senior staff to share a common knowledge base, collaborate during planning and execution, share assessments of current operations, visualize the operation across spatial and temporal domains, optimize effects-action-resource, and model and project the operational environment for predictive planning and assessment. This project will facilitate the shared research and development of technologies that provide: Faster recognition and better understanding of changing situations (Agents And Multi-Agent Systems In Dynamic Adversarial Environments) Faster and more complete exploration of available courses of action (e.g., Causal Modeling And Analysis) Faster and more accurate decision-making (e.g. Expert Team Collaboration) Concepts such as Effects Based Operations (EBO) and Predictive Battlespace Awareness (PBA) are two key enablers of this research. The grand challenge of this project is the initial research and development of technologies as the foundation for a "Battle Board" to be used by the C/JFACC and staff providing team-based strategic planning, operational anticipation, and effects-based assessment. The end result will be for both the US and Australian participants to have the technologies necessary to integrate into their separate national tools than from conducting basic and applied research alone. It is in the best interest of both parties to utilize these synergies.	0.100	0.100	0.100
(U) Development of Electro-Optic and Infrared Countermeasures and Protection Measures (AFRL / UK) - The planned objective of this PA is to increase US and UK capabilities in the area of Electro-Optic and Infrared (EO/IR) countermeasures and protection measures for enhancing survivability and force protection. As such, this PA will provide for collaborative research and development on materials, technologies, devices, and systems for electro-optic and infrared countermeasures and protection measures. It should be noted that the PA for this activity is to span a 10-year period of research and development beginning in January 2006. ICR&D start-up funding support is being requested under this PA to establish testing to evaluate the current state-of-the-art in EO/IR countermeasures and protection measures. The ICR&D funding will allow immediate field trials that are not currently scheduled until FY08. This acceleration of testing will better focus the materials and device development proposed in the PA to better address warfighter needs	0.250	0.300	0.300
(U) Engagement-level Modeling for HPM Weapons Applications (AFRL / UK) - The objective of this program would be to develop useful engagement modeling "modules" that could be used with	0.150	0.200	0.200

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Exhibit R-2a (PE 0603790F)



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

little or no modification in USAF battlefield modeling and simulation (M&S) exercises. As the HPM technology advances to the stage where useful weapons and other applications are available for use by US forces that are engaged in military actions it becomes necessary to have companion M&S capability also available so that mission and war planners can include the HPM participation in the M&S exercises that are performed before most actual engagements. AFRL has been working on the necessary mathematical tools to develop the required modules. There are currently "one-on-one" modules that are compatible with the engagement modeling world. AFRL has sponsored the development of the RF-PROTEC code that is the first serious player in the M&S engagement code world. It's current capability is limited to straightforward scenarios with one HPM device and a very limited target set. There is a requirement to develop more complex modules that take into account the situation where there are "many" HPM weapons engaged against "many" potential targets. These "many-on-many" modules are ultimately required for HPM weapons to be effectively integrated into modern battlefield M&S. The requirement for new and more advanced modules (or "plug-ins") also includes the requirement to address more scenarios where HPM weapons might be employed. This means looking at the utilization of HPM weapons in rural and urban environments and in special situations such as hardening command centers.

- (U) Hypersonic Flight Research and Development (AFRL / Australia) - The objectives of this effort are: (1) conduct hypersonic flight research experiments to mature select critical technologies required to develop future prompt global strike and operationally responsive space access systems; and, (2) develop on-board vehicle and propulsion instrumentation to significantly enrich the technology value of flight experiments. This program will consist of multiple research tasks to be jointly executed by several Directorates of the Air Force Research Laboratory and the Australian Defence Science and Technology Organization (DSTO). The scope of this effort includes key technologies for hypersonic, atmospheric flight including airbreathing propulsion, aerodynamics, aerothermodynamics, sensors, materials and structures, and advanced, non-intrusive, in-flight diagnostics.
- (U) Study of Insensitive Explosives for High Speed Penetrators (AFRL / Germany) - The joint investigation is concentrated on understanding the changes in the high explosive (HE) and the effects of those changes due to forces acting on the explosive during hard impact. Preliminary studies indicate that that during the penetration event, explosive changes undergo structural changes and consequently, cause the explosive to become more sensitive.
- (U) Integrally Bladed Rotor Repair Validation (AFRL / UK) - The objective of this project is to demonstrate to TRL-6 UK & US developed integrally bladed rotor repair (IBR) in US Provided spin pits and demonstrator engines. An additional objective is to jointly develop & validate best practices for evaluating damage thresholds for repair, repair methodologies, and post-repair re-validation.
- (U) Coalition Airspace Information Sharing (CAIS) (AFRL / NATO) - This effort proposes to demonstrate coalition collaborative airspace management by developing and demonstrating a machine-to-machine connection between the

0.600

0.600

0.595

0.000

0.375

0.300

0.000

0.050

0.050

0.000

0.400

0.200

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NUMBER AND TITLE NATO Nato Coop R&D		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>		FY 2007	FY 2008	FY 2009
(U) US Joint AirSpace Management And Deconfliction (JASMAD) Net-centric Information Service and NATO's Airspace Manager (ASMAN) module with the Integrated Command and Control (ICC) system. The JASSMAD Advanced Technology Demonstration (ATD) will provide the Future Capabilities required in the Air and Space Operation Center (AOC) Weapon System (WS) and is a substantial improvement over the current capability.				
(U) Distributed Collaboration for Network-Centric Command and Control (AFRL / Australia) - The recently promulgated doctrine of network-centric warfare implies that a dense networking of sensor and shooter nodes will promote enhanced situation awareness (SA) and self-synchronization of forces. The communication of this SA is expected to be achieved through the transmission of a common operational picture (COP) and by suites of collaboration technologies, most of which are commercial-off-the-shelf (COTS) products.		0.000	0.150	0.200
(U) Toxicity of Engineered Nanomaterials and Their Interaction with Biological systems (AFRL / India) - The main focus of the collaborative work in India will be animal toxicity studies required to extrapolate from in vitro to in vivo toxicity health and safety standards. This research will also significantly aid development of predictive models of nanomaterial toxicity. Work to be conducted by AFRL will address definition of: how nonparticles (NPs) are taken up by the cells: the physical characteristics (Size, Size Distribution, Aggregation, Purity, Chemical Composition, Surface Characteristics, Functionality. Zeta Potential, Stability Solubility) that impact nanomaterial interactions with biological systems; and the mechanisms of toxicity. Both organizations will collaborate to develop nanotoxicoinformatics tools to support nanomaterials R&D across a wide range of applications.		0.000	0.050	0.050
(U) Mission Planning and NATO Tasking Interoperability (MPNTI) (ESC / UK) - US aircraft mission planning systems do not read nor parse NATO Air Tasking Order (ATO) and NATO Airspace Coordinations Order (ACO) message formats. US air combat tasking is published in the US Message Test Format (USMTF), while NATO uses the Allied Data Publication 3 (AdatP3) message format.		0.000	0.375	0.200
(U) US Theater Battle Management Core Systems (TBMCS) (ESC / NATO) - The objective of this effort is to implement a process/system which will enable multiple C2 systems, each loaded on separate, multiple security networks/domains, to exchange air C2 mission data amongst each of the systems in near-real-time.		0.000	0.150	0.200
(U) Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials (AFRL / Australia) - This effort will combine in vivo animal research in Australia with in vitro nanotoxicology research at AFRL to address the critical lack of existing knowledge concerning potential adverse biologic/toxic effects of nanomaterials. The main emphasis will be given to immune response induced by inhaled nanomaterials. The results will enable the development of science-based standards for safe nanomaterial research, development, manufacturing and product utilization in both military and commercial applications. Data and associated biological effects of nanomaterials with reference to their adverse affects produced under this effort will promote the protection of the health, stamina, and performance of military personnel and reduce future occupational illness, medical costs and disability		0.000	0.000	0.050

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Exhibit R-2a, RDT&E Project Justification		DATE February 2008		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
compensation.				
(U) Modulation of Immune Response by Inhaled Engineered Nanoparticles (AFRL / Sweden) - This effort will combine in vivo animal research in Sweden with in vitro nanotoxicology research at AFRL to address the critical lack of existing knowledge concerning potential adverse biologic/toxic effects of nanomaterials. The main emphasis will be given to immune response induced by inhaled nanomaterials. The results will enable the development of science-based standards for safe nanomaterial research, development, manufacturing and product utilization in both military and commercial applications. Data and associated biological effects of nanomaterials with reference to their adverse affects produced under this effort will promote the protection of the health, stamina, and performance of military personnel and reduce future occupational illness, medical costs and disability compensation.		0.000	0.000	0.050
(U) Image Gyro (AFRL / Japan) - This project will leverage vision processing algorithms to reduce/eliminate the reliance on GPS for precision navigation. Toward these goals, a new image-based motion sensor known as the "Image Gyro" will be developed. The Image Gyro will be a low-cost, lightweight and highly accurate device that will achieve equivalent or higher precision drift free capabilities than that of today's accurate and more expensive inertial navigation systems. In addition to GPS free precision navigation, the Image Gyro will provide capabilities such as: passive moving target indication (MTI), 3D scene reconstruction (3D structure from motion), obstacle/collision avoidance, and automatic target recognition.		0.000	0.000	0.200
(U) Durability Assessment and Probabilistic Life Prediction of Titanium Alloys (AFRL / India) - The scope of the proposed effort comprises an exchange of R&D information in the following technical areas as related to titanium alloys: (1) Fundamental information on the microstructure of titanium alloys as affected by the conditions of their fabrication and their composition to include simulation and modeling to allow prediction of their properties. (2) Methods for life prediction of titanium alloys in service as a function of exposure conditions and fatigue, fracture and damage models in order to fully utilize those alloys for aeronautical structures and components.		0.000	0.000	0.200
(U) Next Generation Advanced Composites Processing Science (AFRL / Canada) - The proposed effort will develop and validate the next generation process models to aid in the manufacturing of advanced polymer matrix composites (PMCs) in an effort to maximize the affordable and efficient use of composite materials for aerospace applications. In addition, this project will pursue the fundamental understanding of the critical parameters absent from the state-of-the-art process models but urgently needed in order to address the issues associated with composite processing.		0.000	0.000	0.050
(U) Development of Fuel Cell Power Systems (AFRL / Singapore) - The objective of this project is to pursue the development of fuel cell-based power systems for use in military related applications. The primary focus of this collaboration will include the development of solid oxide technology and its subsequent integration into military relevant power system. An additional focus will include cooperating on fundamental research into solid oxide fuel		0.000	0.000	0.200

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
cell (SOFC) technology capable of operation on military specific fuels (JP-8, diesel).				
(U) Aging Systems Materials and Process Technologies (AFRL / Australia) - The proposed effort will develop and/or optimize techniques aimed at improving aircraft structural and electrical integrity. When implemented, these techniques will reduce life-cycle costs associated with legacy, emerging, and future aircraft as well as improve aircraft availability and safety. Project focus will be on bonded joints and aircraft wiring.		0.000	0.000	0.075
(U) Team Based Metric Development (AFRL / Singapore) - The purpose of the proposed project is to discover and develop team based metrics that can be used to reliably measure, and therefore manage, team workload and situation awareness. In addition, these constructs will be evaluated on how they affect team performance and decision making.		0.000	0.000	0.200
(U) Performance Effects of "Microwave Hearing" (AFRL / UK) - The objective of this project is to explore the effect of "microwave hearing" (auditory effects produced by radio frequency exposure) upon different aspects of cognitive performance. The modern warfighter employs a large array of tools in battle. Many of these tools rely upon radio frequency (RF) technologies (e.g., communications, non-lethal weapons, sensing).		0.000	0.000	0.200
(U) Military Aircraft Survivability Through Improved Composite Structures (USAF 46th Test Wing / Germany) - The scope of the cooperative project will assess: the degradation of composite mechanical properties caused by brief fuel fires (e.g., aircraft dry-bay fires sustained during combat that are extinguished within seconds of initiation) and the damage resistance of aircraft skin-spar joints when subjected to high strain rate loading conditions.		0.000	0.000	0.200
(U) Use of combined Geospatial Intelligence with Social Network Analysis techniques to increase the effectiveness of Counter IED information and operations (ESC / UK) - This is a proposed research activity that will develop a framework within which data generated from Social Network Analysis software (SNA) is geo-referenced and combined with geospatial intelligence in a web based geographical information system. The program will take SNA data that has no associated geo-referencing information and develop implicit metadata that has geo-reference information. For example using data mining techniques to associate data to a location - i.e. "he lives next to the building".		0.000	0.000	0.200
(U) Testing of a Hypersonic Airbreathing Propulsion System (AEDC / Japan / Germany) - project will test a common hypersonic airbreathing propulsion system at similar test conditions in the AEDC Aerodynamic and Propulsion Test Unit, the High Enthalpy Shock Tunnel at the German Aerospace Center and the Japan Aerospace Exploration Agency Ramjet Test Facility and the High Enthalpy Shock Tunnel . The purpose of the tests is to develop an understanding of the effect different facilities have on measured hypersonic airbreathing propulsion system performance, operability, and durability. These facility differences include the facility size, the facility test medium and how it is produced, instrumentation, and operational processes such as facility starting.		0.000	0.000	0.164
(U) Management and administrative support and travel		0.155	0.000	0.000

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Exhibit R-2a (PE 0603790F)

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Total Cost	4.003	4.253	4.334

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable.

(U) **D. Acquisition Strategy**

A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
Sytronics Dayton, OH	CPFF									Continuing	TBD	TBD
Boston College Boston, MA	CFSR									Continuing	TBD	TBD
RADEX Bedford, MA	CPFF									Continuing	TBD	TBD
Pacific Sierra Research Santa Monica, CA	CPFF									Continuing	TBD	TBD
CPI Fairfax, VA	CPFF									Continuing	TBD	TBD
U of Massachusetts Lowell, MA	CR									Continuing	TBD	TBD
KEO Consultants Brookline, MA	CPFF									Continuing	TBD	TBD
NW Research Associates Bellevue, WA	CPFF									Continuing	TBD	TBD
Visdyne Inc.	CPFF									Continuing	TBD	TBD
U of Texas Austin, TX	CPFF									Continuing	TBD	TBD
Applied Research Lab, U of Texas Austin, TX	CPFF									Continuing	TBD	TBD
Lockheed Martin Orlando, FL	CPFF									Continuing	TBD	TBD
Raytheon TI Systems	CPFF									Continuing	TBD	TBD
Boeing Seattle, WA	CPFF									Continuing	TBD	TBD
UES, Inc Dayton, OH	CPFF									Continuing	TBD	TBD
Pratt & Whitney West Palm Beach, FL	CPFF									Continuing	TBD	TBD
AFRL WPAFB, OH	TBD			3.395	Nov-07	2.200	Nov-08	2.100	Nov-09	Continuing	TBD	TBD
Boeing Long Beach, CA	CPFF									Continuing	TBD	TBD
Boeing Seattle, WA	CPFF									Continuing	TBD	TBD
Lockheed Marietta, GA	CPFF									Continuing	TBD	TBD
Northrop Hawthorne, CA	CPFF									Continuing	TBD	TBD
Selectech Dayton, OH	CPFF									Continuing	TBD	TBD
AFRL Eglin AFB, FL	TBD									Continuing	TBD	TBD
AFRL Hanscom AFB, MA	TBD									Continuing	TBD	TBD
AFRL Mesa, AZ	TBD									Continuing	TBD	TBD
AFRL Rome, NY	TBD									Continuing	TBD	TBD
None											0.000	
Subtotal Product Development			0.000	3.395		2.200		2.100		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
AFRL Hanscom AFB, MA				0.508	Nov-07	2.053	Nov-08	2.234	Nov-09	Continuing	TBD	TBD
AFRL WPAFB, OH										Continuing	TBD	TBD
45th Space Wing Patrick AFB, FL	AF 185									Continuing	TBD	TBD
AFRL Eglin AFB, FL										Continuing	TBD	TBD
Pender Technology, TN	CR									Continuing	TBD	TBD
Veridian Dayton, OH										Continuing	TBD	TBD
None											0.000	
Subtotal Support			0.000	0.508		2.053		2.234		Continuing	TBD	TBD
Remarks:												

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Exhibit R-3 (PE 0603790F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603790F NATO Cooperative R&amp;D</b>				<b>NATO Nato Coop R&amp;D</b>			
(U)	<u>Test &amp; Evaluation</u>								
	Air Force Development Test Center, FL	PO				Continuing	TBD	TBD	
	Sverdrup Technology, Inc TN	CPAF				Continuing	TBD	TBD	
	Naval Air Warfare CenterPoint Mugu, CA	MIPR				Continuing	TBD	TBD	
	Fora Laser System	PO				Continuing	TBD	TBD	
	Arnold Engineering Development Center, TN	TBD				Continuing	TBD	TBD	
	Fora laser system	PO				0.000	0.000		
	Subtotal Test & Evaluation		0.000	0.000	0.000	0.000			
	Remarks:					Continuing	TBD	TBD	
(U)	<u>Management</u>								
	Subtotal Management			0.100				0.100	
	Remarks:		0.000	0.100	0.000	0.000	0.100	0.000	
(U)	Total Cost		0.000	4.003	4.253	4.334	Continuing	TBD	TBD

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## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603790F NATO Cooperative R&amp;D

PROJECT NUMBER AND TITLE

NATO Nato Coop R&amp;D

Name of ICR&D Project and International Agreement Schedule	Fiscal Year	Start Date	End IA	PE
Refractive Turbulence and transient Electric Discharge	FY05			63790F
Aero-Engine Component Life Enhancement - Phase II	FY05			63790F
Hard Target Defeat	FY06			63790F
Network-Centric Strike Controller	FY06			63790F
Resilient Structural & Blast Suppression Systems for Blast Protection Research Program	FY06			63790F
Multimodal Situational Awareness Displays for Maneuvering Aircraft	FY06			63790F
3-Dimensional Laser Radar Technology	FY06			63790F
Policy Enabled Coalition Communications Environment (PECC)	FY06			63790F
Material and technologies for Laser Protection	FY06			63790F
Strike Information Displays	FY06			63790F
Theater Battle Management Core Systems & NATO Air Command & Control System Interoperability Analysis & Demonstration	FY07			63790F
Coalition/Joint Force Air Component Commander (C/FACC)	FY07			63790F
Development of Electro-Optic & Infrared Countermeasures & Protection Measures	FY07			63790F
Engagement-Level Modeling for HPM Weapons Applications	FY07			63790F
Hypersonic Flight Research and Development	FY07			63790F
Study of Insensitive Explosives for High Speed Penetrators	FY08			63790F
Integrally Bladed Rotor Repair Validation	FY08			63790F
Coalition Airpace Information Sharing (CAIS)	FY08			63790F
Distributed Collaboration for Network Centric Command & Control	FY08			63790F
Toxicity of Engineered Nanomaterials & their Interactions w/ Biological Systems	FY08			63790F
Mission Planning & NATO Tasking Interoperability	FY08			63790F
US TBMCS Simple Cross Domain Solutions for Allied Air C2 Interoperability	FY08			63790F

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<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603790F NATO Cooperative R&amp;D</b>	<b>PROJECT NUMBER AND TITLE</b> <b>NATO Nato Coop R&amp;D</b>
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials	FY09			63790F
Modulation of Immune Response by Inhaled Engineered Nanoparticles	FY09			63790F
Image Gyro	FY09			63790F
Durability Assessment and Probabilistic Life Prediction of Titanium Alloys	FY09			63790F
Next Generation Advanced Composites Processing Science	FY09			63790F
Development of Fuel Cell Power Systems	FY09			63790F
Aging Systems Materials and Process Technologies	FY09			63790F
Team Based Metric Development	FY09			63790F
Performance Effects of "Microwave Hearing"	FY09			63790F
Military Aircraft Survivability through Improved Composite Structures	FY09			63790F
Use of combined Geospatial Intelligence with Social Network Analysis techniques to increase the effectiveness of Counter IED information and Operations	FY09			63790F
Testing of a Hypersonic Airbreathing Propulsion System	FY09			63790F

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2008</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603790F NATO Cooperative R&amp;D</b>	<b>NATO Nato Coop R&amp;D</b>		
		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>				
(U) Refractive Turbulence and Transient Electronic Disconnectivity		4Q		
(U) - Field testing		4Q		
(U) - Test report		4Q		
(U) Policy Enabled Coalition Communication Environment		4Q		
(U) - Technical Development		4Q		
(U) - Testing & Analysis			3Q	
(U) Network-Centric Strike Controller		4Q		
(U) - Testing & Analysis		3Q		
(U) Aero-Engine Component Life Extension, Phase II		4Q		
(U) - Technology Development		4Q		
(U) - Testing & Analysis		4Q		
(U) Hard Target Defeat		2Q		
(U) - Testing and analysis		3Q		
(U) - Technical report preparation		4Q		
(U) Resilient Structural and Blast Suppression Systems for Blast Protection Research		4Q		
(U) - Technical report preparation		4Q		
(U) - Design methodology development			2Q	
(U) - Full-scale blast experiments			4Q	
(U) Multi-modal Situational Awareness Displays for Maneuvering Aircraft		4Q		
(U) - Technical Development			2Q	
(U) - Testing and Analysis			3Q	
(U) 3-Dimensional Laser Radar Technology and Phenomenology		2Q		
(U) - Technical Development			1Q	
(U) - Testing and Analysis			2Q	
(U) Material and Technologies for Laser Protection		2Q		
(U) - Technology Development			3Q	
(U) Strike Information Displays		2Q		
(U) - Technical Development			1Q	
(U) - Testing and Analysis			3Q	
(U) US Theater Battle Mgmt Core System and NATO ACCS signed		4Q		
(U) - Pre-study coordination activities			1Q	
(U) - Study contract award			3Q	

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2008</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>
(U) Coalition/Joint Force Air Component Commander (C/JFACC) Battle Board	4Q	
(U) - Technical Development		1Q
(U) - Testing and Analysis		2Q
(U) Development of Electro-Optic & Infrared Countermeasures and Protection Measures	4Q	
(U) - Technical Development		1Q
(U) - Testing and Analysis		1Q
(U) Engagement-level Modeling for HPM Weapons Applications	4Q	
(U) - Technical Development		1Q
(U) - Testing and Analysis		4Q
(U) Hypersonic Flight Research and Development	2Q	
(U) - Technical Development		1Q
(U) - Testing and Analysis		4Q
(U) US Theater Battle Management Core Systems (TBMCS)		1Q
(U) - Signed Agreement		2Q
(U) Coalition Airspace Information Sharing (CAIS)		1Q
(U) - Signed Agreement		2Q
(U) Mission Planning and NATO Tasking Interoperability		1Q
(U) - Signed Agreement		2Q
(U) Study of Insensitive Explosives for High-Speed Penetrators		1Q
(U) - Signed Agreement		2Q
(U) Integrally Bladed Rotor Report Validation		1Q
(U) - Signed Agreement		2Q
(U) Toxicity of Nano-Engineered Materials		1Q
(U) - Signed Agreement		2Q
(U) Distributed Collaboration for Network Centric C2		1Q
(U) - Signed Agreement		2Q
(U) Development of Animal Models to Assess the Inhalation Exposure of Engineered Nanomaterials		1Q
(U) - Signed Agreement		2Q
(U) Modulation of Immune Response by Inhaled Engineered Nanoparticles		1Q
(U) - Signed Agreement		2Q
(U) Image Gyro		1Q
(U) - Signed Agreement		2Q
(U) Durability Assessment and Probabilistic Life Prediction of Titanium Alloys		1Q
(U) - Signed Agreement		2Q

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2008</b>
BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603790F NATO Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>NATO Nato Coop R&amp;D</b>
(U) Next Generation Advanced Composites Processing Science		1Q
(U) - Signed Agreement		2Q
(U) Development of Fuel Cell Power Systems		1Q
(U) - Signed Agreement		2Q
(U) Aging Systems Materials and Process Technologies		1Q
(U) - Signed Agreement		2Q
(U) Team Based Metric Development		1Q
(U) - Signed Agreement		2Q
(U) Performance Effects of "Microwave Hearing"		1Q
(U) - Signed Agreement		2Q
(U) Military Aircraft Survivability Through Improved Composite Structures		1Q
(U) - Signed Agreement		2Q
(U) Use of combined Geospatial Intelligence with Social Network Analysis techniques to increase the effectiveness of Counter IED information and operations		1Q
(U) - Signed Agreement		2Q
(U) Testing of a Hypersonic Airbreathing Propulsion System		1Q
(U) - Signed Agreement		2Q

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PE NUMBER: 0603791F  
 PE TITLE: International Space Cooperative R&D

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603791F International Space Cooperative R&amp;D</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.574	0.610	0.627	0.643	0.652	0.664	0.678	Continuing	TBD
5035 Intl Space Coop R&D	0.574	0.610	0.627	0.643	0.652	0.664	0.678	Continuing	TBD

In FY 2003, from PE 0603790F, 64NATO, NATO Coop R&D, space-related efforts transferred to PE 0603791F, 645035, Intl Space Coop R&D, in order to clearly identify space-related projects and funding.

**(U) A. Mission Description and Budget Item Justification**

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.591	0.619	0.633
(U) Current PBR/President's Budget	0.574	0.610	0.627
(U) Total Adjustments	-0.017		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.017		
(U) <u>Significant Program Changes:</u>			

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>			PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5035 Intl Space Coop R&D	0.574	0.610	0.627	0.643	0.652	0.664	0.678	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Bahrain, Israel, Japan, Jordan, and Rep. of Korea (South Korea), Kuwait, Morocco, New Zealand, Pakistan, Taiwan, Thailand, and Phillipines) and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support. This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland (AFRL/Denmark) - Planned cooperative project to accurately model, simulate, recognize, and forecast polar ionospheric conditions impacting DoD systems. The project will collect multi-instrument measurements of ionospheric conditions at Station Nord in Greenland for the purpose of furthering basic research into mechanisms creating ionospheric disturbances, improving high-latitude ionosphere models, simulations, and providing space weather situational awareness and forecast tools.	0.025	0.000	0.000
(U) Cooperation In Navigation Warfare Technology Demonstrator and System Prototype Projects (PA) SMC/GP (GPS Joint Program Office) and ASD/NII/UK - Cooperative project to conduct collaborative studies and cooperatively develop advance counterSATNAV capabilities that can be employed from current and projected EA platforms. Developed technologies will be jointly tested to assure desired effects are achieved and that there is minimal fratricide impact on friendly forces. Additionaly, an initial concept of employment or operations will be collectively developed and tested by the participants in order to assess optimal capabilities in varying threat situations.	0.175	0.000	0.000
(U) Forecasting Communication and Navigation Disruptions due to Inonspheric Disturbance During Solar Minumum (AFRL/VSBX) and Australia - Planned cooperative project to collaborate with Australia to study ionospheric	0.274	0.266	

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603791F International Space  
Cooperative R&D

PROJECT NUMBER AND TITLE

5035 Intl Space Coop R&amp;D

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

phenomena which impact communication, navigation and radio frequency (RF) surveillance systems. The key research focus will be on forecasting ionospheric disturbances and their impact on systems such as Ultra High Frequency (UHF) Satellite Communication (SATCOM) and GLOBAL Positioning System (GPS) navigation. Ionospheric phenomena had an adverse impact on DoD satellite communication and navigation systems in recent operations in Afghanistan and during Operation Iraqi Freedom (OIF); future military operations will almost certainly be conducted in regions where ionospheric disturbances occur and C31 systems may be vulnerable. The Communication/Navigation Outage Forecast System System (C/NOFS) Advance Concept Technical Demonstration (ACTD) is dedicated to providing space-based forecasts of the disturbances that cause impacts on radio frequency (RF) systems.

- |  |       |       |       |
|--|-------|-------|-------|
| (U) Multidimensional Diffusion of High Energy Radiation Belt Electrons (AFRL / UK) - High energy electrons constituting the radiation belts are a primary hazard for USAF and other satellites. They are often enhanced during geomagnetic storms, but not in a reliably predictable way. Thus, understanding and forecasting their behavior is a major research goal. The physics of the radiation belts is believed to be largely controlled by electromagnetic waves, which cause diffusion in the otherwise constant particle energy (E), equatorial pitch angle (a), and radial distance (L shell parameter). The wave amplitudes can become greatly enhanced during magnetic storms and substorms, leading to a rapid increase in particle energy and a rapid decrease in particle distance from the earth (through decrease in L, a0, or both), which increases the risk to satellites in medium or low earth orbit. Wave-particle interactions are also a dominant loss mechanism for energetic electrons, so the detailed evolution of the particle distribution depends on a complex balance of several diffusion rates. | 0.100 | 0.125 | 0.119 |
| (U) Atmospheric Specification and Neutral Density Models (AFRL / Taiwan) - This effort is to improve specification of the ionosphere/thermosphere with the ultimate goal of improved atmospheric neutral density forecast.   | 0.000 | 0.219 | 0.150 |
| (U) Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands (AFRL / Australia) - The proposed effort will advance imaging spectroscopy for military remote sensing in two ways. The first and initial focus of the effort will be the quantification of the military utility of space-based hyperspectral imagery in the reflective spectrum (0.38 to 2.5 microns) utilizing extensive datasets taken with the TacSat-3/Advanced Responsive Tactically Effective Military Imaging Spectrometer over both U. S. and Australian sites.  | 0.000 | 0.000 | 0.125 |
| (U) Mission Study of Operational System for Coronal Mass Ejection Detection and Forecasting (AFRL / UK) - The objective of the proposed cooperative effort is a preliminary design study of an operational system for 24/7 monitoring of Coronal mass ejections (CMEs), primarily aimed at forecasting their terrestrial impacts and effects. CMEs cause the largest geomagnetic storms and pose hazards to DoD space assets. Advance warning is required to   | 0.000 | 0.000 | 0.125 |

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603791F International Space Cooperative R&amp;D</b>	PROJECT NUMBER AND TITLE <b>5035 Intl Space Coop R&amp;D</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
mitigate or prevent impairment of space assets.			
(U) Raven Class Telescopes for Space Situational Awareness Research and Development (AFRL / Australia) - The purpose of this effort is to perform research and development on the topic of Space Situational Awareness (SSA). The SSA research and development is predominantly high-accuracy satellite position determination and prediction, and characterization of satellites that too small or too distant to be imaged by optical telescopes.	0.000	0.000	0.108
(U) Total Cost	0.574	0.610	0.627

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A									

(U) **D. Acquisition Strategy**  
 A principal goal of the International Space Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in space-related R&D. This program element provides the critical funding incentive needed to pursue space-related ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new space-related RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.



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**Exhibit R-3, RDT&E Project Cost Analysis**

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603791F International Space Cooperative R&amp;D</b>				<b>5035 Intl Space Coop R&amp;D</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
AFRL Hanscom AFB, MA	TBD			0.236	Oct-07	0.254	Oct-08	0.258	Oct-09	Continuing	TBD	TBD
AFRL, WPAFB										Continuing	TBD	TBD
AEDC/DO										Continuing	TBD	TBD
SMC, LAAFB, CA				0.338	Oct-07	0.356	Oct-08	0.369	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.574		0.610		0.627		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
AFRL, WPAFB	TBD									Continuing	TBD	TBD
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
TBD	TBD									Continuing	TBD	TBD
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.574		0.610		0.627		Continuing	TBD	TBD

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<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603791F International Space Cooperative R&amp;D</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5035 Intl Space Coop R&amp;D</b>
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ICR&D Project	Fiscal Year	Start Date	End IA	PE
Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland	FY04	Sep-05	Sep-11	63791F
Cooperation In Navigation Warfare Technology Demonstrator and System Prototype Projects	FY05	Jun-07		63791F
Forecasting Communication and Navigation Disruptions due to Ionospheric Disturbance During Solar Minumum	FY06	Aug-07		63791F
Multidemsional Diffusion of High Energy Radiation Belt Electrons	FY07			63791F
Atmospheric Specification and Neutral Densisty Models	FY08			63791F
Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands	FY09			63791F
Mission Study of Operational System for Coronal Mass Ejection Detection and Forecasting	FY09			63791F
Raven Class Telescopes for Space Situational Awareness Research and Development	FY09			63791F

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Project 5035

Exhibit R-4 (PE 0603791F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603791F International Space Cooperative R&amp;D</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5035 Intl Space Coop R&amp;D</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Measurement of High-Latitude Ionospheric Structures and System Effects	1Q		
(U) - Data collection begins	4Q		
(U) Cooperation in Navigation Warfare Technology	1Q		
(U) - Data collection begins	4Q		
(U) Forecasting Comm. and Navigation Disruption due to Ionospheric Disturbances During Solar Minimum	3Q		
(U) - Data collection begins		1Q	
(U) Multidimensional Diffusion of High Energy Radiation Belt Electrons	3Q		
(U) - Project Agreement Signed	4Q		
(U) - Data collection begins		1Q	
(U) Atmospheric Specification and Neutral Density Models		1Q	
(U) - Project agreement signed		2-3Q	
(U) - Data collection begins		3-4Q	
(U) Surveillance and Military Utility of Hyperspectral Imagery in the Reflective and Emissive Spectral Bands			1Q
(U) - Project agreement signed			2Q
(U) - Data collection begins			3Q
(U) Mission Study of Operational System for Coronal Mass Ejection Detection and Forecasting			1Q
(U) - Project agreement signed			2Q
(U) - Data collection begins			3Q
(U) Raven Class Telescopes for Space Situational Awareness Research and Development			1Q
(U) - Project agreement signed			2Q
(U) - Data collection begins			3Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603845F Transformational SATCOM (TSAT)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	700.429	804.739	842.974	985.113	1,237.783	1,514.357	1,791.467	Continuing	TBD
4944 ADVANCED WIDEBAND SYSTEM	700.429	804.739	842.974	985.113	1,237.783	1,514.357	1,791.467	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Department of Defense remains committed to producing the communications capabilities envisioned by Transformational Satellite Communications System (TSAT). However, current funding constraints have led the Department to reassess the optimal investment strategy for satisfying future satellite communications requirements. In parallel with this assessment, the TSAT program will continue with current programmatic activities, including space segment source selection actions. Preserving this key partnership with industry will enhance the DoD's responsiveness to deliver the right communications capabilities when they are needed by the user community.

The TSAT will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing increased connectivity and data transfer capability, vastly improving satellite communications for the warfighter. TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite will be procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations System (TMOS) to provide network management, and ground gateways. TSAT will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements that have proven mature by independent testing of integrated subsystem brass boards to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: laser communications, Internet protocol based packet switching, bulk and packet encryption/decryption, concentrated theater coverage area antennas (in support of battle command-on-the-move), dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technical risk reduction activities, leveraging successful partnerships with industry and Massachusetts Institute of Technology (MIT) Lincoln Laboratories, have significantly improved the maturity of key critical technology elements essential for the TSAT program. Technology maturation activities remain on schedule with the prime contractors and numerous directed technology development contractors.

In FY09, following the FY08 award of the space segment development and production contract, the contractor will develop/update design documents and Interface Control Documents. The contractor will also continue to mature the laser communications terminal brassboard and the next generation processor/router brassboard to support the next phase of risk reduction testing and the first round of Early Integration Activity testing. Additionally, continued work in ASIC maturation/design/build will occur along with technology needs forecasting and maturation of spacecraft and payload designs. The contractor will complete an Integrated Baseline Review and participate in the Program Synchronization Review.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603845F Transformational SATCOM (TSAT)

The TMOS single contract was awarded in January 2006. In FY09, the TMOS overall efforts will include the development/update of design documentation, Interface Control Documents, Network Prototyping, Integration and Test plans, and initial software development. The contractor will also continue to support TSAT interface and integration activities, related risk mitigation, TSAT system level requirements maturation, and requirements studies, and will continue design efforts and program/baseline synchronization efforts with the selected space segment contractor in preparation for the TSAT Program Synchronization Review.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering design activities including risk reduction and system definition.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	732.661	963.585	1,227.784
(U) Current PBR/President's Budget	700.429	804.739	842.974
(U) Total Adjustments	-32.232	-158.846	
(U) Congressional Program Reductions		-153.708	
Congressional Rescissions		-5.138	
Congressional Increases			
Reprogrammings	-9.468		
SBIR/STTR Transfer	-22.764		

(U) **Significant Program Changes:**

Department is reassessing the optimal investment strategy for satisfying future capabilities envisioned by TSAT and in parallel continuing the Space Segment source selection. FY09 funding reduction enables program to respond to revised investment strategy and delays Preliminary Design Review from late FY09 to mid FY11.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603845F Transformational SATCOM (TSAT)</b>					<b>4944 ADVANCED WIDEBAND SYSTEM</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4944 ADVANCED WIDEBAND SYSTEM	700.429	804.739	842.974	985.113	1,237.783	1,514.357	1,791.467	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Department of Defense remains committed to producing the communications capabilities envisioned by Transformational Satellite Communications System (TSAT). However, current funding constraints have led the Department to reassess the optimal investment strategy for satisfying future satellite communications requirements. In parallel with this assessment, the TSAT program will continue with current programmatic activities, including space segment source selection actions. Preserving this key partnership with industry will enhance the DoD's responsiveness to deliver the right communications capabilities when they are needed by the user community.

The TSAT will provide DoD with high data rate Military Satellite Communications (MILSATCOM) and Internet-like services as defined in the Transformational Communications Architecture (TCA). As the spaceborne element of the Global Information Grid (GIG), it will extend the GIG to users without terrestrial connections providing increased connectivity and data transfer capability, vastly improving satellite communications for the warfighter. TSAT's Internet Protocol (IP) routing will connect thousands of users through networks rather than limited point-to-point connections. Additionally, TSAT will enable high data rate connections to Space and Airborne Intelligence, Surveillance, and Reconnaissance (SISR, AISR) platforms.

The TSAT program consists of a five satellite constellation (a sixth satellite will be procured to ensure mission availability), TSAT satellite operations centers (TSOC) for on-orbit control, TSAT Mission Operations System (TMOS) to provide network management, and ground gateways. TSAT will incorporate radio frequency (RF) and laser communications links to meet defense and intelligence community requirements for high data rate, protected communications. The space segment will make use of key technology advancements that have proven mature by independent testing of integrated subsystem brass boards to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: laser communications, Internet protocol based packet switching, bulk and packet encryption/decryption, concentrated theater coverage area antennas (in support of battle command-on-the-move), dynamic bandwidth and resource allocation techniques, and protected bandwidth efficient modulation. Technical risk reduction activities, leveraging successful partnerships with industry and Massachusetts Institute of Technology (MIT) Lincoln Laboratories, have significantly improved the maturity of key critical technology elements essential for the TSAT program. Technology maturation activities remain on schedule with the prime contractors and numerous directed technology development contractors.

In FY09, following the FY08 award of the space segment development and production contract, the contractor will develop/update design documents and Interface Control Documents. The contractor will also continue to mature the laser communications terminal brassboard and the next generation processor/router brassboard to support the next phase of risk reduction testing and the first round of Early Integration Activity testing. Additionally, continued work in ASIC maturation/design/build will occur along with technology needs forecasting and maturation of spacecraft and payload designs. The contractor will complete an Integrated Baseline Review and participate in the Program Synchronization Review.

The TMOS single contract was awarded in January 2006. In FY09, the TMOS overall efforts will include the development/update of design documentation, Interface

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603845F Transformational SATCOM (TSAT)</b>	PROJECT NUMBER AND TITLE <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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Control Documents, Network Prototyping, Integration and Test plans, and initial software development. The contractor will also continue to support TSAT interface and integration activities, related risk mitigation, TSAT system level requirements maturation, and requirements studies, and will continue design efforts and program/baseline synchronization efforts with the selected space segment contractor in preparation for the TSAT Program Synchronization Review.

Funds are in Budget Activity 4, Advanced Component Development and Prototypes, since it funds TSAT technology development and engineering design activities including risk reduction and system definition.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Definition and technology development for key areas to include laser communications, antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking protocols; conduct Integration/Concept of Operations (CONOPS) demonstrations	81.149	80.801	64.155
(U) Provide Technical Support	53.065	72.544	75.541
(U) Provide Program Support	8.798	13.795	14.365
(U) Continue engineering design activities including risk reduction, and complete system design review for the first TSAT satellite	367.477	193.572	
(U) Award space segment contract and begin preliminary design development		221.845	473.559
(U) Continue TSAT Mission Operations System ground segment and network management/operations management software	129.379	132.947	123.656
(U) Continue systems engineering and integration support	60.561	68.069	69.892
(U) Continue qualification and production of radiation-hardened components for USAF/DOD space programs		21.166	21.806
(U) Total Cost	700.429	804.739	842.974

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, AF									
(U) PE 0603854F, Project 644870, CCS-C, R-52	15.532	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD
(U) PE 0603854F, Project 644811, WGS, R-52	28.466	0.000	0.000	0.000	0.000	0.000	0.000		302.276
(U) Other APPN									
(U) MPAF, PE 0303600F, WGS, P-19,20	412.498	322.334	22.492	40.419	43.705	29.601	23.898	Continuing	TBD



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603845F Transformational SATCOM (TSAT)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) OPAF, PE 0303600F, CCS-C	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	17.667
(U) OPAF, PE 0303600F, WGS	0.000	0.000	0.000	1.701	1.701	0.000	0.000	30.166	
(U) MILCON, PE 0303602F, TSAT	0.000	0.000	0.000	5.178	49.208	7.649	4.822	Continuing	TBD
(U) MPAF, PE 0303602F, TSAT	0.000	0.000	0.000	0.000	0.000	0.000	181.000	Continuing	TBD
(U) OPAF, PE 0303602F, TSAT	0.000	0.000	0.000	0.000	0.000	37.816	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**

On 20 January 2004, the TSAT program entered Phase B, Risk Reduction and Design Development. Phase B space segment contracts (Cost Plus Fixed Fee) were awarded to Lockheed Martin and Boeing in late January 2004. However, on 20 June 2006, the Milestone Decision Authority rescinded KDP-B approval in order to appropriately align TSAT program activity with the revised National Security Space Acquisition Policy (NSS 03-01). The update to NSS 03-01 revised the space acquisition framework to make it more consistent with critical systems engineering events that must inform acquisition decisions. One result of the revision was the realignment of Key Decision Point B (KDP-B) with completion of a space program's System Design Review (SDR). A successful SDR was completed in April 2007, and a Defense Space Acquisition Board will convene for a new KDP-B approval. In FY08, after a full and open competition, the final space segment development contractor will be selected.

In October 2003, after a full and open competition, a Systems Engineering and Integration (SE&I) contract for four 1-year options was awarded to Booz Allen Hamilton. After a full and open competition, the SE&I Follow-on contract will be awarded 4QFY08. The SE&I function spans end-to-end TSAT systems analysis and simulation, architecture refinement, requirements development, interface management and system integration.

TSAT Mission Operations System (TMOS) Program Research and Development Announcement (PRDA) contracts were awarded to Raytheon, Lockheed Martin, and Northrop Grumman in November 2003. In January 2006, after a full and open competition, a single TMOS development contract was awarded to Lockheed Martin.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603845F Transformational SATCOM (TSAT)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Architecture Studies	CPAF	Various	14.900								14.900	
Lockheed Martin: Technology Maturation/Risk Reduction & Program System Definition	CPFF	Sunnyvale, CA	278.160	183.628	Nov-06	96.786	Dec-07				558.574	
Boeing: Technology Maturation/Risk Reduction & Program System Definition	CPFF	El Segundo, CA	278.160	183.849	Nov-06	96.786	Dec-07				558.795	
Booz Allen Hamilton: System Engineering & Integration / SE&I Follow-on Contractor TBD	Time & Materials w/ IF	El Segundo, CA	92.734	60.561	Nov-06	68.069	Dec-07	69.892	Dec-08	Continuing	TBD	
TMOS PRDAs	FFP	Various	55.139								55.139	
TMOS: Lockheed Martin Integrated Systems and Solutions	CPAF	San Jose, CA	49.320	129.379	Nov-06	132.947	Dec-07	123.656	Dec-08	Continuing	TBD	
Risk Reduction: Technology Maturation	Various	Various	341.351	81.149	Nov-06	80.801	Dec-07	64.155	Dec-08	Continuing	TBD	
Risk Reduction: Technology Maturation (Space Segment) Lockheed Martin	CPFF	Sunnyvale, CA	27.651								27.651	
Risk Reduction: Technology Maturation (Space Segment) Boeing	CPFF	El Segundo, CA	27.651								27.651	
Space Segment Development	TBD	TBD				221.845	Jul-08	473.559	Dec-08	Continuing	TBD	
Radiation Hardened Parts Developers	Various	Various				21.166	Dec-07	21.806	Dec-08	Continuing	TBD	
Subtotal Product Development			1,165.066	638.566		718.400		753.068		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Technical Support	Various		103.775	53.065	Nov-06	72.544	Dec-07	75.541	Dec-08	Continuing	TBD	
Program Support	Various		26.240	8.798	Nov-06	13.795	Dec-07	14.365	Dec-08	Continuing	TBD	
Subtotal Support			130.015	61.863		86.339		89.906		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
None											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			1,295.081	700.429		804.739		842.974		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603845F Transformational SATCOM (TSAT)

PROJECT NUMBER AND TITLE  
4944 ADVANCED WIDEBAND SYSTEM

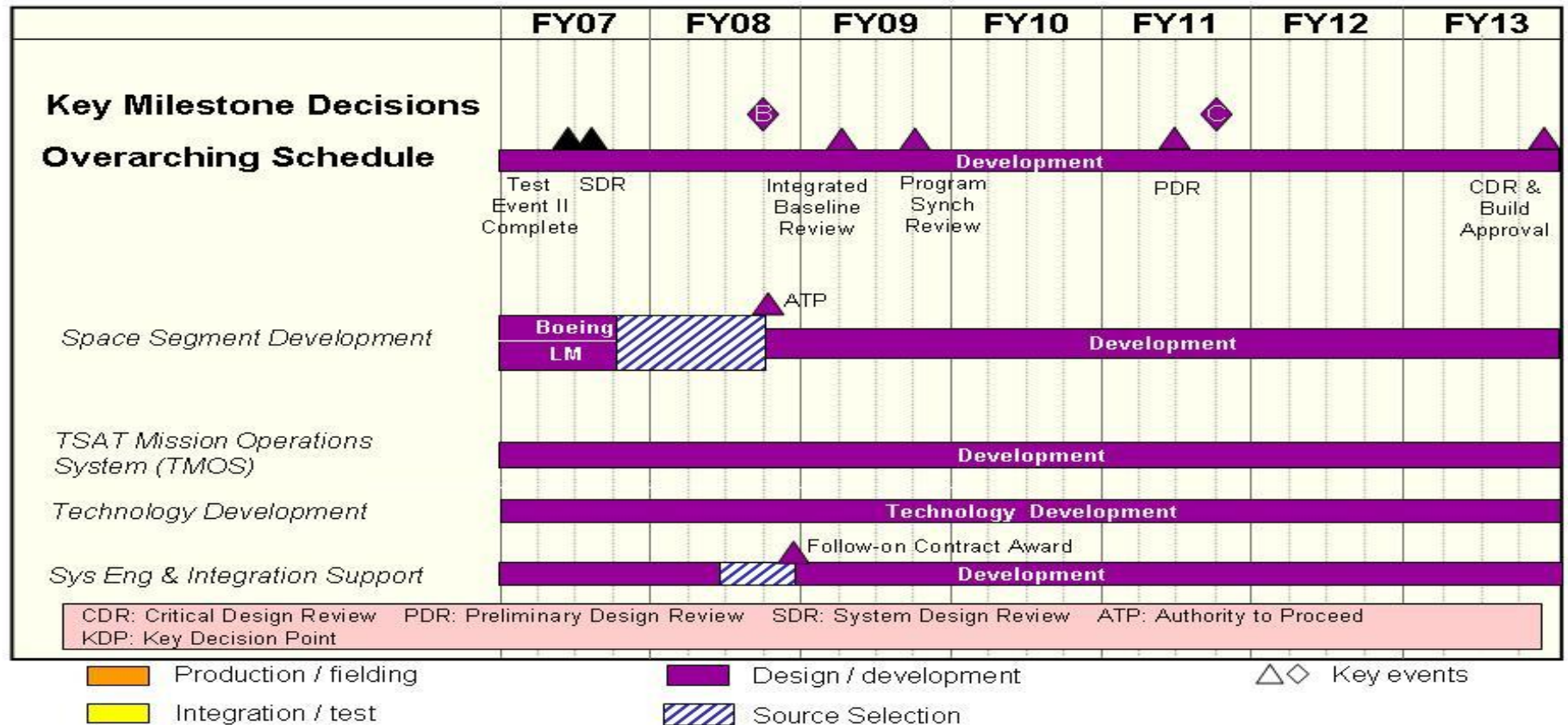


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603845F Transformational SATCOM (TSAT)</b>	PROJECT NUMBER AND TITLE <b>4944 ADVANCED WIDEBAND SYSTEM</b>
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(U) <b>Schedule Profile</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Technology Maturation -- Processor Router and Lasercom to Technology Readiness Level 6 (last of key critical technologies)	3Q		
(U) System Design Review	3Q		
(U) Key Decision Point B (KDP B)		4Q	
(U) Space Segment Contract Award		4Q	
(U) SE&I Follow-on Contract Award		4Q	
(U) Integrated Baseline Review			2Q
(U) Program Synchronization Review			4Q

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PE NUMBER: 0603850F  
 PE TITLE: Integrated Broadcast Service (DEM/VAL)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	24.471	21.058	21.105	21.100	21.148	21.343	21.555	Continuing	TBD
4778 Integrated Broadcast Service	24.471	21.058	21.105	21.100	21.148	21.343	21.555	Continuing	TBD

FY07 funding total includes \$4M in GWOT Supplemental

**(U) A. Mission Description and Budget Item Justification**

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. This request funds the IBS system development as described below.

- A Common Interactive Broadcast (CIB) on UHF satellite channel using a Common Message Format (CMF) and a MIL-STD Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- IBS includes a Global IBS Network Server (GINS), a Co-GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements.
- A centralized GINS and Co-GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network/broadcast users.
- 4 regional TINs, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- An XML Based Common Message Format (CMF) Data Element Dictionary (DED) that defines IBS messages for broadcast of IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.
- A Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter that provides a modular, platform-independent, multi-use translator to both support migration with legacy radios and to provide a long term solution for IBS FOC radio users.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603850F Integrated Broadcast Service (DEM/VAL)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	20.471	21.192	21.372
(U) Current PBR/President's Budget	24.471	21.058	21.105
(U) Total Adjustments	4.000	-0.134	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.134	
Congressional Increases	4.000		
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4778 Integrated Broadcast Service</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4778 Integrated Broadcast Service	24.471	21.058	21.105	21.100	21.148	21.343	21.555	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY07 funding total includes \$4M in GWOT Supplemental

**(U) A. Mission Description and Budget Item Justification**

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for threat warning and situational awareness information with timely dissemination of intelligence and information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined by data provided by strategic, operational and tactical sensors. This request funds the IBS system development as described below.

- A Common Interactive Broadcast (CIB) on UHF satellite channel using a Common Message Format (CMF) and a MIL-STD Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Radio System (JTRS).
- IBS includes a Global IBS Network Server (GINS), a Co-GINS, and four (4) Theater Interface Nodes (TINs) to support the geographic Combatant Commanders; all built to validated warfighter requirements.
- A centralized GINS and Co-GINS that receives data from each theater and then integrates this data into a worldwide picture available to all network/broadcast users.
- 4 regional TINs, where out-of-theater (and local) users not directly receiving the broadcast can receive the information broadcast on the CIB. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.
- An XML Based Common Message Format (CMF) Data Element Dictionary (DED) that defines IBS messages for broadcast of IBS information over available communications paths including the CIB and other Global Information Grid (GIG) networks.
- A Modular Advanced TRanslation Interchange with XML (MATRIX) Reformatter that provides a modular, platform-independent, multi-use translator to both support migration with legacy radios and to provide a long term solution for IBS FOC radio users.

This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue systems engineering, including development of architectures, system of systems management through the Joint Broadcast Configuration Control Board (JBCCB), and risk reduction studies using Simulation Based Acquisition (SBA) tools	0.911	1.815	1.650
(U) Continue the Phase II/Engineering, Manufacturing, and Development of the GINS and TINs	17.946	13.244	13.239
(U) Continue Test & Evaluation	0.988	0.970	1.200
(U) Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution	1.926	2.229	3.096
(U) Joint Tactical Radio System (JTRS) Modular Advanced TRanslation and Interchange with XML (MATRIX) Reformatter	1.900	2.100	1.220
(U) Enterprise Systems Engineering/CMF Integration/CIB Integration/IBS CMF Data Base (ICDB)	0.800	0.700	0.700

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>	PROJECT NUMBER AND TITLE <b>4778 Integrated Broadcast Service</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Total Cost	24.471	21.058	21.105

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF/PE 0305179F	11.889	20.634	18.436	12.653	12.904	13.187	13.477	Continuing	TBD
(U) O&M/PE 0305179F	16.009	17.809	17.736	18.410	18.360	18.618	18.910	Continuing	TBD

(U) **D. Acquisition Strategy**

IBS used an evolutionary acquisition approach with a Program Definition/Risk Reduction phase (Spiral 1), followed by a full and open competition award to BTG/Titan/L-3Comm to complete the Engineering, Manufacturing and Development (EMD) phase (Spiral 2-5).

MATRIX used an initial requirements definition phase followed by evolutionary acquisition approach for the development contract by means of a Sole-Source contract award to L3-Comm IS.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4778 Integrated Broadcast Service</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> Phase 2 Spiral II - V	C/CPAF	BTG, Inc./Titan/L-3 Comm (Reston, VA)		17.946	Jan-07	13.244	Jan-08	13.239	Jan-09	Continuing	TBD	TBD
CMF Systems Engineering and Format Development	C/FFP	SAIC (Columbia, MD)								0.000	0.000	TBD
SATCOM Broadcast Waveform Development	MIPR	SPAWAR Systems (San Diego, CA)								0.000	0.000	TBD
JTRS MATRIX Reformatter	C/FFP	L-3 Comm, IS (Greenville, TX)		1.900	Mar-07	2.100	Mar-08	1.220	Mar-09	Continuing	TBD	TBD
IBS CMF Data Base	MIPR	SPAWAR Systems (San Diego, CA)		0.100	Jan-07					0.000	0.100	TBD
Subtotal Product Development			0.000	19.946		15.344		14.459		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u> Interoperability and Developmental Testing	MIPR/Project Order	JITC (Ft Huachuca, AZ) & 46th OSS (Eglin AFB, FL)		0.988	Jan-07	0.970	Jan-08	1.200	Jan-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.988		0.970		1.200		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u> SPO/Professional Acquisition Support Service (PASS)	Various	Local Area (Bedford, MA)/Washington DC Area		1.926	Mar-07	2.229	Mar-08	3.096	Mar-09	Continuing	TBD	TBD
MITRE	SS/CPFF (FFRDC)	Bedford, MA		0.911	Mar-07	1.815	Oct-07	1.650	Oct-08	Continuing	TBD	TBD
Enterprise Engineering/CMF Integration/CIB	SS/CPFF	L-3 Comm, IS		0.700	Mar-07	0.700	Mar-08	0.700	Mar-09		2.100	

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Project 4778

Exhibit R-3 (PE 0603850F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603850F Integrated Broadcast Service (DEM/VAL)**

PROJECT NUMBER AND TITLE

**4778 Integrated Broadcast Service**

Integration	(Greenville, TX)							
Subtotal Management		0.000	3.537	4.744	5.446	Continuing	TBD	TBD
Remarks:								
(U) Total Cost		0.000	24.471	21.058	21.105	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603850F Integrated Broadcast Service (DEM/VAL)

PROJECT NUMBER AND TITLE  
4778 Integrated Broadcast Service

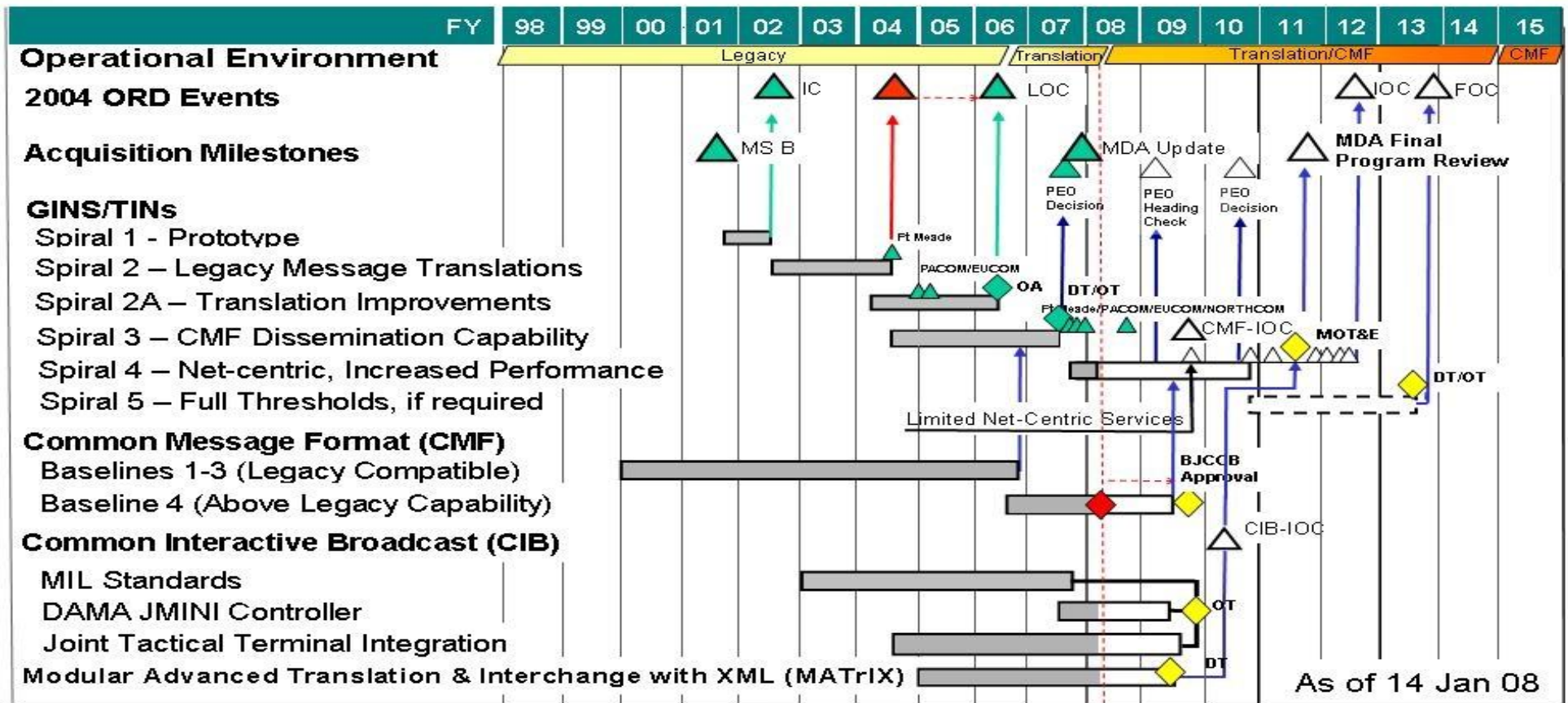


UNCLASSIFIED/FOUO

# Integrated Broadcast Service Broadcast Segment Schedule



*Delivering what we promised when we promised* *War-winning Capabilities... On Time, On Cost*



As of 14 Jan 08

UNCLASSIFIED/FOUO

R-1 Line Item No. 45

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603850F Integrated Broadcast Service (DEM/VAL)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4778 Integrated Broadcast Service</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Phase 2 Spiral III Development	1-4Q	1-2Q	
(U) Phase 2 Spiral III Fielding		2Q	
(U) Phase 2 Spiral IV System Requirements Review	4Q		
(U) Phase 2 Spiral IV Preliminary Design Review		1Q	
(U) Phase 2 Spiral IV Design Review		4Q	
(U) Phase 2 Spiral IV Development		4Q	1-4Q
(U) MATRIX Development	1-4Q	1-4Q	1-4Q
(U) CIB Integration		1-4Q	1-4Q
(U) PEO Heading Check			1Q
(U) CMF Baseline 4 Standards Approval			4Q

**UNCLASSIFIED**

PE NUMBER: 0603851F  
 PE TITLE: ICBM - DEM/VAL

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603851F ICBM - DEM/VAL</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	56.286	31.121	65.629	67.424	69.006	70.882	72.786	Continuing	TBD
1020 ICBM Guidance Applications	8.787	8.044	22.784	16.638	15.589	14.849	15.135	Continuing	TBD
1021 ICBM Propulsion Applications	22.588	12.010	34.516	42.332	44.845	47.183	48.581	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	4.600	5.327	5.413	5.555	5.698	5.957	6.159	Continuing	TBD
1023 Rocket System Launch Program	0.003	0.029	0.027	0.026	0.025	0.026	0.026	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	3.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.586
4209 Long Range Planning (LRP)	16.821	5.711	2.889	2.873	2.849	2.867	2.885	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**  
 This program ensures a responsive design and development engineering infrastructure to address emerging issues within the current Intercontinental Ballistic Missile (ICBM) force and other common mission areas, where appropriate, to develop enhanced multi-use capabilities for future technology insertion. Efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, and ensure strategic missile viability. Demonstration and validation projects include guidance applications, reentry vehicles, assessment of current and future propulsion systems, development of enhanced command and control capabilities, and Long Range Planning efforts.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component and subsystem maturity, and provide risk reduction.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	60.907	26.519	27.349
(U) Current PBR/President's Budget	56.286	31.121	65.629
(U) Total Adjustments	-4.621	4.602	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.198	
Congressional Increases		4.800	
Reprogrammings	-1.943		
SBIR/STTR Transfer	-2.678		

(U) **Significant Program Changes:**  
 FY08: \$4.8M Congressional Increase for Conventional Strike Missile Capabilities Demonstration  
 FY09: \$39.0M Increase for research and development for solid rocket motors and advanced guidance

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1020 ICBM Guidance Applications</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
1020 ICBM Guidance Applications	8.787	8.044	22.784	16.638	15.589	14.849	15.135	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Guidance Applications Program ensures the continued readiness of our strategic deterrent and development of strategic capability in response to the Nuclear Posture Review, recommendations of the United States Strategic Command (USSTRATCOM) Strategic Advisory Group, Commander, USSTRATCOM guidance, the Defense Science Board Task Force on Nuclear Deterrence and prompt global strike efforts. Efforts are focused on current and future requirements and technologies, reduced life cycle costs, and increased nuclear surety and safety. Activities leverage the efforts of the Science and Technology community and are coordinated with the Navy strategic application program to enhance synergy and avoid duplication. Key elements include a responsive systems engineering capability to develop & analyze future strategic guidance capabilities.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Develop, prototype, and test solid-state instrument technologies (accelerometers and gyros)	3.856	4.800	11.267
(U) Develop, analyze, evaluate, prototype, and test advanced solid-state inertial measurement unit concepts	3.931	2.244	10.017
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	0.500	0.500	0.500
(U) Conduct precision inertial navigation system experiment to demonstrate future strategic system concepts	0.000	0.000	1.000
(U) Conduct assessment, development and implementation of flight test experiment options to demonstrate future strategic system concepts	0.500	0.500	0.000
(U) Total Cost	8.787	8.044	22.784

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None.									

**(U) D. Acquisition Strategy**

Accomplish studies, analyses, and limited engineering/pre-prototype hardware development; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>				<b>1020 ICBM Guidance Applications</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Development, analyze, evaluate, prototype, test instrument technologies; IMU concepts	Various	AFRL, Kirtland AFB NM; Honeywell, Redmond WA, Clearwater FL, Phoenix AZ		6.775	Jan-07	6.300	Jan-08	19.734	Jan-09	Continuing	TBD	TBD
Assess, develop and implement precision inertial navigation system experiment								1.000	Jan-09		1.000	1.000
Assess, evaluate and test of radiation hard electronics				0.500	Jan-07	0.500	Jan-08	0.500	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	7.275		6.800		21.234		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Other Program Support	Various	SMC, Los Angeles CA; AFSPC, Colorado Springs CO; 526 ICBMSG, Hill AFB UT		1.012	Jan-07	0.744	Jan-08	1.550	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	1.012		0.744		1.550		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Flight Test	C/CPAF	Northrop Grumman, Clearfield UT		0.500	Dec-06	0.500	Feb-08	0.000	N/A	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.500		0.500		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	8.787		8.044		22.784		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

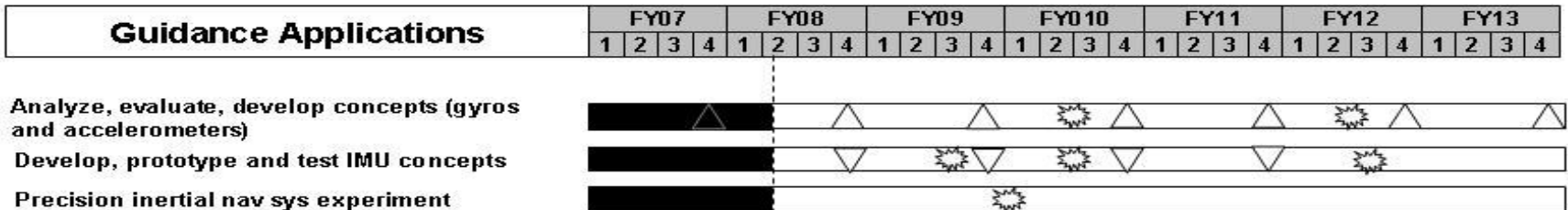
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1020 ICBM Guidance Applications



△ Report/Review/Analysis      ☆ Major Test Event      ▽ Prototype Hardware Delivery



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603851F ICBM - DEM/VAL**

PROJECT NUMBER AND TITLE

**1020 ICBM Guidance Applications**

(U) **Schedule Profile**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Analyze, evaluate, and develop concepts (accelerometers and gyros)	1-4Q	1-4Q	4Q
(U) Develop, prototype, and test advanced solid-state inertial measurement unit concepts	4Q	4Q	4Q
(U) Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	1-4Q	1-4Q	1-4Q
(U) Conduct assessment, development and implementation of precision inertial navigation system experiment to demonstrate future strategic system concepts			4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1021 ICBM Propulsion Applications</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1021 ICBM Propulsion Applications	22.588	12.010	34.516	42.332	44.845	47.183	48.581	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) The ICBM Propulsion Application Program develops strategic propulsion capability through projects exploring improvements and/or alternatives to current propulsion systems, conducting studies assessing application of new technologies to meet future common propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM, submarine-launched ballistic missile (SLBM) propulsion systems, and other solid rocket motor propulsion capabilities to demonstrate a potential family of motors capability.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Common solid propulsion technology assessment, development, evaluation and stage manufacture leading to static fire/test launch	13.590	8.710	29.516
(U) Continue assessment and demonstration of ordnance and post-boost components technology developments	7.679	2.500	5.000
(U) Continue evaluation of hazard classification methods for ICBM solid rocket motors	1.319	0.800	0.000
(U) Total Cost	22.588	12.010	34.516

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

Studies, analyses, and motor test firings will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>					<b>1021 ICBM Propulsion Applications</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u> Evaluation and test of solid propulsion technologies	Various	AFRL, Edwards AFB CA; Aerojet, Sacramento CA; ATK Thiokol, Corrinne UT		13.590	Jan-07	7.395	Jan-08	25.916	Jan-09	Continuing	TBD	TBD	
Assess and demonstrate ordnance and post-boost components				7.295		2.850		5.000	Jan-09	Continuing	TBD	TBD	
Evaluation of hazard classification methods				1.319		0.800		0.000	Jan-09	Continuing	TBD	TBD	
Subtotal Product Development			0.000	22.204		11.045		30.916		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u> Other Program Support	Various	AFRL, Edwards AFB CA; AFSPC, Peterson AFB CO; 526 ICBMSG, Hill AFB UT		0.384	Jan-07	0.365	Jan-08	3.000	Jan-09	Continuing	TBD	TBD	
Subtotal Support			0.000	0.384		0.365		3.000		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test &amp; Evaluation</u> Static Fire (Edwards/AEDC)	C/CPAF			0.000	N/A	0.600	Nov-07	0.600	Nov-08	Continuing	TBD	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.600		0.600		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			0.000	22.588		12.010		34.516		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1021 ICBM Propulsion Applications

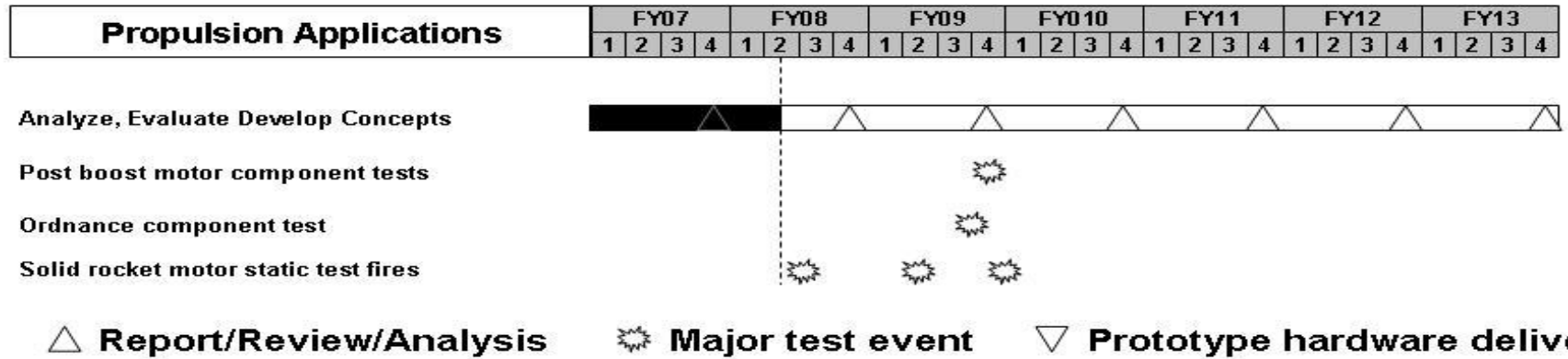


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603851F ICBM - DEM/VAL</b>	<b>1021 ICBM Propulsion Applications</b>		
<b>(U) <u>Schedule Profile</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Evaluate and test solid propulsion technologies for application		1-4Q	1-4Q	1-4Q
(U) -- Periodic Status Reports/Review		4Q	4Q	4Q
(U) -- Solid rocket motor static test fire			2Q	2-4Q
(U) Assessment/demonstration of ordnance and post-boost components technology		1-4Q	1-4Q	1-4Q
(U) --Periodic Status Report/Reviews		4Q	4Q	4Q
(U) --Post Boost Major Component test				4Q
(U) --Ordnance component test				4Q
(U) Evaluate test protocols in support of hazard classification methods		1-4Q	1-4Q	
(U) --Periodic Status Report/Reviews		4Q	4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1022 ICBM Reentry Vehicle Applications</b>			
Cost (\$ in Millions)		FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1022	ICBM Reentry Vehicle Applications	4.600	5.327	5.413	5.555	5.698	5.957	6.159	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The ICBM Reentry Vehicle (RV) Applications Program ensures the Minuteman force is equipped with the safest and most reliable RVs and explores options for common, multi-mission capabilities. A responsive engineering infrastructure supports RVs beyond their original design life by addressing operational system issues and ensuring the availability of long-lead components/materials while identifying life cycle cost reduction methods. The program also develops and tests advanced RV technologies to meet future requirements. The program leverages investments by the Science & Technology community and Navy reentry systems applications program. Products are tested on a space available basis on Minuteman and Trident Force Development Evaluation (FDE) flights.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue evaluation of RV materials through ground and flight tests	1.256	4.636	4.963
(U) Continue development and testing of potential replacement options for critical RV components	2.625	0.691	0.450
(U) Continue evaluation of improved accuracy measurements and methodologies	0.264	0.000	0.000
(U) Continue evaluation of alternate flight test experiment options	0.455	0.000	0.000
(U) Total Cost	4.600	5.327	5.413

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) None									

**(U) D. Acquisition Strategy**

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>				<b>1022 ICBM Reentry Vehicle Applications</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT		3.445	Dec-06	0.621	Nov-07	0.328	Nov-08	Continuing	TBD	TBD
Component/materials development	Various	TBD		0.000	N/A	3.629	Nov-07	3.923	Nov-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	3.445		4.250		4.251		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u> SPO/Other Program Support	Various	526 ICBMSG, Hill AFB UT		0.732	Jan-07	0.539	Jan-08	0.558	Jan-09	Continuing	TBD	TBD
Subtotal Support			0.000	0.732		0.539		0.558		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u> Materials	MIPR	AFRL Materials Lab, Wright-Patterson on AFB;		0.350	Dec-06	0.538	Dec-07	0.494	Dec-08	Continuing	TBD	TBD
Ground Testing	PO	Arnold Engineering & Development Center		0.073	Jan-07	0.000	Jan-08	0.110	Jan-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.423		0.538		0.604		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	4.600		5.327		5.413		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

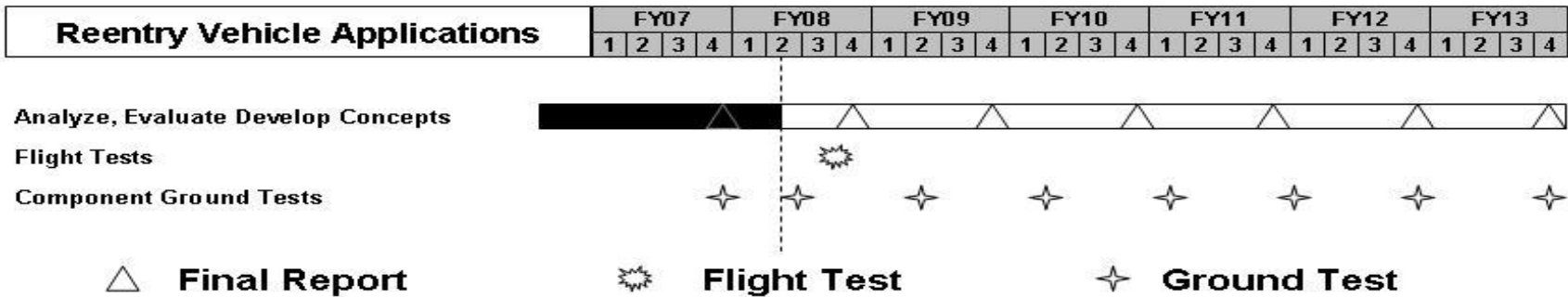
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1022 ICBM Reentry Vehicle Applications





**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603851F ICBM - DEM/VAL**

PROJECT NUMBER AND TITLE

**1022 ICBM Reentry Vehicle Applications**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Materials Replacement & Aging Evaluations	1-4Q	1-4Q	1-4Q
(U) Fuze Assessment/Measurement Tool Development	1-4Q	1-4Q	1-4Q
(U) Critical Components Evaluations	1-4Q	1-4Q	1-4Q
(U) Accuracy Assessment Methodologies Development	1-4Q		
(U) Alternate Flight Test Options Development	1-4Q		
(U) Flight Tests		3Q	
(U) Component Level Ground Tests	4Q	2Q	2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1023 Rocket System Launch Program</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1023 Rocket System Launch Program	0.003	0.029	0.027	0.026	0.025	0.026	0.026	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This task supports hardware studies/analyses for the cost effective use of excess missile assets.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets	0.003	0.029	0.027
(U) Total Cost	0.003	0.029	0.027

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

Studies and analyses will be performed primarily in-house augmented with contractor support as required. Any special projects funded under this project that will require development and/or evaluation of hardware along with the associated employment concepts, will be awarded to qualified industry sources following open competition. Type of contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government, generally using cost plus contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>					<b>1023 Rocket System Launch Program</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
<b>(U) <u>Product Development</u></b>													
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
<b>(U) <u>Support</u></b>													
Engineering Support	Various	Space Development and Test Wing, Kirtland AFB NM		0.003	Jan-07	0.029	Jan-08	0.027	Jan-09	Continuing	TBD	TBD	
Subtotal Support			0.000	0.003		0.029		0.027		Continuing	TBD	TBD	
Remarks:													
<b>(U) Total Cost</b>			0.000	0.003		0.029		0.027		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

Rocket System Launch Program	FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Analyze, evaluate concepts



△ Report/Review/Analysis

☀ Major Test Event

▽ Prototype Hardware Delivery

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Start/Complete Annual Studies/Analysis

1-4Q

1-4Q

1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1024 ICBM Command & Control (C2) Applications	3.487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.586
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

To ensure ICBMs continue to serve as a credible strategic deterrent requires an extremely high confidence in the Command and Control (C2) systems providing connectivity to the President and Secretary of Defense. Assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs) and Launch Facilities (LFs) are essential for mission execution in hostile environments. Continuing analysis is needed to identify and exploit state-of-the-art communications and information transfer techniques that provide required C2 while making the systems more cost effective. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements for nuclear command and control.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Demonstrate Infralynx technology to support secure transportation of strategic assets	3.487	0.000	0.000
(U) Total Cost	3.487	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>	PROJECT NUMBER AND TITLE <b>1024 ICBM Command &amp; Control (C2) Applications</b>
--	---	--

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Infralynx technology demonstration	MIPR	Naval Research Lab		3.487	May-07	0.000	N/A	0.000	N/A	0.000	3.487	6.836
Subtotal Product Development			0.000	3.487		0.000		0.000		0.000	3.487	6.836
Remarks:												
(U) Total Cost			0.000	3.487		0.000		0.000		0.000	3.487	6.836

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

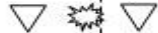
1024 ICBM Command & Control (C2) Applications

Command & Control Applications	FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Concept and prototype development



Demonstrate Infralynx technology



△ Report/Review/Analysis

★ Major Test Event

▽ Prototype Hardware Delivery



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

1024 ICBM Command & Control (C2)  
Applications

(U) Schedule Profile

(U) Concept and prototype development

(U) Field demonstration and assessment

FY 2007

1-4Q

4Q

FY 2008

1-4Q

1-3Q

FY 2009

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603851F ICBM - DEM/VAL</b>			PROJECT NUMBER AND TITLE <b>4209 Long Range Planning (LRP)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4209 Long Range Planning (LRP)	16.821	5.711	2.889	2.873	2.849	2.867	2.885	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Long Range Planning (LRP) task analyzes systems to identify common potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost. The LRP also lays the groundwork for analysis supporting future weapon systems development and deployment.

This program is in Budget Activity 04 - Advanced Component Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity, and provide risk reduction.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue support of the consolidated long range plan	0.473	0.437	0.408
(U) Continue feasibility and life extension studies	0.520	0.510	2.481
(U) Complete LBSD capability concept refinement and pre-Milestone A activities	4.025	0.000	0.000
(U) Conduct conventional ballistic/conventional strike missile systems engineering studies	11.803	4.764	0.000
(U) Total Cost	16.821	5.711	2.889

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

Studies and analyses will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive cost plus contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603851F ICBM - DEM/VAL</b>				<b>4209 Long Range Planning (LRP)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> ICBM Prime Integration Contract	C/CPAF	Northrop Grumman, Clearfield UT		0.167	Jan-07	0.160	Jan-08	0.172	Jan-09	Continuing	TBD	TBD
Conventional Ballistic Missile System Engineering Studies/Conventional Strike Missile	Various	Various		10.088	May-07	4.764	May-08	0.000	N/A	0.000	14.852	11.185
Adaptive Missile Engineering Modernization	C/CPAF	Northrop Grumman, San Bernardino CA		0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	5.000
Studies	Various	Various		0.488	Jan-07	0.407	Jan-08	2.000	Jan-09	Continuing	TBD	TBD
LBSD concept refinement and pre-Milestone A activities	Various	Various		1.205	Oct-06	0.000	N/A	0.000	N/A	0.000	1.205	10.046
Subtotal Product Development Remarks:			0.000	11.948		5.331		2.172		Continuing	TBD	TBD
(U) <u>Support</u> Other program support	Various	AFSPC; 826 ICBMSG, Hill AFB UT		4.873	Jan-07	0.380	Jan-08	0.717	Jan-09	Continuing	TBD	TBD
Subtotal Support Remarks:			0.000	4.873		0.380		0.717		Continuing	TBD	TBD
(U) Total Cost			0.000	16.821		5.711		2.889		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

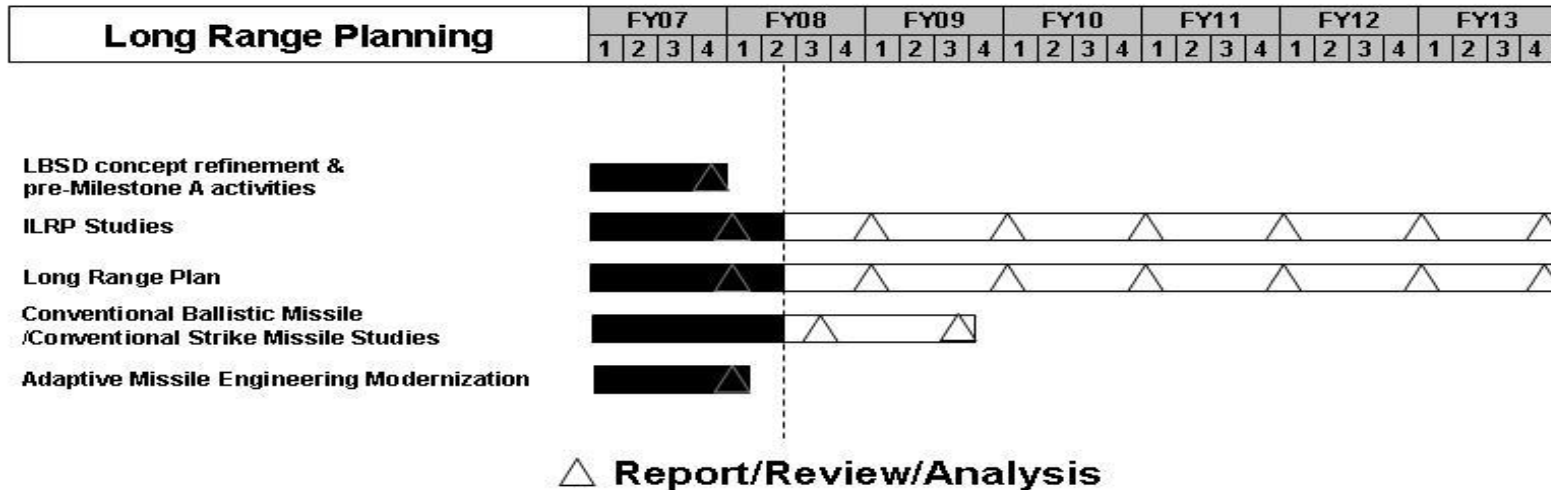


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

PROJECT NUMBER AND TITLE

4209 Long Range Planning (LRP)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Contract Award for Annual Studies/Analyses	2Q	2Q	2Q
(U) --Program Reviews/ Reports Received	4Q	4Q	4Q
(U) LBSD Concept Refinement and pre-Milestone A activities	1-4Q		
(U) Conventional ballistic missile/conventional strike missile studies	1-4Q	1-3Q	1-3Q
(U) Adaptive missile engineering modernization	1-4Q	1Q	

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PE NUMBER: 0603854F  
 PE TITLE: Wideband MILSATCOM (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603854F Wideband MILSATCOM (Space)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	43.998	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD
4811 Wideband Gapfiller	28.466	0.000	0.000	0.000	0.000	0.000	0.000	0.000	314.976
4870 Command & Control System Consolidated (CCSC)	15.532	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Wideband Global SATCOM (WGS) System, previously known as Wideband Gapfiller Satellites, will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (Aug 96), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (Oct 97), and the JROC-approved WGS Operational Requirements Document (May 00). This program was originally conceived to augment the near term 'bandwidth gap' in warfighter communications needs. These dual-frequency WGS satellites will augment the DoD's Defense Satellite Communications Systems (DSCS) X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

The first WGS successfully launched on 10 Oct 07, the second satellite launch is scheduled for Jul 08, and the third satellite launch is scheduled for Nov 08.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY12, Oct 11 and Apr 12 respectively. Satellite 4 launch has been delayed from FY11 to FY12 due to the FY09 WGS 4 booster buy being reprogrammed to FY10.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C-2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) for MILSATCOM satellites phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software, as well as technology needs forecasting, to control all emerging and legacy MILSATCOM systems to include Milstar, DSCS, WGS, and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes, because it supports component development and prototyping for Wideband MILSATCOM

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	37.530	19.213	12.606
(U) Current PBR/President's Budget	43.998	19.091	12.422
(U) Total Adjustments	6.468		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.122	
Congressional Increases			
Reprogrammings	6.468		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY07: Funds reprogrammed to CCS-C to provide critical capability to launch WGS 1-2			



Exhibit R-2a, RDT&E Project Justification

DATE  
February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>			PROJECT NUMBER AND TITLE <b>4811 Wideband Gapfiller</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4811 Wideband Gapfiller	28.466	0.000	0.000	0.000	0.000	0.000	0.000	0.000	314.976
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Wideband Global SATCOM (WGS) System, previously known as Wideband Gapfiller Satellites, will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (Aug 96), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (Oct 97), and the JROC-approved WGS Operational Requirements Document (May 00). This program was originally conceived to augment the near term 'bandwidth gap' in warfighter communications needs. These dual-frequency WGS satellites will augment the DoD's Defense Satellite Communications Systems X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

The first WGS successfully launched on 10 October 2007, the second satellite launch is scheduled for July 2008, and the third satellite launch is scheduled for November 2008.

Satellites 4 and 5 will have slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY12, October 2011 and April 2012 respectively. Satellite 4 launch has been delayed from FY11 to FY12 due to the FY09 WGS 4 booster buy being reprogrammed to FY10.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform efforts such as payload/production studies (e.g., related to parts obsolescence), integration, tests, and support development of WGS control system	2.442		
(U) Provide Program Office Support	0.629		
(U) Perform parts obsolescence redesign for satellites 4 and 5, non-recurring engineering and other related activities	25.395		
(U) Total Cost	28.466	0.000	0.000

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) MPAF, PE 0303600F, WGS, P-19,20	412.498	322.334	22.492	40.419	43.705	29.601	23.898	Continuing	TBD
(U) OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	1.701	1.701	0.000	0.000	0.000	30.166
(U) OPAF, PE 0303600F, CCS-C	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	17.667

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) **D. Acquisition Strategy**

The WGS program has made maximum use of commercial practices and technology in its FAR Part 12, Firm Fixed Price (FFP) acquisition for satellites 1-3. The WGS received MS II/III approval in November 2000 and awarded a FFP contract in January 2001 (three satellites and options for an additional three). Options for satellites 4-6 were not exercised prior to the 31 December 2003 expiration date.

Since WGS-type capabilities are no longer being offered commercially, it is no longer appropriate to use a Firm Fixed Price contract. A Fixed Price Incentive Fee contract, which balances uncertainty of parts obsolescence/production gap with experience gained from WGS 1-3 production, has been approved. Not to exceed letter contract was awarded for satellites 4 and 5 (with unfunded priced option for 6th satellite) in 2nd Qtr FY06. The contract definitized on 17 October 2006.

All five satellites are purchased with procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603854F Wideband MILSATCOM (Space)</b>				<b>4811 Wideband Gapfiller</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Parts Obsolescence Redesign	FPIF	Boeing, El Segundo CA	66.342	25.395	Dec-06						91.737	
WGS Satellite EMD (satellites 1-3)	FFP	Boeing, El Segundo CA	143.013								143.013	
UAV Bypass NRE	FFP	Boeing, El Segundo CA	14.000								14.000	
Payload/Production Studies	Various	Various	28.495	2.442	Dec-06						30.937	
Subtotal Product Development			251.850	27.837		0.000		0.000		0.000	279.687	0.000
Remarks:												
(U) <u>Support</u>												
Joint Terminals Engineering Office	PR	McLean, VA	6.618								6.618	
Pre-EMD	Form 277	Various	5.579								5.579	
Program Support	Various	Various	9.763	0.629	Jan-07						10.392	
Subtotal Support			21.960	0.629		0.000		0.000		0.000	22.589	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			273.810	28.466		0.000		0.000		0.000	302.276	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE  
4811 Wideband Gapfiller

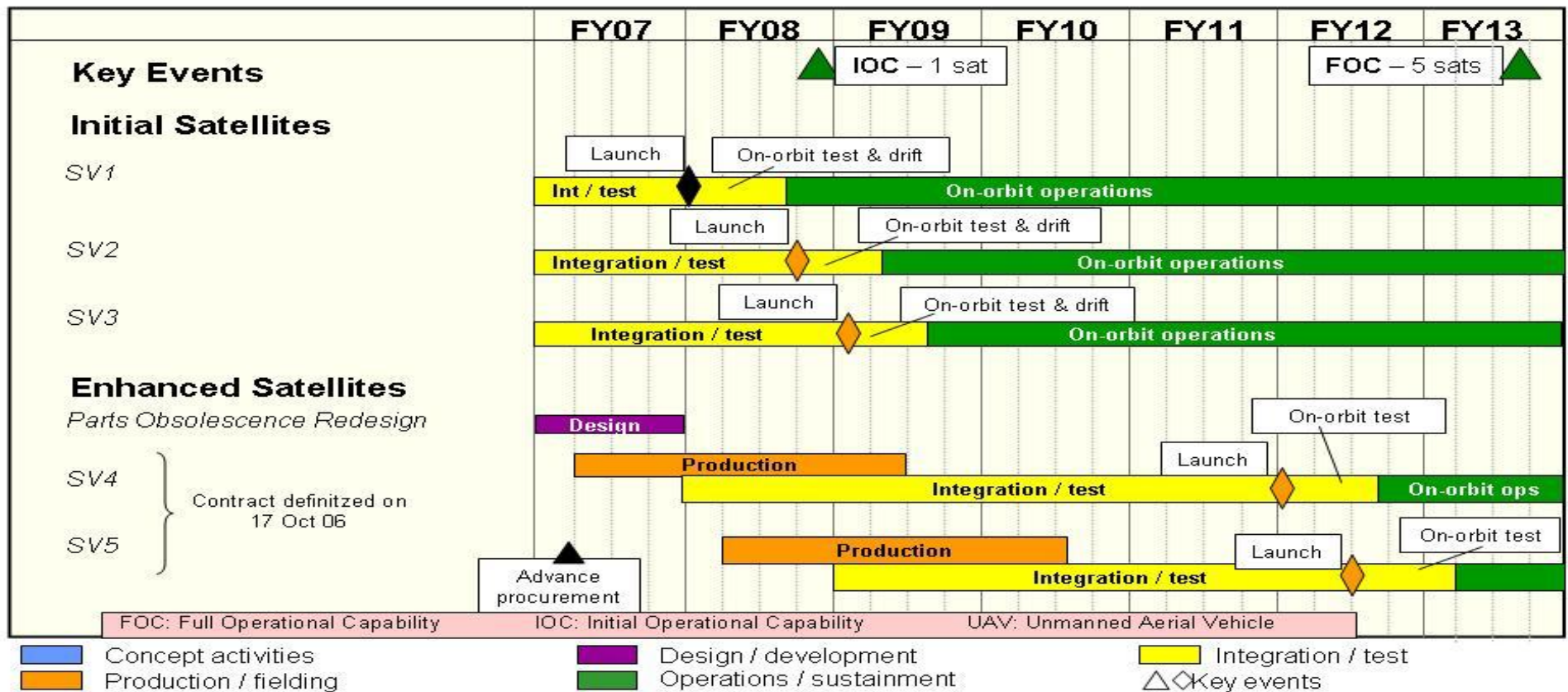


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Complete parts obsolescence redesign

4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>			PROJECT NUMBER AND TITLE <b>4870 Command &amp; Control System Consolidated (CCSC)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4870 Command & Control System Consolidated (CCSC)	15.532	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Military Satellite Communications (MILSATCOM) Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality, and backup operations at Vandenberg AFB, for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Global SATCOM (WGS), and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

FY09 funds provide required command and control capability to launch AEHF satellites.

Funding is in Budget Activity 4, ACD&P, to support software development and activation of the CCS-C installation and test facility.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue development of command and control functionality for WGS and AEHF satellites. Completed command and control functionality Milstar (1QFY06)	13.063	16.780	9.951
(U) Continue Program Office and other related support activities, to include Systems Engineering and Integration	2.469	2.311	2.471
(U) Total Cost	15.532	19.091	12.422

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN									
(U) OPAF, PE 0303600F, CCS-C	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	17.667

**(U) D. Acquisition Strategy**

Competitive contracts with cost plus award fee options, were awarded in February 2001 to two teams to demonstrate capabilities for the concept demonstration phase. A downselect to a single team was awarded in March 2002 to develop the system for the development phase.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603854F Wideband MILSATCOM (Space)</b>				<b>4870 Command &amp; Control System Consolidated (CCSC)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Demonstration Contractors	FFP		6.800							0.000	6.800	
Development Contractor: Integral Systems, Inc.	CPAF	Lanham, MD	87.419	13.063	Oct-06	16.780	Oct-07	9.951	Oct-08	Continuing	TBD	
Subtotal Product Development			94.219	13.063		16.780		9.951		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
CCSC Program Support Cost			18.059	2.469	Oct-06	2.311	Oct-07	2.471	Oct-08	Continuing	TBD	
Subtotal Support			18.059	2.469		2.311		2.471		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
None											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			112.278	15.532		19.091		12.422		Continuing	TBD	0.000





Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)

(U) Schedule Profile

- (U) Continue WGS Integration & Test
- (U) Began AEHF Integration & Test
- (U) Continue WGS Integration & Test
- (U) Continue AEHF Integration & Test
- (U) Transition WGS into Sustainment
- (U) Continue AEHF Integration & Test

FY 2007

- 1-4Q
- 2Q

FY 2008

- 1-4Q
- 1-4Q

FY 2009

- 1Q
- 1Q

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**UNCLASSIFIED**

PE NUMBER: 0603858F  
 PE TITLE: Space Radar

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603858F Space Radar</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	183.201	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A004 SBR Concept and Technology Development	183.201	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY 2008 Project 64A004 SBR Concept & Tech Development efforts were transferred from PE 0603858F to another PE.

**(U) A. Mission Description and Budget Item Justification**

DoD and National users have committed to pursue a common, flexible, agile, and responsive space radar system which will address future intelligence, surveillance, and reconnaissance (ISR) needs of DoD, national intelligence and civil users. Key to this commitment is the continued development of a flexible and agile multi-mode radar providing Synthetic Aperture Radar (SAR), Surface Moving Target Indications (SMTI), High Resolution Terrain Information (HRTI), Advanced Geospatial Intelligence (AGI) and Open Ocean Surveillance (OOS) capabilities. Space Radar will be supported by a ground infrastructure and a space and terrestrial communications network that permits Space Radar data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. Space Radar will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. Space Radar's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict. The program is moving toward a progressive capabilities acquisition strategy that better balances affordability with an incremental capability evolution.

Beginning in FY08, funding for the program was transferred to another PE. Additional information may be provided upon request.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	266.401	565.470	1,068.093
(U) Current PBR/President's Budget	183.201	0.000	0.000
(U) Total Adjustments	-83.200		
(U) Congressional Program Reductions	-80.298		
Congressional Rescissions	-0.704		
Congressional Increases			
Reprogrammings	-2.198		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Beginning in FY08, the funding for the program was transferred to another PE. Additional information may be provided upon request.

In FY07, the concept definition efforts were adjusted to maximize the use of ground, airborne, and existing space elements to reduce risk, mature radar technologies, and implement concepts for horizontal integration. The technology maturation and development efforts resulted in increased confidence in program cost estimation and payload

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603858F Space Radar

development.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603858F Space Radar</b>			PROJECT NUMBER AND TITLE <b>A004 SBR Concept and Technology Development</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A004 SBR Concept and Technology Development	183.201	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2008 Project 64A004 SBR Concept & Tech Development efforts were transferred from PE 0603858F to another PE.

**(U) A. Mission Description and Budget Item Justification**

DoD and National users have committed to pursue a common, flexible, agile, and responsive space radar system which will address future intelligence, surveillance, and reconnaissance (ISR) needs of DoD, national intelligence and civil users. Key to this commitment is the continued development of a flexible and agile multi-mode radar providing Synthetic Aperture Radar (SAR), Surface Moving Target Indications (SMTI), High Resolution Terrain Information (HRTI), Advanced Geospatial Intelligence (AGI) and Open Ocean Surveillance (OOS) capabilities. Space Radar will be supported by a ground infrastructure and a space and terrestrial communications network that permits Space Radar data to be stored, processed, exploited, and disseminated within timelines responsive to the needs of the user community. Space Radar will allow a deep look into denied areas of interest in all weather, day or night, without risk to personnel or equipment. Space Radar's on-demand intelligence capability will have global utility during peacetime and across the entire spectrum of conflict. The program is moving toward a progressive capabilities acquisition strategy that better balances affordability with an incremental capability evolution.

Beginning in FY08, funding for the program was transferred to another PE. Additional information may be provided upon request.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) FY07 Accomplishments included technology risk reduction efforts and systems engineering trades to develop progressive capabilities that better balance affordability with incremental capability evolution.	166.871	0.000	0.000
(U) Continue program support activities to include, but not limited to acquisition planning, schedule management, requirements/CONOPS development, source selection, and financial management.	16.330	0.000	0.000
(U) Total Cost	183.201	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Related Office of Director of National Intelligence (ODNI) funding *									
(U) Related DoD funding**									

\* ODNI - National Intelligence Program (NIP) funding share is detailed in separate classified ODNI submission  
 \*\* DoD - Military Intelligence Program (MIP) funding share is detailed in separate classified DoD submission

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology  
Development(U) **D. Acquisition Strategy**

The Space Radar Integrated Program Office (SR IPO) is currently adjusting SR's acquisition approach and is moving toward a progressive capabilities acquisition strategy that better balances affordability with incremental capability evolution. The new approach is expected to impact the current FY08 and beyond program plan. The FY 2008 Defense Appropriation Conference report anticipates a revised plan in early CY 2008, and the SR IPO is working toward that goal.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603858F Space Radar</b>				<b>A004 SBR Concept and Technology Development</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Phase A Concept Development/Technology Risk Reduction Activities/Phase B RR & Design Development	Various Contracts	Various		166.871	Oct-06						166.871	
Subtotal Product Development			0.000	166.871		0.000		0.000		0.000	166.871	0.000
Remarks:												
(U) <u>Support</u>												
SMC, ESC, AFSPC, and other agencies	Various Contracts	Various		16.330	Oct-06						16.330	
Subtotal Support			0.000	16.330		0.000		0.000		0.000	16.330	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
N/A											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
N/A											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	183.201		0.000		0.000		0.000	183.201	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

0603858F Space Radar schedule details are not included in this section for classification reasons. Information may be provided upon request.



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603858F Space Radar

PROJECT NUMBER AND TITLE

A004 SBR Concept and Technology Development

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Details removed due to classification reasons.

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**UNCLASSIFIED**

PE NUMBER: 0603859F  
 PE TITLE: Pollution Prevention

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603859F Pollution Prevention</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.829	10.968	2.877	2.945	2.991	3.050	3.112	Continuing	TBD
4852 Pollution Prevention	6.829	10.968	2.877	2.945	2.991	3.050	3.112	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**  
 Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	7.026	2.838	2.901
(U) Current PBR/President's Budget	6.829	10.968	2.877
(U) Total Adjustments	-0.197		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.197		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603859F Pollution Prevention</b>			PROJECT NUMBER AND TITLE <b>4852 Pollution Prevention</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4852 Pollution Prevention	6.829	10.968	2.877	2.945	2.991	3.050	3.112	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Funds will be used to target R&D activities that demonstrate and prototype alternative weapon system painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction development/prototype requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacements for cadmium and chrome plating. This program is Budget Activity (BA) 4, Advanced Component Development and Prototypes, because this account is primarily for development and prototyping of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste Compliance Burden Reduction	1.119	1.073	1.097
(U) Clean Air Act Compliance Burden Reduction	0.954	2.100	1.128
(U) O2 Diesel Air Quality Improvement (Congressional Insert)	0.968	6.000	0.000
(U) Clean Water Act Compliance Burden Reduction	0.209	0.200	0.205
(U) Hazardous Material Use Reduction	0.371	0.356	0.340
(U) Other	0.110	0.105	0.107
(U) Automating DoD Processes for Depot Transformation (Congressional Insert)	2.130	1.134	0.000
(U) Assessment of Alternate Energy for Aircraft Ground Equipment (Congressional Insert)	0.968	0.000	0.000
(U) Total Cost	6.829	10.968	2.877

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

**(U) D. Acquisition Strategy**

Pollution Prevention activities are level of effort and use time and materials support contracts.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
04 Advanced Component Development and Prototypes (ACD&P)				0603859F Pollution Prevention					4852 Pollution Prevention				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Air Force Research Lab	Various	Various	7.566	1.972	Apr-07	3.856	Apr-08	0.805	Apr-09	Continuing	TBD	TBD	
Subtotal Product Development			7.566	1.972		3.856		0.805		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u>													
Air Force Research Lab	Various	Various	6.292	1.657	Apr-07	0.660	Apr-08	0.652	Apr-09	Continuing	TBD	TBD	
Subtotal Support			6.292	1.657		0.660		0.652		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u>													
Air Force Research Lab	Various	Various	1.097	0.386	Sep-07	0.152	Sep-08	0.154	Sep-09	Continuing	TBD	TBD	
Subtotal Management			1.097	0.386		0.152		0.154		Continuing	TBD	TBD	
Remarks:													
(U) <u>Prototype</u>													
Air Force Research Lab	Various	Various	10.497	2.814	Apr-07	6.300	Apr-08	1.266	Apr-09	Continuing	TBD	TBD	
Subtotal Prototype			10.497	2.814		6.300		1.266		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			25.452	6.829		10.968		2.877		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

# Pollution Prevention Demonstration Schedules

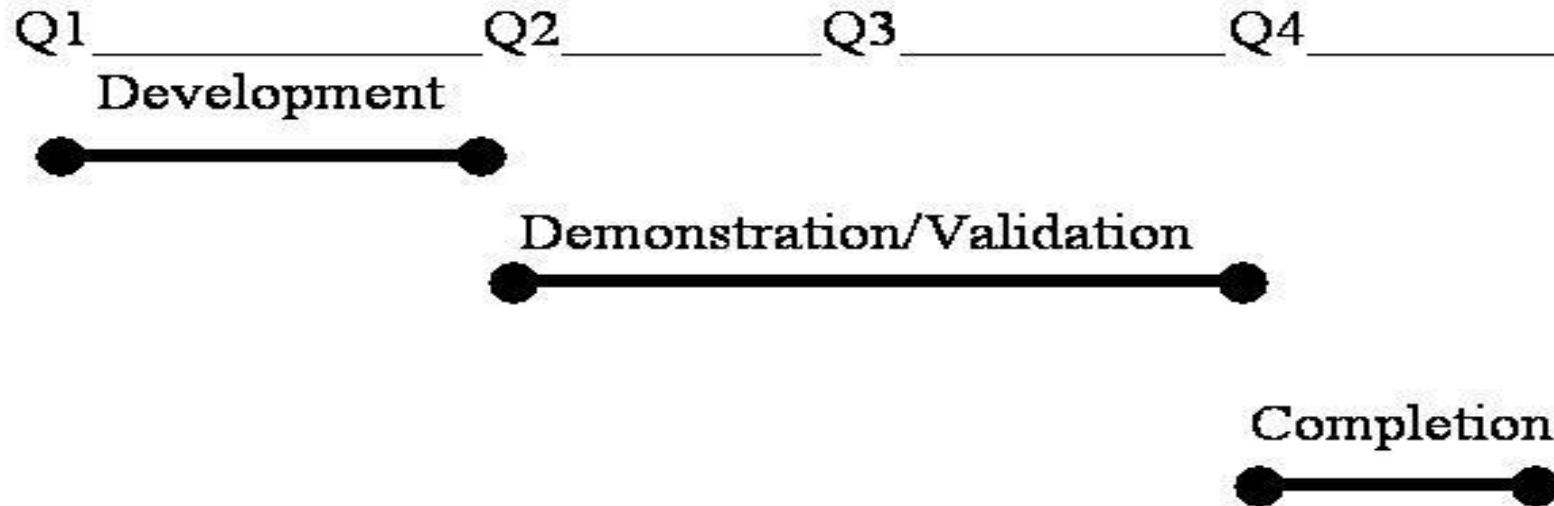


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603859F Pollution Prevention

PROJECT NUMBER AND TITLE

4852 Pollution Prevention

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Development

1Q

1Q

1Q

(U) Prototype

2-3Q

2-3Q

2-3Q

(U) Contract Completion

4Q

4Q

4Q

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**UNCLASSIFIED**

PE NUMBER: 0603860F

PE TITLE: Joint Precision Approach and Landing Systems - Dem/Val

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								<b>DATE</b> <b>February 2008</b>	
<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>					
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.524	7.451	7.479	7.872	2.324	2.093	1.941	Continuing	TBD
4652 Precision Landing Systems	9.524	7.451	7.479	7.872	2.324	2.093	1.941	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The USAF is responsible for developing the common system architecture for the Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Development Document (CDD) in March 2007 and transferred lead service responsibilities to the Navy. JPALS will define the future precision approach and landing system for the Department of Defense (DOD) to provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Also, JPALS will enhance DOD's ability to obtain civil interoperability with the Federal Aviation Administration's (FAA) projected Local Area Augmentation System (LAAS). This program will participate in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. Furthermore, JPALS will provide a precision landing capability where none currently exists: interoperability for naval aircraft landing at shore-based airfields operated by other services; interoperability for Navy/USMC and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS Analysis of Alternatives (AoA) Update identified a family of systems (FoS) based on GPS technology solutions for fixed base, tactical and sea-based environments and Enhanced Vision Systems (EVS) for the special operations environment as the best choice for mitigating the capability gaps and meeting user needs. Development activities are initially focused on reducing technical risks. First, JPALS will provide needed guidance quality in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, because a cornerstone of the JPALS implementation strategy is world wide military and civil interoperability, JPALS will harmonize with US and international civil satellite navigation and ground navigation systems development to support development of an international implementation timeline and strategy. JPALS will result in avionics modifications to over 13,000 DOD aircraft. EVS technologies will also be monitored and evaluated, because they are a planned future JPALS increment and have the potential to provide an autonomous near zero visibility landing capability for special operations and Air Mobility Command first-in aircraft.

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603860F Joint Precision Approach and Landing Systems - Dem/Val

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	9.908	7.544	8.656
(U) Current PBR/President's Budget	9.524	7.451	7.479
(U) Total Adjustments	-0.384		
(U) Congressional Program Reductions	-0.111	-0.093	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.273		
(U) <u>Significant Program Changes:</u>			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>			<b>4652 Precision Landing Systems</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4652 Precision Landing Systems	9.524	7.451	7.479	7.872	2.324	2.093	1.941	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The USAF is responsible for developing the common system architecture for the Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Development Document (CDD) in March 2007 and transferred lead service responsibilities to the Navy. JPALS will define the future precision approach and landing system for the Department of Defense (DOD) to provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Also, JPALS will enhance DOD's ability to obtain civil interoperability with the Federal Aviation Administration's (FAA) projected Local Area Augmentation System (LAAS). This program will participate in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DOD missions and training by enabling US forces to land on any JPALS-equipped airfield worldwide (land and sea) under peacetime and hostile conditions. Furthermore, JPALS will provide a precision landing capability where none currently exists: interoperability for naval aircraft landing at shore-based airfields operated by other services; interoperability for Navy/USMC and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet landing at DOD airfields. The 2005 JPALS Analysis of Alternatives (AoA) Update identified a family of systems (FoS) based on GPS technology solutions for fixed base, tactical and sea-based environments and Enhanced Vision Systems (EVS) for the special operations environment as the best choice for mitigating the capability gaps and meeting user needs. Development activities are initially focused on reducing technical risks. First, JPALS will provide needed guidance quality in the presence of Global Positioning System (GPS) jamming. Second, its architecture will be developed to integrate and synchronize with related Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centricity operations. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, because a cornerstone of the JPALS implementation strategy is world wide military and civil interoperability, JPALS will harmonize with US and international civil satellite navigation and ground navigation systems development to support development of an international implementation timeline and strategy. JPALS will result in avionics modifications to over 13,000 DOD aircraft. EVS technologies will also be monitored and evaluated, because they are a planned future JPALS increment and have the potential to provide an autonomous near zero visibility landing capability for special operations and Air Mobility Command first-in aircraft.

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>	PROJECT NUMBER AND TITLE <b>4652 Precision Landing Systems</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform anti-jam and threat analysis	1.220	0.700	0.500
(U) Perform architecture trade studies and analyses	1.774	1.104	0.700
(U) Perform aircraft requirements and integration studies	0.250	0.080	0.115
(U) Flight test support	0.417	0.200	0.000
(U) Requirements development and system design, analysis, engineering, test and evaluation	5.613	4.797	3.493
(U) Development of future JPALS spirals/increments	0.250	0.250	0.250
(U) MS B preparation	0.000	0.320	2.421
(U) Total Cost	9.524	7.451	7.479

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Other APPN

(U) **D. Acquisition Strategy**

All contracts will be competitively awarded. For Technology Demonstration (TD) efforts leading to Milestone B, we awarded multiple Time and Materials (T&M) contracts.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>				<b>4652 Precision Landing Systems</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Aircraft Anti-jam & Threat Analyses	C/T&M	AES, California, MD		1.220	Feb-07	0.700	Feb-08	0.500	Feb-09	Continuing	TBD	TBD
Architecture Trade Studies & Analyses	C/T&M	AES, California, MD		1.774	Feb-07	1.104	May-08	0.700	May-09	Continuing	TBD	TBD
Aircraft Requirements & Integration Studies	C/T&M	AES, California, MD		0.250	Feb-07	0.080	Feb-08	0.115	Feb-09	Continuing	TBD	TBD
Requirements Development, System Design, Analysis, Engineering, Test and Evaluation	C/T&M	AES, California, MD		5.613	Feb-07	4.797	Apr-08	3.493	Apr-09	Continuing	TBD	TBD
Program Planning For Future JPALS Spirals	C/T&M	ESC / ETASS / PASS / ITSP II (Various), Bedford, MA		0.250	Feb-07	0.250	May-08	0.250	May-09	Continuing	TBD	TBD
Milestone B preparation	C/T&M	ESC / ETASS / PASS / ITSP II (Various), Bedford, MA				0.320	Jun-08	2.421	Feb-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	9.107		7.251		7.479		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Flight Test Support	MIPR	46TG/XPRF, Holloman, NM		0.417	Mar-07	0.200	Mar-08			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.417		0.200		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	9.524		7.451		7.479		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

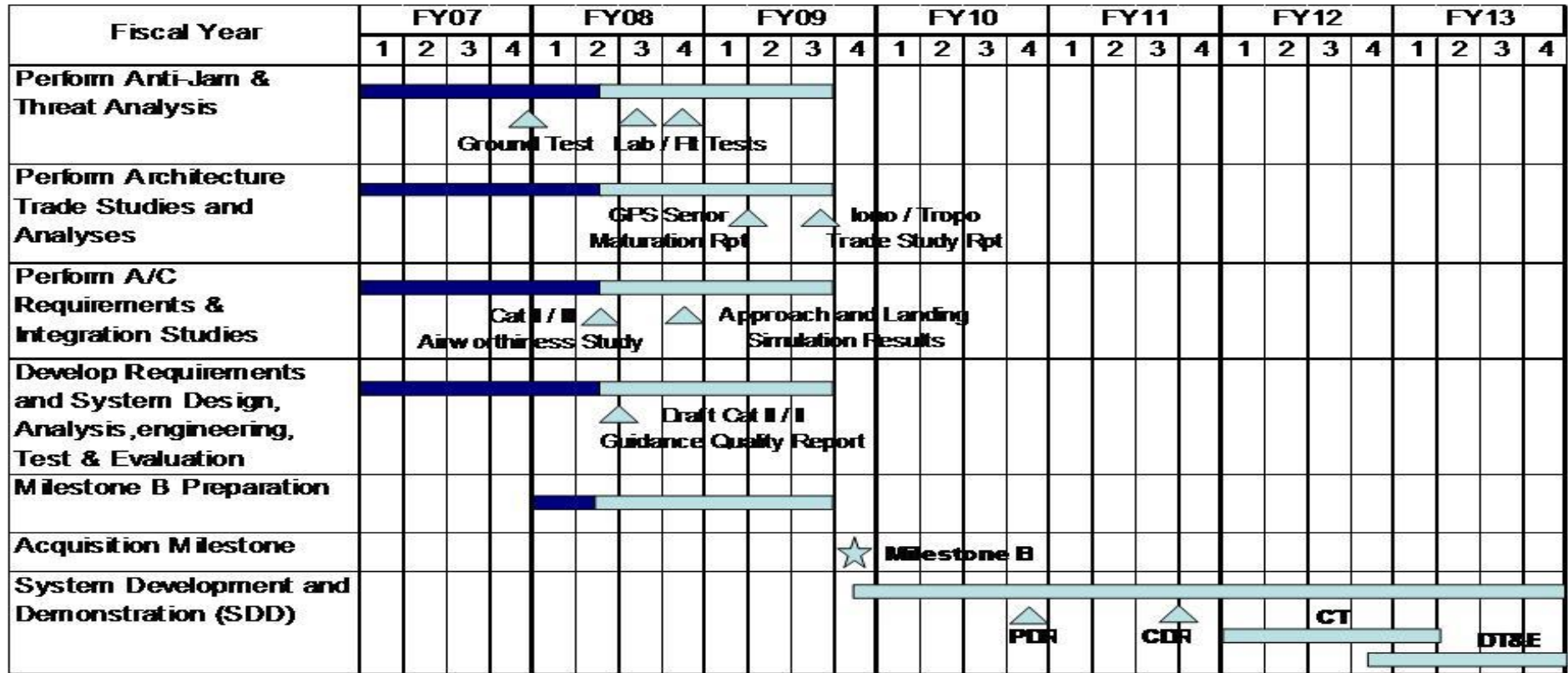
DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0603860F Joint Precision Approach  
and Landing Systems - Dem/Val

PROJECT NUMBER AND TITLE  
4652 Precision Landing Systems



Milestone Decision Points



Event



Planned Ongoing Activity



Ongoing Activity that is Complete

As of February 2008

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603860F Joint Precision Approach and Landing Systems - Dem/Val</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4652 Precision Landing Systems</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Anti-Jam & Threat Analysis Tests	4Q	3-4Q	
(U) Complete Anti-Jam & Threat Analysis			3Q
(U) Sensor and Iono/Tropo Reports			1-3Q
(U) Complete Architecture Trade Studies and Analyses			3Q
(U) Category (Cat) II/III Air Worthiness Study/Simulation		2-4Q	
(U) Complete A/C Requirements & Integration Studies			3Q
(U) Draft Cat II/III Guidance Quality Report		1Q	
(U) Complete Requirements and System Design, Analysis, Engineering, and Test and Evaluation			3Q
(U) Complete Milestone B Preparation			3Q
(U) Acquisition Milestone			4Q
(U) Begin System Development and Demonstration (SDD)			4Q

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**UNCLASSIFIED**

PE NUMBER: 0604015F  
 PE TITLE: Next Generation Long Range Strike (NGLRS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604015F Next Generation Long Range Strike (NGLRS)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.476	0.000	0.000	0.000	80.328	100.163	150.027	Continuing	TBD
3308 Next Generation Bomber	37.476	0.000	0.000	0.000	80.328	100.163	150.027	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program develops and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force three-phase long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architecture development, maturation and risk reduction of advanced Long Range Strike related technologies, and integrated system concept development and demonstration. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	25.491	0.000	0.000
(U) Current PBR/President's Budget	37.476	0.000	0.000
(U) Total Adjustments	11.985		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	12.701		
SBIR/STTR Transfer	-0.716		

**(U) Significant Program Changes:**

FY07: \$8.701M BTR for Automated Aerial Refueling (AAR) Phase I Demonstration completion; \$4.0M reprogramming from FY07 Omnibus for AAR Phase II initiation.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0604015F Next Generation Long Range Strike (NGLRS)</b>			<b>PROJECT NUMBER AND TITLE</b> <b>3308 Next Generation Bomber</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3308 Next Generation Bomber	37.476	0.000	0.000	0.000	80.328	100.163	150.027	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 This program develops and demonstrates a next generation Long Range Strike capability in support of Air Force Global Strike and Global Persistent Attack Concept of Operations. Program efforts support the Air Force three-phase long range strike strategy. This program will provide capability improvements in the areas of strike responsiveness, persistence, survivability, lethality, connectivity, and affordability. A wide variety of concept options are being considered for a Long Range Strike air platform. Funding supports Capability Needs Assessment, Analysis of Alternatives, operational and system architecture development, maturation and risk reduction of advanced Long Range Strike related technologies, and integrated system concept development and demonstration. This program is categorized as Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment applicable to Long Range Strike.

<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Develop and refine Long Range Strike requirements based on the Air Force Global Strike and Global Persistent Attack Concept of Operations.	37.476		
(U) In FY 2007: Continue refinement of system concepts and designs and operational/system architectures. Continue Analysis of Alternatives to identify preferred long range strike option. Continue preparation of the Technology Development Strategy. Continue projects to mature key technologies including mitigating risk of key concept attributes of the possible options. Develop a Modeling and Simulation Support Plan to ensure robust analytic support across the concept life cycle. Continue development of radio frequency/electro-optical/infrared sensor technology for radio and accurate target detection and identification capability. Continue development of high temperature and variable cycle engine core components, sensor/aperture integration technology, and advanced weapon integration technology. Complete Automated Aerial Refueling (AAR) Phase I demonstration and initiate AAR Phase II development, including Precision GPS capability.			
(U) In FY 2008: N/A			
(U) In FY 2009: N/A			
(U) Total Cost	37.476	0.000	0.000

<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A									

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long  
Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) D. Acquisition Strategy

To be determined.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604015F Next Generation Long Range Strike (NGLRS)</b>	PROJECT NUMBER AND TITLE <b>3308 Next Generation Bomber</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Long Range Strike</u>												
Concept Exploration and Refinement	TBD	TBD	97.141	37.476						Continuing	TBD	
Subtotal Long Range Strike			97.141	37.476		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			97.141	37.476		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

NGB Schedule	FY06				FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>NGLRS Concept Refinement</b>	█																															
<b>NGLRS AoA Completion</b>							▲																									
<b>Automated Aerial Refueling Phase I Demonstration</b>								▲																								
<b>Automated Aerial Refueling Phase II Initiation</b>									▲																							

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604015F Next Generation Long Range Strike (NGLRS)

PROJECT NUMBER AND TITLE

3308 Next Generation Bomber

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) AoA Completion

3Q

(U) AAR Phase I Demonstration

4Q

(U) AAR Phase II Initiation

1Q

**UNCLASSIFIED**

PE NUMBER: 0604796F  
 PE TITLE: Alternative Fuels

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604796F Alternative Fuels</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	28.464	47.202	15.056	9.559	3.240	Continuing	TBD
5287 Assured Fuels	0.000	0.000	28.464	47.202	15.056	9.559	3.240	Continuing	TBD

Note: PE 0604796F is a new PE in FY09. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE (0605011F).

**(U) A. Mission Description and Budget Item Justification**

The Alternative Fuels program provides for the certification and transition of alternative fuels, including various synthetic fuels, bio-mass derived fuels, and fuel blend technologies for operational use in all legacy and future weapon systems, appropriate support equipment, and fuel delivery system infrastructure. This effort includes complete system evaluations, studies and analysis, subsystem and system-level testing, safety, environmental analysis, purchase of fuel stock, fuel storage and transport, and other USAF certification costs. Scope of activities include interaction with all USAF weapon systems single managers to accomplish complete certification activities for applicable weapon systems. In sum, this initiative provides assured fuels by decreasing US dependence on foreign oil and securing additional fuel-types on which to conduct world-wide operations.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	28.464
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY09 funding of \$28.464M is the initial funding for this new PE in FY09. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE (0605011F).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>PE NUMBER AND TITLE</b> <b>0604796F Alternative Fuels</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5287 Assured Fuels</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5287 Assured Fuels	0.000	0.000	28.464	47.202	15.056	9.559	3.240	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Note: PE 0604796F is a new PE in FY09. Previous alternative fuels work was accomplished in the "RDT&E for Aging Aircraft" PE (0605011F).

**(U) A. Mission Description and Budget Item Justification**

The Alternative Fuels program provides for the certification and transition of alternative fuels, including various synthetic fuels, bio-mass derived fuels, and fuel blend technologies for operational use in all legacy and future weapon systems, appropriate support equipment, and fuel delivery system infrastructure. This effort includes complete system evaluations, studies and analysis, subsystem and system-level testing, safety, environmental analysis, purchase of fuel stock, fuel storage and transport, and other USAF certification costs. Scope of activities include interaction with all USAF weapon systems single managers to accomplish complete certification activities for applicable weapon systems. In sum, this initiative provides assured fuels by decreasing US dependence on foreign oil and securing additional fuel-types on which to conduct world-wide operations.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Certify Air Force weapon systems to operate using any number of alternative fuel stocks. Includes costs to purchase/store/transport fuel, perform system analysis/testing, assess safety impacts, and complete required certification activities.			26.390
(U) Determine compatibility/operability of materials, valves, fuel pumps, Automated Tank Gauging (ATG), distribution pipelines, Fuels Mobility Support Equipment (FMSE) and other applicable storage stability, refueling and full scale filtration equipment evaluations, determine environmental impacts/requirements satisfaction for new fuel delivery to base storage and travel required for site visits, meeting attendance for information collection/status updates, and those visits necessary to keep initiative management on track.			0.796
(U) Mission Support Costs - costs required to support and manage the program, to include travel and supplies			1.278
(U) Total Cost	0.000	0.000	28.464

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Fuel - 3400			27.900	21.455	12.795	6.350	2.772		

**(U) D. Acquisition Strategy**

Funding may be executed internally within the 77th Aeronautical Systems Wing via full and open competition or released to other organizations for alternative fuel certification projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle to accomplish the project.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0604796F Alternative Fuels</b>					<b>5287 Assured Fuels</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Support</u> Certify Air Force weapon Systems to operate using a variety of alternative fuel stocks, purchase/store/transport fuel, perform system analysis/testing, assess safety impacts, and complete all other certification requirements	Various	77th AESW/AF						26.390			26.390	
Determine compatibility/operability of materials, valves, fuel pumps, Automated Tank Gauging (ATG), distribution pipelines, Fuels Mobility Support Equipment (FMSE) and other applicable storage stability, refueling and full scale filtration equipment evaluations, determine environmental impacts/requirements satisfaction for new fuel delivery to base storage and travel required for site visits, meeting attendance for information collection/status updates, and those visits necessary to keep initiative management on track.	Various	AFPET						0.796			0.796	
Subtotal Support Remarks:			0.000	0.000		0.000		27.186		0.000	27.186	0.000
(U) <u>Management</u> Management and support costs associated with the Alternative Fuels effort to include travel and supplies	Various							1.278			1.278	
Subtotal Management Remarks:			0.000	0.000		0.000		1.278		0.000	1.278	0.000
(U) Total Cost			0.000	0.000		0.000		28.464		0.000	28.464	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0604796F Alternative Fuels

PROJECT NUMBER AND TITLE  
5287 Assured Fuels

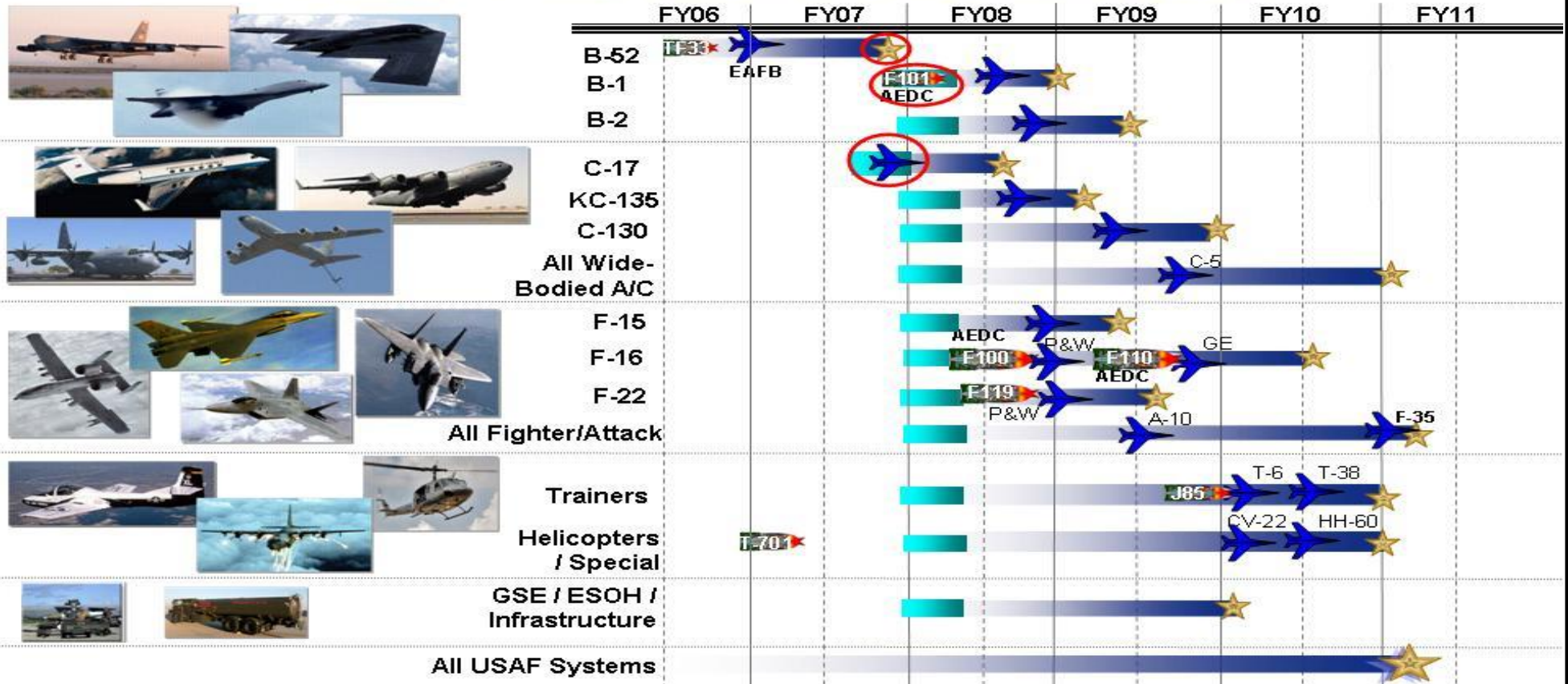


U.S. AIR FORCE

# Certification Schedule



Maximizing War-winning Capabilities For... Every Airman... Every Aircraft



As of: 08 Jan 08



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604796F Alternative Fuels

PROJECT NUMBER AND TITLE

5287 Assured Fuels

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Certification Efforts

1-4Q

(U) Flight Tests

1-4Q

(U) Engine Tests

2-3Q

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**UNCLASSIFIED**

PE NUMBER: 0604830F  
 PE TITLE: Automated Air-to-Air Refueling

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604830F Automated Air-to-Air Refueling</b>
---	--

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	9.889	44.448	48.387	14.812	0.000	0.000	0.000
2214   Optionally Unmanned Development	0.000	0.000	9.889	44.448	48.387	14.812	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

This program develops, demonstrates, and validates the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS. Program efforts support the Next Generation Long Range Strike capability and the Next Generation Bomber development strategies.

Capability improvements result from extending the operating range and in-flight endurance of current and future manned, unmanned, and optionally unmanned systems.

This funding supports development, demonstration, and validation of technologies for precision navigation and flight control with redundancy to ensure safety of flight; development and demonstration of technologies for sensors and flight controls to ensure collision avoidance and contingency management; modeling and simulation for technique development and risk reduction; and development and demonstration of command and control strategies, including at beyond-line-of-sight distances. This includes design and demonstration of AAR-related Tactical Targeting Network Technology (TTNT) capabilities, which enable net-centric sensor technologies to correlate information among multiple platforms and precisely locate time-critical targets.

This program is categorized as a Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	9.889
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY09 - This program develops, demonstrates, and validates the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS.

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0604830F Automated Air-to-Air Refueling</b>			PROJECT NUMBER AND TITLE <b>2214 Optionally Unmanned Development</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2214 Optionally Unmanned Development	0.000	0.000	9.889	44.448	48.387	14.812	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**  
 This program develops, demonstrates, and validates the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS. Program efforts support the Next Generation Long Range Strike capability and the Next Generation Bomber development strategies.

Capability improvements result from extending the operating range and in-flight endurance of current and future manned, unmanned, and optionally unmanned systems.

This funding supports development, demonstration, and validation of technologies for precision navigation and flight control with redundancy to ensure safety of flight; development and demonstration of technologies for sensors and flight controls to ensure collision avoidance and contingency management; modeling and simulation for technique development and risk reduction; and development and demonstration of command and control strategies, including at beyond-line-of-sight distances. This includes design and demonstration of AAR-related Tactical Targeting Network Technology (TTNT) capabilities, which enable net-centric sensor technologies to correlate information among multiple platforms and precisely locate time-critical targets.

This program is categorized as a Budget Activity 4, Advanced Component Development and Prototypes, since advanced technologies will be explored and integrated for demonstration in a realistic operating environment.

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Develop, demonstrate, and validate the ability to air refuel aircraft without the intervention of a pilot in the receiving craft to enable the Global Strike, Global Persistent Attack, Global Mobility, and C4ISR CONOPS.			
(U) In FY 2009: Develop flight control and precision navigation (PGPS) systems for initial capability of automated air-to-air refueling (AAR).			9.889
(U) In FY 2010: Integrate and start testing automated air-to-air refueling flight controls and precision navigation initial capability using a KC-135 tanker and a limited test aircraft. Prepare test resources for automated air-to-air refueling systems to allow for receiving aircraft to take on fuel from tanker aircraft. Start evaluation of Non-GPS/Hybrid AAR positioning system enhancements to allow for a full AAR capability.			
(U) In FY2011: Continue preparation of test resources to allow for receiving aircraft to take on fuel from tanker aircraft. Refine AAR flight controls and precision navigation systems for initial AAR capability. Continue testing PGPS and flight controls using a KC-135 tanker and limited test aircraft. Continue evaluation and design on Hybrid AAR			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604830F Automated Air-to-Air Refueling</b>	PROJECT NUMBER AND TITLE <b>2214 Optionally Unmanned Development</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
positioning systems enhancements.			
(U) Total Cost	0.000	0.000	9.889

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Appn 28, PE 0604015F, Next Generation Bomber	37.476	0.000	0.000	0.000	80.328	100.163	150.027		TBD

(U) **D. Acquisition Strategy**  
 Principal acquisitions to be performed through Broad Area Announcements (BAA) resulting in competitive Cost Plus Fixed Fee contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0604830F Automated Air-to-Air Refueling</b>					<b>2214 Optionally Unmanned Development</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Precision GPS Development	CPFF	Boeing, St Louis MO	0.000	0.000		0.000		4.000	Dec-08		4.000	TBD
Tactical Targeting Network Technology (TTNT)	CPFF	Rockwell Collins, Cedar Rapids IA	0.000	0.000		0.000		1.000	Dec-08		1.000	TBD
Phase II System Development and Demonstration	CPFF	TBD (release BAA in Apr 08)	0.000	0.000		0.000		3.000	Dec-08		3.000	TBD
Subtotal Product Development			0.000	0.000		0.000		8.000		0.000	8.000	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Precision GPS Testing			0.000	0.000		0.000		0.950			0.950	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.950		0.000	0.950	0.000
Remarks:												
(U) <u>Management</u>												
Program Management			0.000	0.000		0.000		0.939			0.939	
Subtotal Management			0.000	0.000		0.000		0.939		0.000	0.939	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		9.889		0.000	9.889	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE

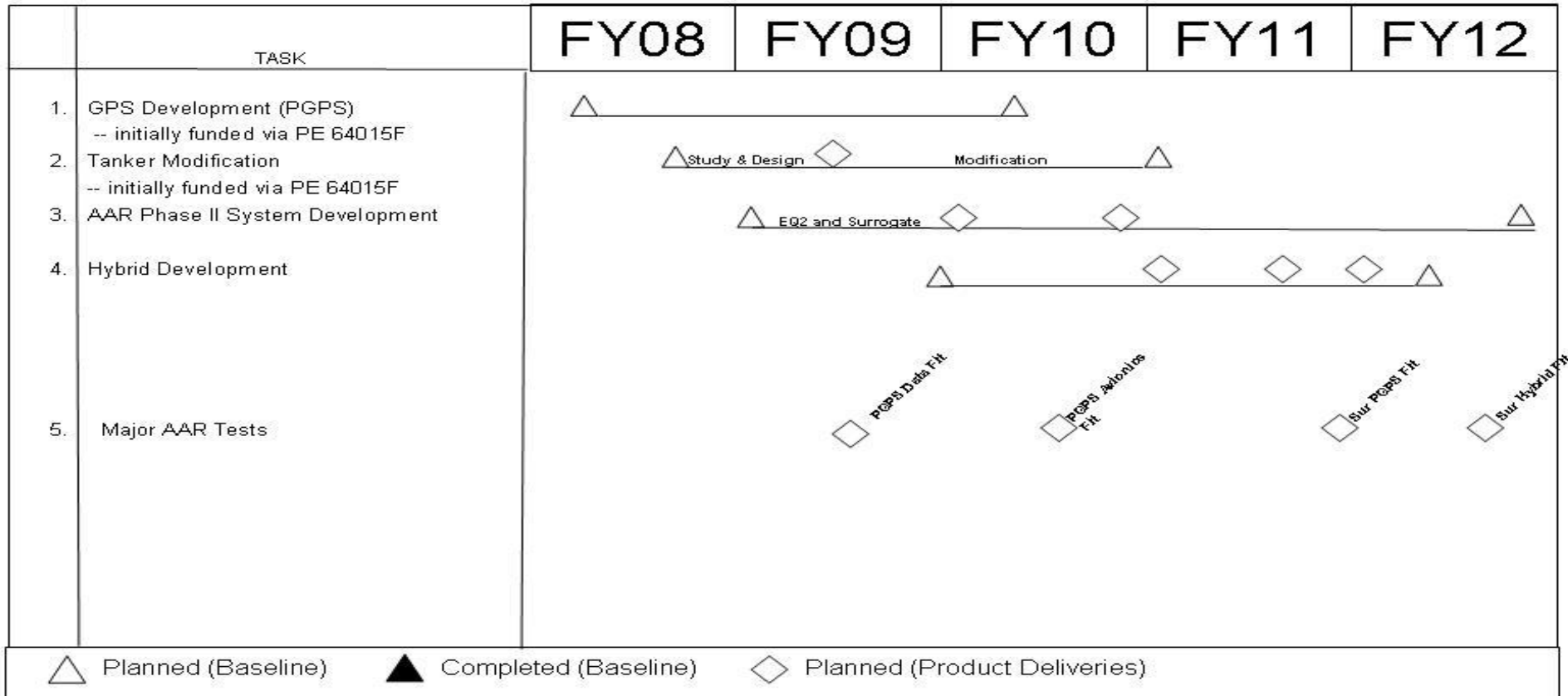
February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0604830F Automated Air-to-Air Refueling

PROJECT NUMBER AND TITLE  
2214 Optionally Unmanned Development

# AAR Phase II Schedule



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604830F Automated Air-to-Air Refueling</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2214 Optionally Unmanned Development</b>
---	--	--

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Tanker Modification Critical Design Review			2Q
(U) Precision GPS Data Collection Flight Test			3Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604856F Common Aero Vehicle</b>
---	---

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	31.523	3.974	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A012 Common Aerospace Vehicle	31.523	3.974	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) and follow-on PGS Initial Capabilities Document (ICD) identify the warfighter's need for a capability to strike globally, precisely, and rapidly, with kinetic effects, against high-payoff, time-sensitive targets in a single or multi-theater environment, when US and Allied forces have no permanent military presence or only limited infrastructure in a region, regardless of anti-access threats.

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office, named Falcon, to accelerate the advanced technology efforts that could be leveraged for PGS. As a result of FY2005 Appropriations language prohibiting weaponization, CAV was redesignated the Hypersonic Technology Vehicle (HTV). The CAV PE funds the Air Force cost share for the HTV program culminating with two flight tests in 2009.

The FY2008 Appropriations and Authorizations Bills noted the value of developing conventional prompt global strike technologies using a synergistic approach. Both Bills directed the consolidation of Navy & AF FY2008 PGS funding into a defense-wide PGS PE (0604165D8Z) under the cognizance of OSD AT&L. The FY2009 PB remains consistent with this direction by transferring all outyear funding from PE 0604856F into PE 0604165D8Z.

The FY2008 Appropriations Bill added funds to PE 0604856F in FY2008 for Ballistic Missile Technology development. BMT funds were added directly to PE 0604856F and were not transferred to the defense-wide PE.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0604856F Common Aero Vehicle

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	33.185	32.806	41.672
(U) Current PBR/President's Budget	31.523	3.792	0.000
(U) Total Adjustments	-1.662		
(U) Congressional Program Reductions		-32.806	
Congressional Rescissions		-0.208	
Congressional Increases		4.000	
Reprogrammings	-0.831		
SBIR/STTR Transfer	-0.831		

(U) **Significant Program Changes:**

FY2008: Congress added \$4M for Ballistic Missile Technology development. Congress directed \$32.806M of Air Force PGS funding be transferred to the defense-wide account, PE 0604165D8Z.

FY2009: The Air Force transferred all its FY2009 and outyear PGS funding to the defense-wide account.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604856F Common Aero Vehicle</b>		PROJECT NUMBER AND TITLE <b>A012 Common Aerospace Vehicle</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A012 Common Aerospace Vehicle	31.523	3.974	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) and follow-on PGS Initial Capabilities Document (ICD) identify the warfighter's need for a capability to strike globally, precisely, and rapidly, with kinetic effects, against high-payoff, time-sensitive targets in a single or multi-theater environment, when US and Allied forces have no permanent military presence or only limited infrastructure in a region, regardless of anti-access threats.

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office, named Falcon, to accelerate the advanced technology efforts that could be leveraged for PGS. As a result of FY2005 Appropriations language prohibiting weaponization, CAV was redesignated the Hypersonic Technology Vehicle (HTV). The CAV PE funds the Air Force cost share for the HTV program culminating with two flight tests in 2009.

The FY2008 Appropriations and Authorizations Bills noted the value of developing conventional prompt global strike technologies using a synergistic approach. Both Bills directed the consolidation of Navy & AF FY2008 PGS funding into a defense-wide PGS PE (0604165D8Z) under the cognizance of OSD AT&L. The FY2009 PB remains consistent with this direction by transferring all outyear funding from PE 0604856F into PE 0604165D8Z.

The FY2008 Appropriations Bill added funds to PE 0604856F in FY2008 for Ballistic Missile Technology development. BMT funds were added directly to PE 0604856F and were not transferred to the defense-wide PE.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue HTV system design and development, systems engineering and flight test planning/support for Phase II and Phase III	23.585		
(U) Perform analysis and assess alternative HTV concepts/requirements and program management support	2.212		
(U) Perform Prompt Global Strike Analysis of Alternatives and requirements development	5.726		
(U) Ballistic Missile Technology development		3.974	
(U) Total Cost	31.523	3.974	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604856F Common Aero Vehicle</b>	PROJECT NUMBER AND TITLE <b>A012 Common Aerospace Vehicle</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN									
(U) Defensewide RDT&E, PE 0604165D8Z, PGS		99.364	117.572	170.000	111.997	81.000	82.300	Continuing	TBD
(U) Defensewide RDT&E, DARPA, PE 0603285E, Falcon	39.000	22.680	25.000					Continuing	TBD

(U) **D. Acquisition Strategy**

HTV efforts will be executed by the joint AF/DARPA Falcon Program Office.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0604856F Common Aero Vehicle</b>					<b>A012 Common Aerospace Vehicle</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> Phase II contract	OTA	Lockheed-Mart in, Palmdale, CA		23.585	Oct-06	0.000		0.000		Continuing	TBD	TBD	
Subtotal Product Development			0.000	23.585		0.000		0.000		Continuing	TBD	TBD	
Remarks:													
(U) <u>Development Support and Management</u> Perform analysis and assess alternative HTV concepts/requirements & program support	various	various		2.212	Oct-06	0.000		0.000		Continuing	TBD	TBD	
Perform PGS AoA	various	AFSPC, Peterson AFB, CO		5.726	Oct-06	0.000		0.000		0.000	5.726	9.132	
Subtotal Development Support and Management			0.000	7.938		0.000		0.000		Continuing	TBD	TBD	
Remarks:													
(U) <u>Technology Development</u> Ballistic Missile Technology	various	various				3.974	Mar-08				3.974	3.792	
Subtotal Technology Development			0.000	0.000		3.974		0.000		0.000	3.974	3.792	
Remarks:													
(U) Total Cost			0.000	31.523		3.974		0.000		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

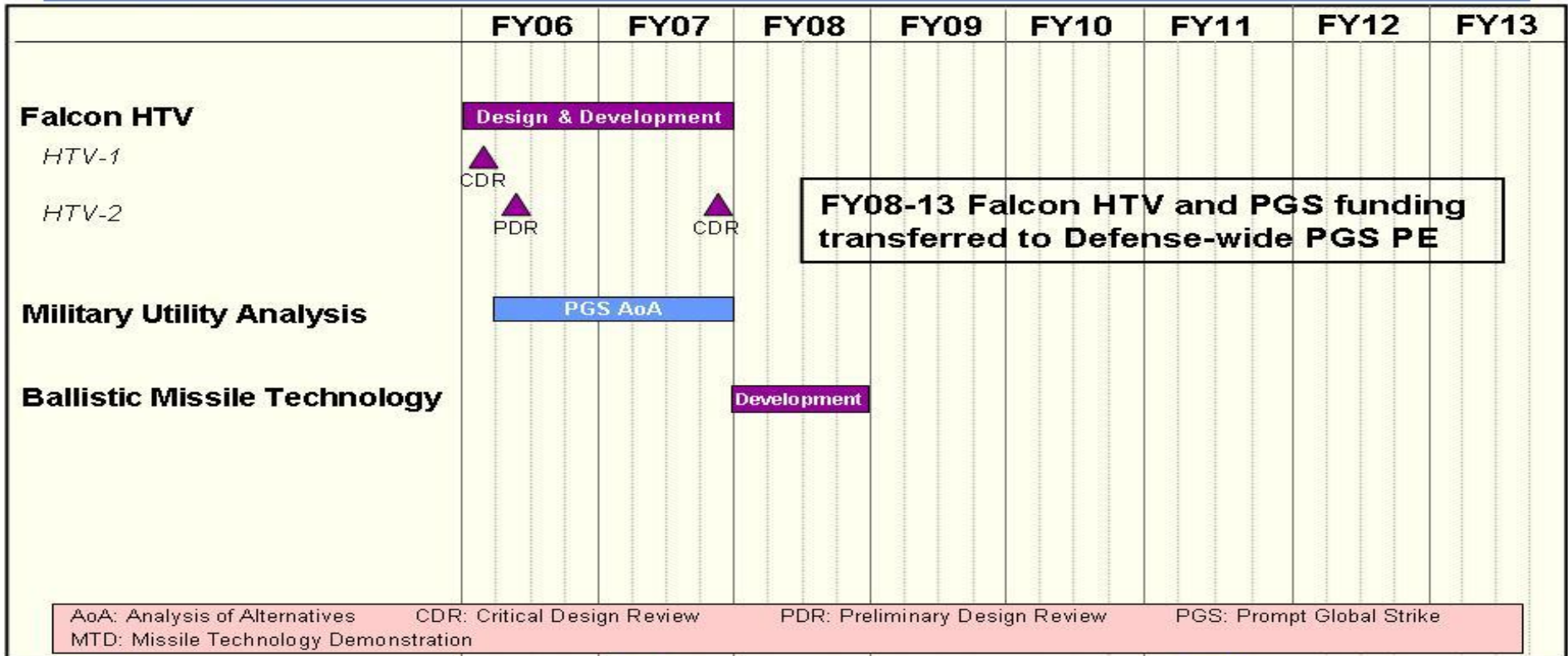
PE NUMBER AND TITLE  
0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE  
A012 Common Aerospace Vehicle



U.S. AIR FORCE

# Air Force PGS Schedule



AoA: Analysis of Alternatives    CDR: Critical Design Review    PDR: Preliminary Design Review    PGS: Prompt Global Strike  
 MTD: Missile Technology Demonstration

Concept activities   
  Design / development   
  Integration / test  
 Production / fielding   
  Operations / sustainment   
 ▽◇ Key events



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE

A012 Common Aerospace Vehicle

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) HTV-2 CDR

4Q

(U) PGS AoA

1-4Q

(U) Ballistic Missile Technology Development

1-4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604857F Operationally Responsive Space</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	42.131	96.516	110.032	115.394	97.498	97.383	128.984	Continuing	TBD
A015 ORS COMMON SERVICES	22.534	94.711	12.800	11.000	11.000	11.000	11.000	Continuing	TBD
A016 Operationally Responsive Lift	19.597	1.805	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A020 AF-funded ORSSats	0.000	0.000	97.232	104.394	86.498	86.383	117.984	Continuing	TBD

In FY2009, Project 64A020, AF-funded ORSSats is being established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements.

In FY2009, Project 64A015 is renamed ORS Common Services from Tactical Satellites. This is to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

**(U) A. Mission Description and Budget Item Justification**

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in an increased reliance on and demand for those capabilities. As a result, U.S. Strategic Command (USSTRATCOM) identified three needs: 1) to rapidly augment existing space capabilities when needed to expand operational capability; 2) to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; 3) to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

The ORS goals are to 1) Connect space to the user--make space capabilities more relevant to Joint Force Commanders and more adaptable to future joint force needs. 2) Respond to urgent needs--deliver effects to joint warfare in response to an urgent or previously unanticipated need. 3) Reduce development/deployment time and cost--complement existing space capabilities with an element focused on increased value and timely delivery. 4) Capitalize on emerging/innovative capabilities--adopt new capabilities from advanced technologies and innovative operational concepts.

When enabling responsiveness conditions are fully established, commanders will have three "tiers" of ORS capabilities for meeting urgent needs. Tier 1 involves employing existing, fielded space capabilities in a new and novel fashion within hours to days. Tier-1 solutions will not typically involve the design, engineering, or fabrication of new materiel items. Tier 2 involves deploying field-ready capabilities within days to weeks through rapid assembly, integration, testing, and deployment of small, low-cost satellites. Tier 3 involves developing new capabilities within a months-to-one-year timeframe. Tier 3 activities will typically involve hardware and software design, engineering, fabrication, and integration. Insertion of advanced technology into Tier 3 systems must be consistent with the targeted timeframe for the solution.

ORS program funds (along with other Service and Agency funds) are programmed to systematically mature ORS enabling elements to meet the responsiveness timelines required by the USSTRATCOM CONOPS (hours, days, weeks, months...not years) and the price points established in the 2007 NDAA (\$40M satellite vehicles, \$20M launches) by 2015. ORS funds will also aid in the leadership, coordination, and integration of Tier-1, 2, and 3 activities; fund TacSat and ORS Sat

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0604857F Operationally Responsive Space**

launch vehicles and operations; fund transition of TacSat demos to operational capabilities; and acquire and deploy operational satellites in response to USSTRATCOM urgent needs. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

This program is Budget Activity 04, Advanced Component Development and Prototypes, because it involves operational experimentation and evaluating integrated technologies to assess the performance or cost reduction potential of advanced technology.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	35.411	87.032	111.657
(U) Current PBR/President's Budget	42.131	96.516	110.032
(U) Total Adjustments	6.720	9.484	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.616	
Congressional Increases		10.100	
Reprogrammings	7.500		
SBIR/STTR Transfer	-0.780		

**(U) Significant Program Changes:**

FY2007: Transferred \$10M to ORS in support of RADARSAT-2. Transferred -\$2.5M to AFRL in support of TacSat-3.

FY2008: Congressional increases of +\$4.0M for Low Earth Orbit Nanosatellite Integrated Defense Autonomous System, and +\$6.1M for classified effort.

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604857F Operationally Responsive Space</b>		PROJECT NUMBER AND TITLE <b>A015 ORS COMMON SERVICES</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A015 ORS COMMON SERVICES	22.534	94.711	12.800	11.000	11.000	11.000	11.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

ORS Common Services will support the entire ORS partnership (Services, Intelligence Community, Reserve Component, NASA, and our Allies). These activities will include studies and analysis to maintain the ORS investment roadmap and coordination and planning activities across the ORS Enterprise. ORS Common Services will work with combatant commanders and the Services to identify the most likely emergent space needs, make plans and preparations to meet those needs, evaluate results of operational experimentation, and prepare plans and procedures for operational employment and transition. These foundational activities will ensure ORS enabler investments are optimally targeted to quickly mature ORS's ability to execute rapid responses to time-critical needs when they arise.

Common Services will identify and present options for concepts/solutions and experimentation including international efforts, conduct concepts development, solutions assessment, rapid evaluation of alternatives, experimentation, modeling and simulation, and develop budgetary recommendations for ORS solutions. Funding will also be used for ground processing, dissemination and command and control capabilities to include software development, demonstrations, and modeling and simulation test beds. Additionally, Common Services will support on-going analyses, employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities (Tier-1).

ORS Common Services may also include leveraging investments from other sources by providing launch vehicles, lift, integration, Tier 1-3 efforts, capabilities and studies, and interim transitions from ORS derived solutions to an operational capability in accordance with USSTRATCOM priorities/requests.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform modeling, simulation, analysis, costing and assess utility for operationally responsive space concepts/requirements & program support	3.434	17.100	9.800
(U) TacSat integration and support, launch vehicle, range operations, and related launch support	9.100	30.511	
(U) ORS support to RADARSAT-2	10.000		
(U) ORS Sat block 1 and enabling elements		14.500	
(U) ORS Sat block 2 and enabling elements		19.100	
(U) Responsive application of existing capabilities (Tier I)		1.300	
(U) Demonstration/integration/transition into common ground processing, dissemination, and command and control systems		2.100	3.000
(U) Low Earth Orbit Nanosatellite Integrated Defense System		4.000	
(U) Classified effort (per FY2008 congressional add)		6.100	
(U) Total Cost	22.534	94.711	12.800

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A015 ORS COMMON SERVICES

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)									

(U)

(U) D. Acquisition Strategy

Execute through partnerships with selected existing acquisition organizations, using existing government contracts such as the Rocket Systems Launch Program's Orbital/Suborbital Program, Responsive Small Spacelift contracts, or AFRL Indefinite Delivery/Indefinite Quantity contracts when possible.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604857F Operationally Responsive Space</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A015 ORS COMMON SERVICES</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
ORS Satellites (ORS Sat) block 1 and enabling elements	TBD	TBD				14.500	Mar-07	0.000			14.500	14.500
ORS Satellites (ORS Sat) block 2 and enabling elements	TBD	TBD				19.100	Mar-07	0.000			19.100	19.100
Responsive application of existing capabilities (Tier I)	TBD	TBD				1.300	Mar-07	0.000		Continuing	TBD	TBD
Enablers for ground processing, dissemination and command and control	TBD	TBD				2.100	Mar-07	3.000	Oct-08	Continuing	TBD	TBD
ORS support to RADARSAT-2	SS-FFP	MacDonald Dettwiler Assoc. Richmond, British Columbia		10.000	Sep-07						10.000	10.000
Low Earth Orbit Nanosatellite Integrated Defense System	TBD	TBD				4.000	Mar-07				4.000	4.000
Classified effort (per FY2008 congressional add)	TBD	TBD				6.100	Mar-07				6.100	6.100
Subtotal Product Development			0.000	10.000		47.100		3.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
TacSat Launch Vehicle and Operations	C-FPI	Orbital, Chandler AZ		9.100		30.511	Mar-07			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	9.100		30.511		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Perform modeling, simulation, analysis and assess alternative concepts/requirements & program support	various	various		3.434	Dec-06	17.100	Mar-07	9.800	Oct-08	Continuing	TBD	TBD
Subtotal Management			0.000	3.434		17.100		9.800		Continuing	TBD	TBD
Remarks:												
<u>(U)</u>												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

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Project A015

Exhibit R-3 (PE 0604857F)

Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A015 ORS COMMON SERVICES

(U) Total Cost

0.000

22.534

94.711

12.800

Continuing

TBD

TBD





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0604857F Operationally Responsive Space</b>	PROJECT NUMBER AND TITLE <b>A015 ORS COMMON SERVICES</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Tactical Satellite (TacSat)-2 Launch	1Q		
(U) TacSat-3 Launch		4Q	
(U) Operational ORS Sat Development begins		2Q	
(U) ORS Ground, Command and Control development begins		2Q	
(U) TacSat-4 Launch			4Q

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604857F Operationally Responsive Space</b>		PROJECT NUMBER AND TITLE <b>A016 Operationally Responsive Lift</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A016 Operationally Responsive Lift	19.597	1.805	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Operationally Responsive Space (ORS) program is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and exploitation of new technologies. This encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Small Launch Vehicle (SLV) system design and development, systems engineering and engine static firings for AirLaunch Phase II	5.600		
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support	3.397		
(U) TacSat-3&4 launch	3.100	1.805	
(U) Classified effort (per FY 2007 Congressional direction)	7.500		
(U) Total Cost	19.597	1.805	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Defensewide RDT&E, DARPA, PE 0603285E, Falcon (R-140)	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.000

**(U) D. Acquisition Strategy**

SLV efforts were executed by the joint AF-DARPA Program Office.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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<b>BUDGET ACTIVITY</b>				<b>PE NUMBER AND TITLE</b>				<b>PROJECT NUMBER AND TITLE</b>			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0604857F Operationally Responsive Space</b>				<b>A016 Operationally Responsive Lift</b>			

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Falcon Phase II contractors:	OTA	Air Launch, Kirkland, WA		5.600	Apr-07					0.000	5.600	5.600
Classified effort (per FY 2007 congressional direction)	TBD	TBD		7.500	Feb-07						7.500	7.500
Subtotal Product Development			0.000	13.100		0.000		0.000		0.000	13.100	13.100
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> TacSat-3&4 launch	C-FPI	Orbital, Chandler, AZ		3.100	May-06	1.805	Oct-07			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	3.100		1.805		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Perform analysis and assess alternative concepts/requirements & program support	various	various		3.397	Dec-06					0.000	3.397	TBD
Subtotal Management			0.000	3.397		0.000		0.000		0.000	3.397	TBD
Remarks:												
(U) Total Cost			0.000	19.597		1.805		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

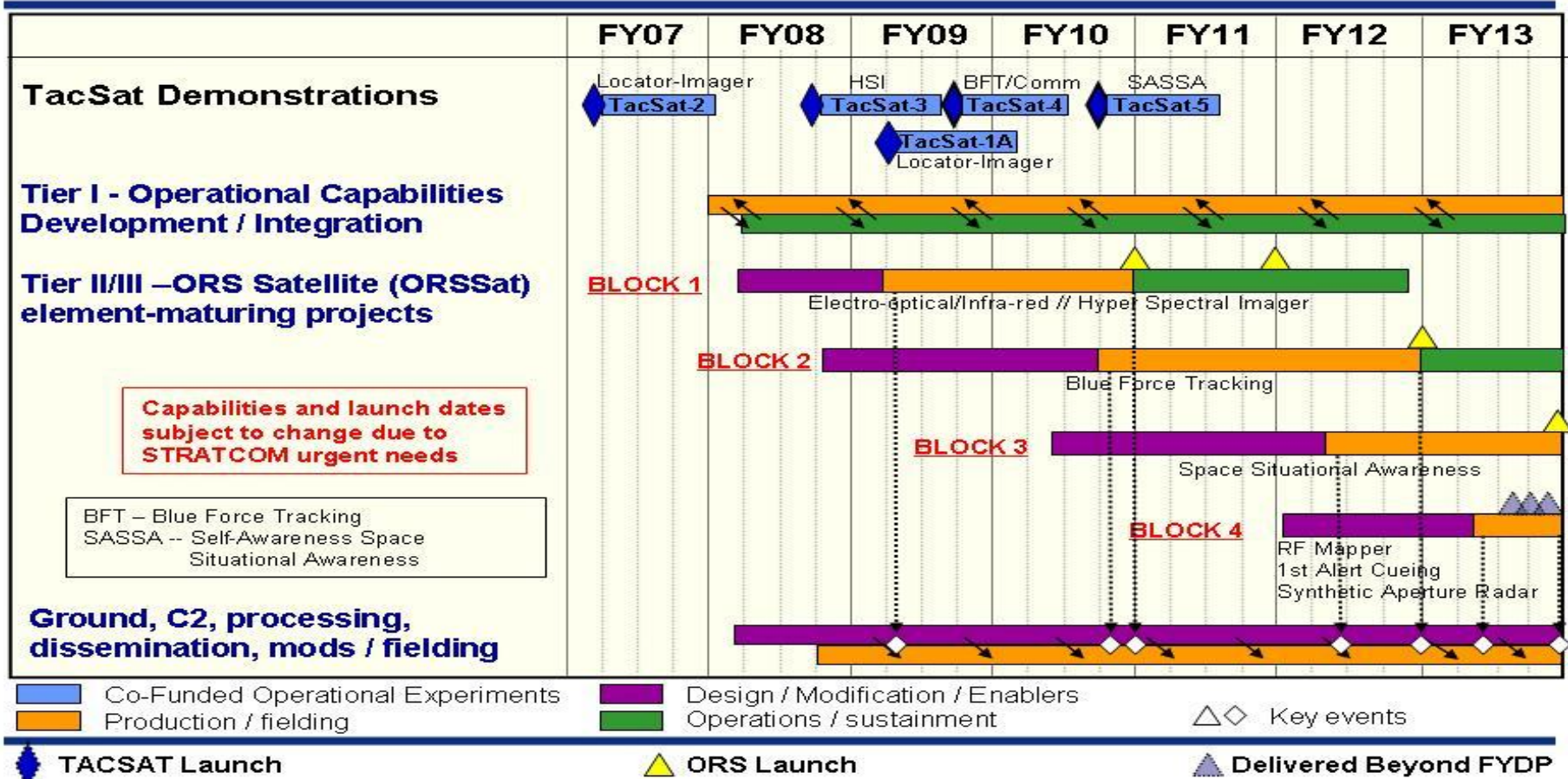
BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE  
A016 Operationally Responsive Lift



# Operationally Responsive Space Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0604857F Operationally Responsive Space</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A016 Operationally Responsive Lift</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Space-X Falcon-1 Demo Flight #2	2Q		
(U) Space-X Falcon-1 Demo Flight #3		3Q	
(U) TacSat-3 Launch		4Q	
(U) TacSat-4 Launch			4Q

**Exhibit R-2a, RDT&E Project Justification**

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**February 2008**

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>							PE NUMBER AND TITLE <b>0604857F Operationally Responsive Space</b>		PROJECT NUMBER AND TITLE <b>A020 AF-funded ORSSats</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A020 AF-funded ORSSats	0.000	0.000	97.232	104.394	86.498	86.383	117.984	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

AF-funded Operational Responsive Space satellites (ORS Sats) will be optimized for prioritized theater use and/or surge, augmentation and replenishment of more traditional space capabilities. Current Concepts of Operation (CONOPS) drive the need for satellites featuring high degrees of modularity, standard interface vehicles, and the use of plug and play payloads and buses. Responsive satellites will be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.

ORS Sats will provide a broad range of capabilities directly supporting warfighter needs. Potential missions include communications, data exfiltration, blue-force situational awareness, positioning, navigation and timing, weather, and battlefield intelligence, surveillance and reconnaissance. This funding is primarily for TacSats 4 and 5 and ORS Sats 1 through 7 to mature the ORS enabling elements and satisfy high priority needs for augmentation and reconstitution, such as Space Situational Awareness, Counterspace, Intelligence-Surveillance-Reconnaissance, and Missile Warning. The baseline capabilities planned for TacSats 4 and 5 and ORS Sats 1 through 7, as shown in Exhibit 4 (schedule), were selected to systematically mature the ORS enabling elements to fully meet the USSTRATCOM-specified responsiveness timelines and 2007 NDAA cost targets by 2015. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

ORS Satellite Blocks include satellite vehicle(s), launch, integration, operational experimentation, and interim transitions from ORS derived solutions to operational capabilities. Each block also includes enabler investments to improve the responsiveness and lower the cost of designing, fabricating, launching, and operating ORS space capabilities. These blocks culminate in on-orbit capabilities ready for operational experimentation and, when desired, transition to enduring operations.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) TacSat 4&5 launch vehicle, range operations, and related launch support			24.700
(U) ORS Sat block 1 and enabling elements			41.600
(U) ORS Sat block 2 and enabling elements			11.900
(U) Operational launch vehicles buy			15.000
(U) Tier 1 operational capabilities, development, and integration			4.032
(U) Total Cost	0.000	0.000	97.232

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A									

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0604857F Operationally Responsive  
Space

PROJECT NUMBER AND TITLE

A020 AF-funded ORSSats

(U) **D. Acquisition Strategy**

Execute through partnerships with selected existing acquisition organizations, using existing government contracts such as the Rocket Systems Launch Program's Orbital/Suborbital Program, Responsive Small Spacelift contracts, or AFRL Indefinite Delivery/Indefinite Quantity contracts when possible.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0604857F Operationally Responsive Space</b>					<b>A020 AF-funded ORSSats</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
ORS Sat block 1		TBD						41.600	Oct-09	72.500	114.100	114.100
ORS Sat block 2		TBD						11.900	Oct-09	63.600	75.500	75.500
Tier-1 operational capabilities, development, and integration								4.032	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		57.532		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
TacSat 4&5 launch vehicle, range operations, and related launch support								24.700			24.700	36.000
ORS Launch Vehicles								15.000	Jan-09	40.000	55.000	55.000
Subtotal Test & Evaluation			0.000	0.000		0.000		39.700		40.000	79.700	91.000
Remarks:												
(U) <u>Management</u>												
Perform analysis and assess alternative concepts/requirements & program support										Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		97.232		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE  
0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE  
A020 AF-funded ORSSats



# Operationally Responsive Space Schedule

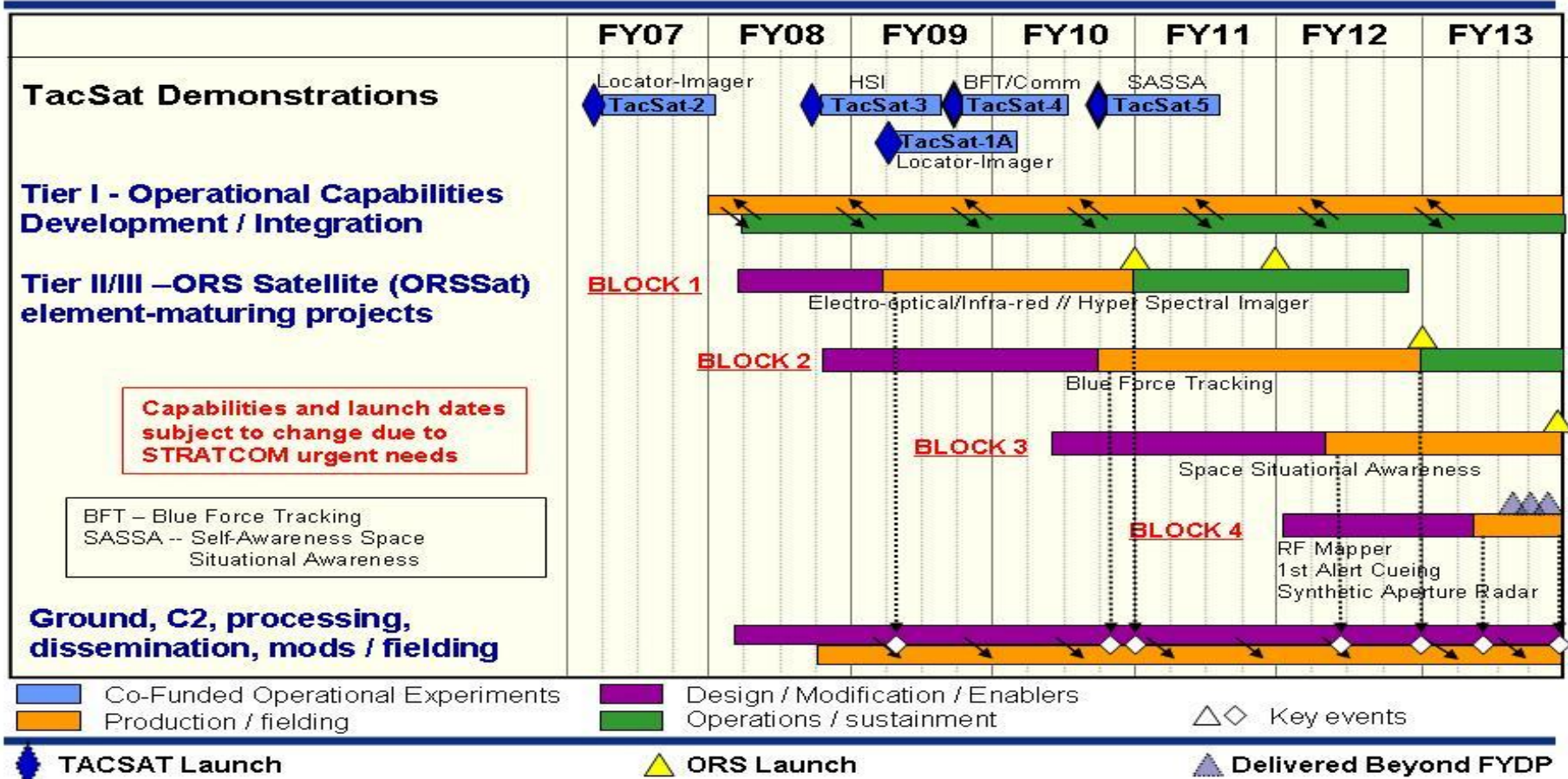


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE

A020 AF-funded ORSSats

(U) Schedule Profile

- (U) Initiate development of ORS Sat block 1 and enablers
- (U) Initiate development of ORS Sat block 2 and enablers
- (U) TacSat-3 launch
- (U) TacSat-1A launch
- (U) TacSat-4 launch

FY 2007

FY 2008

FY 2009

1Q

4Q

4Q

2Q

4Q

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PE NUMBER: 0305178F  
 PE TITLE: National Polar-Orbiting Op Env Satellite

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0305178F National Polar-Orbiting Op Env Satellite</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744
4056 National Polar-orbiting Operational Env. Sat. Syst.	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY05, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178 NPOESS, BA 04 Advanced Component Development and Prototypes.

**(U) A. Mission Description and Budget Item Justification**

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office's discretion.

The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

This PE has been consolidated with PE 0603434F, beginning in FY05. The program remains in BA 04 because near-term efforts focus on Engineering and Manufacturing Development with the PE 0603434F portion of the contract.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0305178F National Polar-Orbiting Op Env Satellite

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	347.434	334.871	291.877
(U) Current PBR/President's Budget	343.290	332.525	289.469
(U) Total Adjustments	-4.144	-2.346	
(U) Congressional Program Reductions		-0.223	
Congressional Rescissions		-2.123	
Congressional Increases			
Reprogrammings	-4.144		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY07: \$4.144M reprogrammed for higher program priorities			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0305178F National Polar-Orbiting Op Env Satellite</b>			<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4056 National Polar-orbiting Operational Env. Sat. Syst.	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.744
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

This table represents the RDT&E portion of the Air Force share of the NPOESS program, which is funded 50/50 by the Department of Defense and Department of Commerce. Total program funding is listed in section C, Other Program Funding Summary. In FY2005, Project 4056, PE 0603434F NPOESS, BA 04, funding was transferred to Project 4056, PE 0305178F NPOESS, BA 04 Advanced Component Development and Prototypes.

**(U) A. Mission Description and Budget Item Justification**

Presidential Decision Directive/National Science and Technology Council-2 (PDD/NSTC-2) (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), combines the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. Note: part of the Air Force share also resides in the launch vehicle PE MPAF 0305953F. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office's discretion.

The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will provide a constellation of satellites in sun synchronous, 450 nautical mile (NM) polar-orbits (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

This PE has been consolidated with PE 0603434F, beginning in FY05. The program remains in BA 04 because near-term efforts focus on Engineering and Manufacturing Development with the PE 0603434F portion of the contract.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System development effort including ground and space system development, design and fabrication for risk reduction missions (includes GFE Microwave Imager and Space Environmental Monitoring development).	330.488	323.024	287.408
(U) Continue DoD funded program office support for system development efforts.	1.349	1.051	1.061
(U) Continue Launch and Mission Integration Phase II Studies	1.153	1.000	1.000
(U) Technical analysis/resolution of anomalies/failures, Independent Verification and Validation (IV&V) and risk reduction of NPOESS sensors and payload program	1.055		
(U) SBIR Transfer	9.245	7.450	
(U) Total Cost	343.290	332.525	289.469

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0305178F National Polar-Orbiting Op Env Satellite</b>	PROJECT NUMBER AND TITLE <b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC funding: Polar Convergence*	337.532	331.300	287.985	381.794	420.332	415.829	436.270	2,096.129	6,250.647
(U) Related NPOESS RDT&E: PE 0603434F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	922.221
(U) NPOESS RDT&E: PE 0305178F	343.290	332.525	289.469	359.584	280.067	267.197	224.747	200.306	2,924.743
(U) Related NPOESS MPAF: PE 0305178F	0.000	0.000	0.000	24.207	66.783	149.179	211.338	1,116.119	1,567.626
(U) Related EELV MPAF: PE 0305953F**	0.000	0.000	0.000	0.000	74.579	0.000	0.000	254.082	328.661
(U) Other operations and sustainment funding***	0.000	0.000	0.000	0.000	0.000	0.000	0.000	525.622	525.622
(U) Total NPOESS Air Force	343.290	334.871	289.469	383.791	421.429	416.376	436.085	2,096.129	6,268.873

\* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. Total NOAA total cost include prior-year amount of \$1,543.5M. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50. AF total cost includes prior-year amount of \$624.6M in PE 0305178F and \$922.2M in PE 0603434F. Total NPOESS program cost is the sum of NPOESS RDT&E AF PE 0603434F/AF PE 0305178F, MPAF PE 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF PE 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.

\*\* NPOESS launch vehicle funding is budgeted entirely in EELV PE 0305953F and represents a portion of the DoD's 50% funding contribution.

\*\*\* Operations and Sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.

(U) **D. Acquisition Strategy**

Accomplish substantial risk reduction with a focus on developing payloads, enhancing data utility to users, and protecting maximum flexibility to ensure the best overall system design by pursuing a significant investment in the development and on-orbit testing of selected payload sensors; the first two satellites will be incrementally funded with RDT&E funding. In addition, the Nunn-McCurdy certified production units (C-3 and C-4) were directed to be incrementally funded by the certifying official (USD (AT&L)).



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0305178F National Polar-Orbiting Op Env Satellite</b>					<b>4056 National Polar-orbiting Operational Env. Sat. Syst.</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Northrop Grumman (system development)	CPAF		598.531	330.488	Oct-06	323.024	Oct-07	287.408	Oct-08	1,284.071	2,823.522		
Government Led Studies	Gov. Orgs.	Various	5.318	1.055	Jul-07						6.373		
Launch Mission Integration Studies	Gov. Orgs.	Various	2.764	1.153	Apr-07	1.000	Mar-08	1.000	Mar-09	41.000	46.917		
Small Business Innovative Reseach			15.607	9.245	May-07	7.450	May-08				32.302		
Subtotal Product Development			622.220	341.941		331.474		288.408		1,325.071	2,909.114	0.000	
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.												
(U) <u>Support</u>													
Integrated Program Office (IPO) Support	Various	Program Office, Silver Spring, MD	2.355	1.349	Oct-06	1.051	Oct-07	1.061	Oct-08	17.737	23.553		
Subtotal Support			2.355	1.349		1.051		1.061		17.737	23.553	0.000	
Remarks:	FY05 funding consolidated in PE 0305178F. Prior year costs included in PE 0603434F.												
(U) <u>Test &amp; Evaluation</u>													
Included in IPO Support											0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) <u>Management</u>													
Included in IPO Support											0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			624.575	343.290		332.525		289.469		1,342.808	2,932.667	0.000	

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0305178F National Polar-Orbiting Op  
Env Satellite**

PROJECT NUMBER AND TITLE

**4056 National Polar-orbiting  
Operational Env. Sat. Syst.**

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0305178F National Polar-Orbiting Op  
Env Satellite**

PROJECT NUMBER AND TITLE

**4056 National Polar-orbiting  
Operational Env. Sat. Syst.**

**(U) Schedule Profile**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Cross-track Infrared Sounder (CrIS) for NPP		3Q	
(U) Ozone Mapping and Profiler Suite (OMPS) for NPP		4Q	
(U) Visible Infrared Imager Radiometer Suite (VIIRS) for NPP		4Q	
(U) NPP Ground Ready			1Q
(U) NPOESS System Critical Design Review			3Q

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PE NUMBER: 0603840F  
 PE TITLE: Global Broadcast Service (GBS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0603840F Global Broadcast Service (GBS)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.157	29.098	18.790	9.416	2.421	2.467	2.517	Continuing	TBD
4887 Global Broadcast Service (GBS)	23.157	0.497	0.000	0.000	0.000	0.000	0.000	0.000	154.867
A023 Satellite Broadcast Management Transition	0.000	28.601	18.790	9.416	2.421	2.467	2.517	Continuing	TBD

Beginning in FY08, funds within PE 0603840F have been realigned from BPAC 654887, Global Broadcast Service, to BPAC 65A023, Satellite Broadcast Management Transition.

**(U) A. Mission Description and Budget Item Justification**

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics and weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently UFO 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and in the near future will use the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities. During FY08-10, to address commercial-off-the-shelf (COTS) obsolescence issues, the broadcast creation will transition to existing Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs) and the broadcast will be uplinked through DISA Teleport sites. This effort is being designated as an ACAT III program and beginning in FY08 funding has been realigned (i.e., a separate BPAC has been created) to delineate between the current ACAT I GBS program and the ACAT III SBM Transition program.

The GBS receipt segment consists of Service-funded terminals, known as Receive Suites, which receive the broadcast and then disseminate information to local users. Service Receive Suites and integration into service networks are funded in other Program Elements.

The FY09 PB continues to fund the development of a robust architecture and implementation of system transmission security, as well as previously budgeted items such as migration to Internet Protocol version 6 (IPv6), to include Information Assurance, and continued analysis of alternatives for ORD III requirements.

Funding is in Budget Activity 5, System Development and Demonstration, since program is fielding pre-production equipment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	24.749	29.407	19.067
(U) Current PBR/President's Budget	23.157	29.098	18.790
(U) Total Adjustments	-1.592		
(U) Congressional Program Reductions		-0.125	
Congressional Rescissions		-0.184	
Congressional Increases			
Reprogrammings	-1.008		
SBIR/STTR Transfer	-0.584		
(U) <u>Significant Program Changes:</u>			
None.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>		PROJECT NUMBER AND TITLE <b>4887 Global Broadcast Service (GBS)</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4887 Global Broadcast Service (GBS)	23.157	0.497	0.000	0.000	0.000	0.000	0.000	0.000	154.867	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics and weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently UFO 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and in the near future will use the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Development and Test	10.705	0.000	0.000
(U) Continue Phase 2 Government System Integration	8.042	0.464	0.000
(U) Continue System Test & Evaluation Support	0.834	0.028	0.000
(U) Continue Program Office and other related support activities, including Systems Engineering and Integration	3.576	0.005	0.000
(U) Total Cost	23.157	0.497	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) OPAF, PE 0303601F, Receive Suites/TIPs	0.526	3.825	12.058	2.332	0.000	0.000	0.000	0.000	79.674

Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN); DISA Content Staging; DISA Tactical Service Provider (TSP); Advanced Concept Technology Demonstrations (ACTD); DISA-CENTCOM Digital Video Broadcast Return Channel over Satellite (DVB-RCS) Demonstration; Navy UFO Program; Air Force WGS Program; Army Ground Terminal Programs; Navy SATCOM Ship Terminal Program; and Air Force MILSATCOM Terminals (PE 0303601F): AF GBS Receive Terminals (WSC 836780, line P-66, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Family of Advanced Beyond Line-of-Sight Terminals (FAB-T).

**(U) D. Acquisition Strategy**

The acquisition strategy is a spiral development/incremental build, within discreet blocks, using an Integrated Product Development (IPD)/Integrated Product Team (IPT) approach.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>				<b>PE NUMBER AND TITLE</b>				<b>PROJECT NUMBER AND TITLE</b>			
<b>05 System Development and Demonstration (SDD)</b>				<b>0603840F Global Broadcast Service (GBS)</b>				<b>4887 Global Broadcast Service (GBS)</b>			

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon System Corp	CPAF		79.066	10.704	Dec-06						89.770	
- (FY07: IPv6 Migration/Information Assurance)											0.000	
IPv6 Migration/Information Assurance	Various		5.304	1.112	Nov-06						6.416	
Robust Architecture Development	Various										0.000	
Phase 2 Government System Integration	Various		24.487	6.931	Oct-06	0.464	Jan-08				31.882	
Subtotal Product Development			108.857	18.747		0.464		0.000		0.000	128.068	0.000
Remarks:												
(U) <u>Support</u>												
Program Support - Various			14.543	3.576	Nov-06	0.005	Oct-07				18.124	
Fielding - Various			1.200								1.200	
Sustainment (Vendor TBD)											0.000	
Subtotal Support			15.743	3.576		0.005		0.000		0.000	19.324	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Various			6.613	0.834	Nov-06	0.028	Jan-08				7.475	
Subtotal Test & Evaluation			6.613	0.834		0.028		0.000		0.000	7.475	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			131.213	23.157		0.497		0.000		0.000	154.867	0.000



Exhibit R-4, RDT&E Schedule Profile

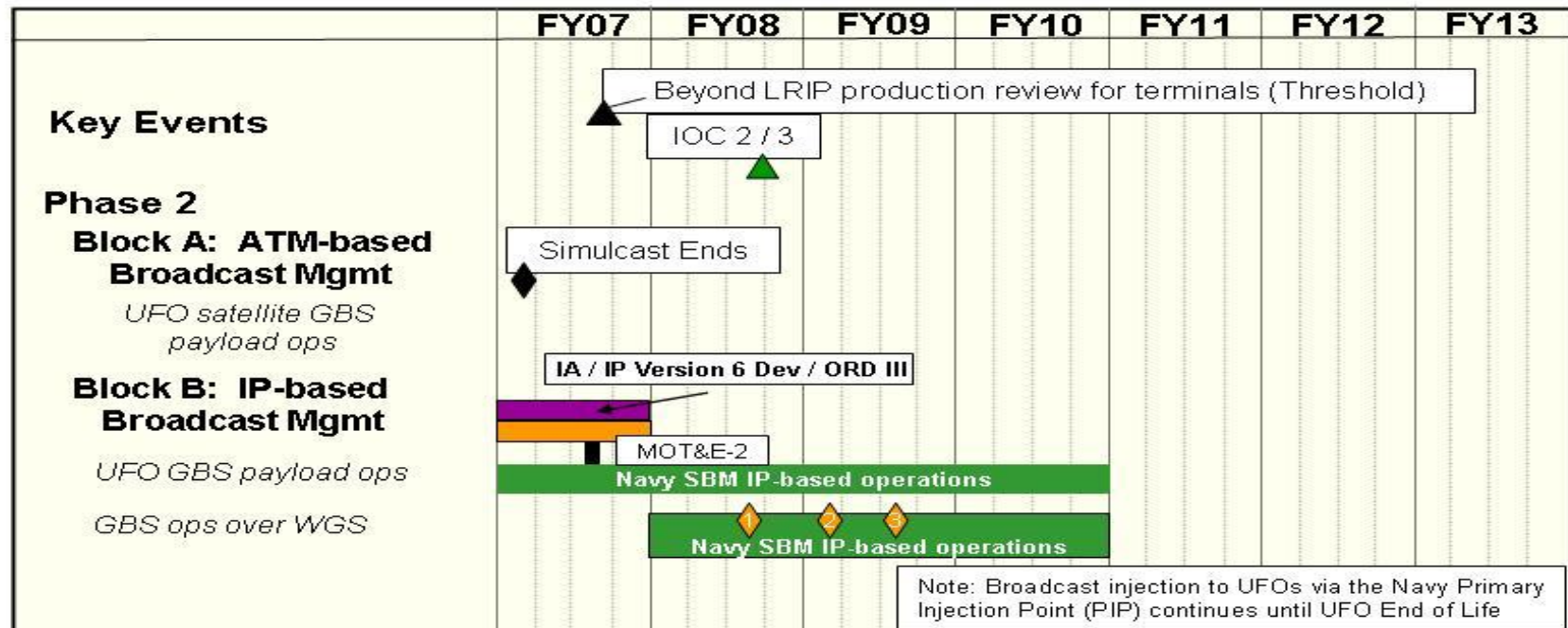
DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE  
4887 Global Broadcast Service (GBS)



• **IOC 2/3:** Demonstrate classified video dissemination; remote receive suite enable/disable; Tactical Transportable Ground Receive Suite (2-person lift)

ATM: Asynchronous Transfer Mode    IOC: Initial Operational Capability    IP: Internet Protocol    WGS: Wideband Global SATCOM  
LRIP: Low Rate Initial Production    IA: Information Assurance    UFO: Ultra High Frequency (UHF) Follow-on

Production / fielding    Design / development    Integration / test  
Operations / sustainment    Key events

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0603840F Global Broadcast Service  
(GBS)**

PROJECT NUMBER AND TITLE

**4887 Global Broadcast Service (GBS)**

(U) **Schedule Profile**

(U) Beyond Low Rate Initial Production (LRIP) Review (threshold)

FY 2007

FY 2008

FY 2009

3Q

(U) Conducted combined Dev/Ops test event

3Q

(U) IOC 2 and 3 (threshold)

3Q

(U) GBS operates on WGS SV1

3Q

(U) GBS operates on WGS SV2

2Q

(U) GBS operates on WGS SV3

3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>		PROJECT NUMBER AND TITLE <b>A023 Satellite Broadcast Management Transition</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A023 Satellite Broadcast Management Transition	0.000	28.601	18.790	9.416	2.421	2.467	2.517	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Global Broadcast Service provides DoD with an efficient, high data rate broadcast provided by distributed information sources to dispersed warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS broadcast data includes video (especially from Unmanned Aerial Vehicles), imagery, logistics and weather data, maps and operational orders. The GBS space segment includes transponders on operational Navy satellites, currently UFO 8 and UFO 10, augmentation by commercial leased Ku-band transponders, and in the near future will use the Wideband Global SATCOM (WGS) System. Currently, the GBS broadcast segment consists of Satellite Broadcast Managers (SBMs) for the broadcast build and Primary Injection Points (PIPs) for the broadcast uplink. The SBMs and PIPs, together known as Transmit Suites, are located at Navy facilities. During FY08-10, to address commercial-off-the-shelf (COTS) obsolescence issues, the broadcast creation will transition to existing Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs) and the broadcast will be uplinked through DISA Teleport sites.

The FY09 PB continues to fund the development of a robust architecture and implementation of system transmission security.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Development and Test	0.000	17.477	8.099
(U) Continue Phase 2 Government System Integration	0.000	6.610	7.014
(U) Continue System Test & Evaluation Support	0.000	0.750	0.717
(U) Continue Program Office and other related support activities, including Systems Engineering and Integration	0.000	3.764	2.960
(U) Total Cost	0.000	28.601	18.790

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN OPAF, PE 0303600F, WGS PIPs	0.000	0.000	0.000	1.701	1.701	0.000	0.000	0.000	30.166
(U) OPAF, PE 0303601F, Receive Suites/TIPs	0.526	3.825	12.058	2.332	0.000	0.000	0.000	0.000	79.674

**(U) D. Acquisition Strategy**

Conduct a full and open competition to award a new contract to transfer Satellite Broadcast Management functionality to two Defense Enterprise Computing Center (DECC) facilities utilizing a new hardware and software architecture to resolve impending Commercial off the Shelf (COTS) obsolescence, Information Assurance

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0603840F Global Broadcast Service (GBS)</b>	PROJECT NUMBER AND TITLE <b>A023 Satellite Broadcast Management Transition</b>
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compliance and sustainment issues. Subsequently, implement, via this new contract, follow-on GBS ORD III Pre-Planned Product Improvement capabilities into the GBS DECC-based system, as additional funding becomes available.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0603840F Global Broadcast Service (GBS)</b>				<b>A023 Satellite Broadcast Management Transition</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
DECC Transition	CPIF	TBD	0.000	0.000		17.477	Oct-08	8.099	Oct-08	Continuing	TBD	
Phase 2 Government System Integration	Various		0.000	0.000		6.610	Nov-07	7.014	Nov-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		24.087		15.113		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Support - Various			0.000	0.000		3.764	Dec-07	2.960	Nov-08	Continuing	TBD	
Subtotal Support			0.000	0.000		3.764		2.960		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Various			0.000	0.000		0.750		0.717		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.750		0.717		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		28.601		18.790		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE  
A023 Satellite Broadcast Management Transition

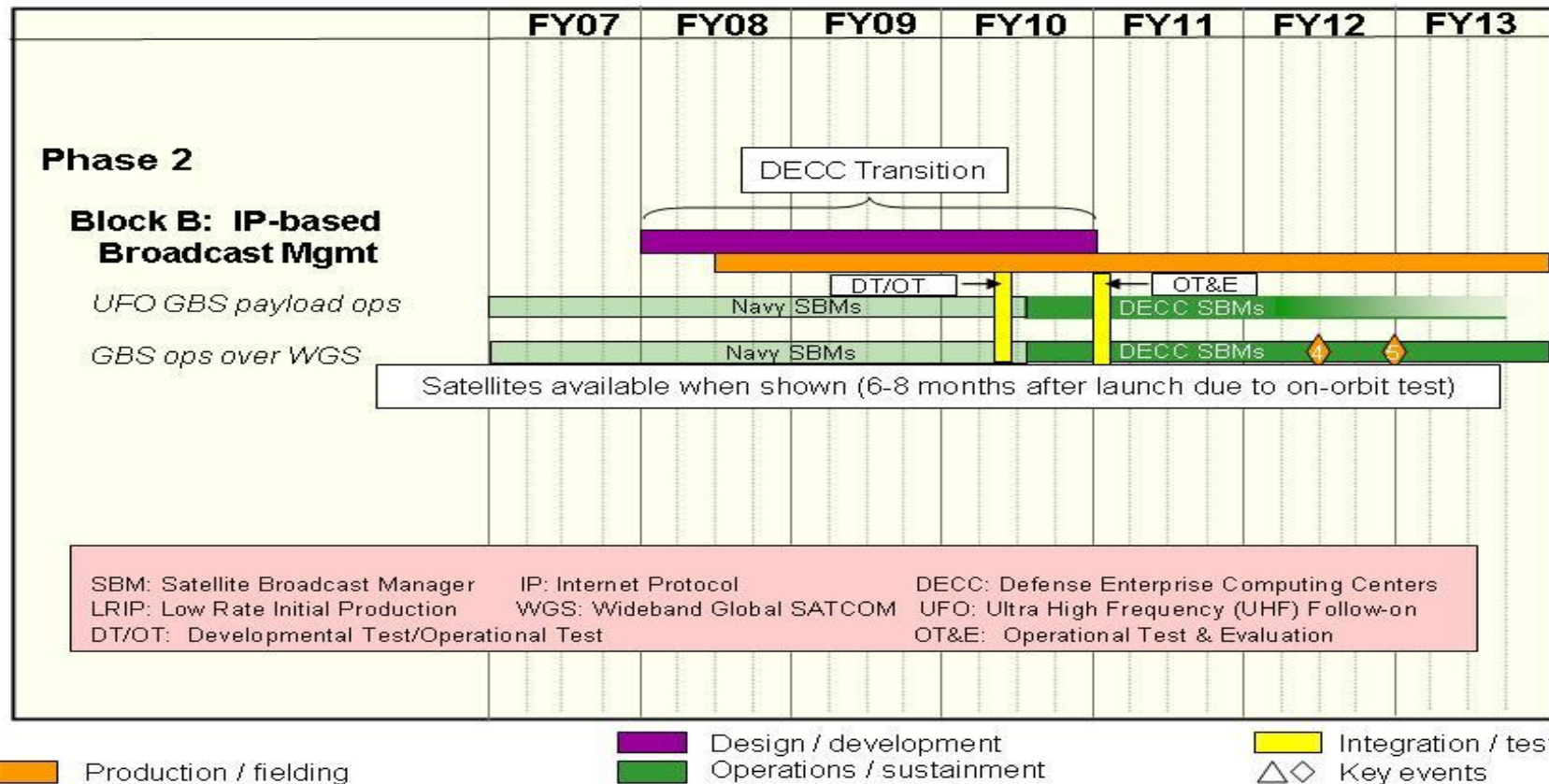


Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0603840F Global Broadcast Service (GBS)

PROJECT NUMBER AND TITLE

A023 Satellite Broadcast Management Transition

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) DECC Transition Contract Award			1Q
(U) Systems Requirements Review			1Q
(U) Preliminary Design Review			2Q
(U) Critical Design Review			2Q
(U) Systems Integration and Implementation Start			3Q

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PE NUMBER: 0604222F  
 PE TITLE: Nuclear Weapons Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604222F Nuclear Weapons Support</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.839	20.191	20.166	20.314	20.333	20.746	21.180	Continuing	TBD
4236 Engineering Analysis	4.511	6.665	6.525	6.496	6.403	6.532	6.669	Continuing	TBD
4807 Nuclear Weapons & CP Technologies	5.393	6.306	6.427	6.581	6.711	6.842	6.982	Continuing	TBD
5708 Nuclear Weapons Support	4.935	7.220	7.214	7.237	7.219	7.372	7.529	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) The Air Force (AF) is tasked with maintaining and providing technical expertise on all AF nuclear weapons; nuclear weapon systems; and with developing and maintaining counter-chemical, biological, radiological, nuclear, and high explosive (C-CBRNE) capabilities. This program provides resources for technical and programmatic activities which includes performing independent analyses on all AF nuclear weapons systems activities including weapons development/sustainment, interoperability, compatibility, safety/security/reliability, stockpile management/retirement; C-CBRNE assessments; and nuclear certification and nuclear certification management.

(U) Specific mission tasking includes:

- Support AF, Department of Defense (DoD) and Joint DoD-Department of Energy (DOE) weapons acquisition activities for the sustainment and/or development of nuclear weapons, delivery systems, logistics/handling support systems, weapon storage facilities, maintenance/trainer/test equipment, and technical orders to include nuclear certification as required.
- Analyze and document nuclear weapons issues related to risk assessment, data collection, model development, model validation, and weapon effectiveness in support of the DoD-DOE Annual Surety Report, DOE Stockpile Stewardship Plan, the DoD-DOE Weapon Annual Assessment, and DoD-DOE nuclear stockpile planning/requirements assessment.
- Identify, evaluate, and assess current and projected innovative concepts for combating WMD capabilities to include participating in the pre-acquisition process as appropriate for those projects being evaluated for possible development and/or supporting current elimination and offensive operations, active and passive defense, and consequence management related to C-CBRNE weapons and their manufacturing/bulk storage facilities.
- Develop, validate, and deploy mission planning software tools for targeting WMD facilities and systems.

(U) This program is essential to maintaining the current and future safety, security, and reliability of weapons in the AF nuclear stockpile as well as their delivery and support systems. This program also addresses current and future AF nuclear deterrence and combating WMD requirements.

(U) These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs leading to approved life extension programs for and/or modifications to AF nuclear weapons, weapon systems, and support systems as well as developing new weapons or modifications to existing weapons and/or weapon systems to meet evolving combating WMD mission requirements.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	14.839	20.319	20.295
(U) Current PBR/President's Budget	14.839	20.191	20.166
(U) Total Adjustments	0.000	-0.128	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.128	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>4236 Engineering Analysis</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4236 Engineering Analysis	4.511	6.665	6.525	6.496	6.403	6.532	6.669	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) Provide engineering analysis for all Air Force (AF) nuclear weapons, delivery systems, and support systems to include all phases of acquisition. Provide the engineering and technical management expertise required in critical areas of nuclear weapons safety, security, and reliability; operations; modernization; testing; certification; and counterproliferation.

(U) Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they include system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, nuclear weapon systems, and the supporting infrastructure.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Nuclear Weapons Program Support. Provide leadership to and management of the AF-led Project Officers Groups for the nuclear weapons in AF active and inactive stockpile. This includes technical analysis to support life extension programs for nuclear weapons in the AF stockpile, inactive stockpile, use control, long term storage, and retirement/dismantlement issues.	2.968	4.420	4.362
(U) Combating Weapons of Mass Destruction (WMD) Support. Provide pre-acquisition technical, engineering, and management support/expertise for candidate weapons to counter future threats from WMD to include conducting assessments of elimination and offensive operational concepts as well as developing new analytical methodologies needed to conduct these assessments and/or support Unified/Specified Combatant Command operations.	1.543	2.245	2.163
(U) Total Cost	4.511	6.665	6.525

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

**(U) D. Acquisition Strategy**

Multiple Cost Plus Award Fee (CPAF) and/or Time and Materials (T&M) contracts, and Military Interdepartmental Purchase Requests (MIPRs) are/will be used to obtain technical analyses and technical support for safety, operations and counterproliferation assessments. All contracts will be openly competed.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604222F Nuclear Weapons Support</b>					<b>4236 Engineering Analysis</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>													
In-House Studies/Analysis and Engineering Activities (Government Civilian Personnel)	Direct Payment	AF Nuclear Weapons Center (AFNWC) (Kirtland AFB, NM)	12.738	1.296	Oct-06	1.203	Oct-07	1.205	Oct-08	Continuing	TBD	TBD	
Studies, Analysis, & Evaluations	CPAF-C/T &M-C	Multiple*	4.466	0.761	Jan-07	1.692	Jan-08	1.645	Jan-09	Continuing	TBD	TBD	
Engineering & Technical Services	CPAF-C	RhinoCorps (Albuquerque, NM)	4.848	1.756	Feb-07	2.761	Oct-07	2.638	Oct-08	Continuing	TBD	TBD	
Subtotal Product Development			22.052	3.813		5.656		5.488		Continuing	TBD	TBD	
Remarks:	* - ITT Systems (Albuquerque, NM, & Colorado Springs, CO), Applied Sciences Labs (Albuquerque, NM); SAIC (Arlington, VA)												
(U) <u>Support</u>													
Management & Professional Support Services	T&M-C	ANSER (Arlington, VA); SAIC (Arlington, VA)	2.230	0.475	Aug-07	0.584	Aug-08	0.590	Aug-09	Continuing	TBD	TBD	
Subtotal Support			2.230	0.475		0.584		0.590		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
Various Test Centers	MIPR	Multiple	2.160	0.078	Mar-07	0.212	Mar-08	0.232	Mar-09	Continuing	TBD	TBD	
Subtotal Test & Evaluation			2.160	0.078		0.212		0.232		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u>													
In-House Programmatic/Financial Management	Direct Payment	AF Nuclear Weapons Center (Kirtland AFB, NM)	1.430	0.145	Oct-06	0.213	Oct-07	0.215	Oct-08	Continuing	TBD	TBD	
Subtotal Management			1.430	0.145		0.213		0.215		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			27.872	4.511		6.665		6.525		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4236 Engineering Analysis

FY07	FY08	FY09	FY10	FY11	FY12	FY13
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**Lead Project Officer/Project Officers Group Management (Joint DoD/DOE)**



**Weapons Surveillance, Sustainment, Modernization, & Life Extension Activities**

Gravity Bombs (B61/B83) Life Extension Programs

Modernization/Life Extension Programs



Nuclear Surety Enhancements



ICBM Warhead (W62/W78/W87) Life Extension Program

Modernization/Life Extension Programs



Nuclear Surety Enhancements



Land-Based Strategic Nuclear Deterrent



Cruise Missile Warheads (W80/W84)

Modernization/Life Extension Programs



W84 Advanced Study



W80 Advanced Study



W80 Integration Analysis



ACM Hi Fi Guidance System Analysis



**Annual Nuclear Weapon Assessments (All Weapons) (Joint DoD/DOE)**



**Nuclear Weapons Council Directed Special Studies & Analyses (as Required)**



**Nuclear Weapons & Counterproliferation Technologies**

Pre-Acquisition Activities



Advanced Technology Analyses/Evaluations



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604222F Nuclear Weapons Support**

PROJECT NUMBER AND TITLE

**4236 Engineering Analysis**

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Project Officers Group (POG) Management/Engineering & Technical Analysis	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapon Modernization and Sustainment Programs	1-4Q	1-4Q	1-4Q
(U) Annual Weapon Assessments [B61/B83, W80/W84, and W62/W78/W87]	3-4Q	3-4Q	3-4Q
(U) Reliable Replacement Warhead (RRW) Studies and Analysis Support	1-4Q	1-2Q	
(U) Minuteman III Safety Enhanced Reentry Vehicle Support	1-4Q	1-4Q	1-4Q
(U) Mk12A/Mk21 Refurbishment Program Support	1-4Q	1-4Q	1-4Q
(U) W80 Warhead Integration Analysis	1-4Q		
(U) ICBM Flight Test Study	1-4Q	1-2Q	
(U) W78/W87 Nuclear Surety Program	1-4Q	1-4Q	1-4Q
(U) B61 Flight Test Program	1-4Q	1-4Q	1-4Q
(U) B83 Special Developmental Flight Tests	1-4Q		
(U) Gravity Weapon Software/Hardware Analysis	1-4Q	1-4Q	1-4Q
(U) Counterproliferation Support	1-4Q	1-4Q	1-4Q
(U) Nuclear Roadmap Development	1-4Q	1-4Q	1-4Q
(U) Enhanced Surveillance Activities	1-4Q	1-4Q	1-4Q
(U) Future Stockpile Study	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>4807 Nuclear Weapons &amp; CP Technologies</b>			
Cost (\$ in Millions)		FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4807	Nuclear Weapons & CP Technologies	5.393	6.306	6.427	6.581	6.711	6.842	6.982	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

(U) Perform engineering analyses across the chemical, biological, radiological, nuclear and high explosive (CBRNE) pillars for countering weapons of mass destruction (WMD) with emphasis on asymmetric threats (specifically CBRNE) and other difficult to attack targets). Develop proposed solutions for consideration for entry into acquisition. Plan for and transition selected nuclear and non-nuclear concepts into either an acquisition or advanced concept technology demonstration (ACTD) program to include identifying funding, technical, schedule, and programmatic content. Prepare the necessary acquisition-related documentation to support program and/or decision reviews.

(U) Develop, evaluate, and utilize tools required for the employment of current inventory and new concepts for combating WMD weapons to include intelligence, surveillance, and reconnaissance; battle damage assessment; and target defeat/collateral effects predictions for current and future operations.

(U) Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs that result in identifying, and developing or modifying weapons to meet new and evolving elimination and offensive capabilities for combating WMD. Efforts also include developing and/or validating target planning software for existing/new concepts and weapons for combating WMD.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Develop pre-acquisition strategies/studies of conventional and other advanced alternative technologies and capabilities for eliminating or conducting offensive operations to combat WMD with emphasis on technologies & capabilities for attacking CBRNE targets and threats.	1.912	2.240	2.277
(U) Perform advanced concept research and development (R&D) studies of potential nuclear and non-nuclear capabilities for combating WMD.	2.637	3.080	3.140
(U) Research, develop and/or improve (to include verification, validation, and assessment (VV&A)) the fidelity and utility of target planning tools associated with eliminating or conducting offensive operations for combating WMD.	0.714	0.835	0.853
(U) Provide Operational Support to the Joint Chiefs of Staff, Major Commands and Combatant Commanders for evaluating elimination of and offensive operations against CBRNE facilities (e.g., intelligence analysis and support, weapon effectiveness, collateral damage, etc.)	0.130	0.151	0.157
(U) Total Cost	5.393	6.306	6.427

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons & CP Technologies

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) **D. Acquisition Strategy**

Multiple Cost Plus Award Fee (CPAF) and/or Time and Materials (T&M) contracts, and Military Interdepartmental Purchase Requests (MIPRs) are/will be used to obtain technical analyses and technical support for safety, operations and counterproliferation assessments. All contracts will be openly competed.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604222F Nuclear Weapons Support</b>					<b>4807 Nuclear Weapons &amp; CP Technologies</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Technology Assessments & Demonstrations	MIPR	Multiple*	15.610	0.915	Jan-07	1.812	Jan-08	1.552	Jan-09	Continuing	TBD	TBD	
Modeling and Simulation Development/Verification	CPAF-C	Multiple**	6.011	1.793	Mar-07	2.109	Mar-08	2.360	Mar-09	Continuing	TBD	TBD	
Studies, Analyses, & Evaluations	CPAF-C	Multiple**	14.953	2.120	Jan-07	1.884	Jan-08	2.009	Jan-09	Continuing	TBD	TBD	
Subtotal Product Development			36.574	4.828		5.805		5.921		Continuing	TBD	TBD	
Remarks:	* - Aeronautical Systems Center (ASC) (Wright-Patterson AFB, OH), Air Armament Center (AAC) (Eglin AFB, FL), Defense Threat Reduction Agency (DTRA) (Ft Belvoir, VA), White Sands Missile Range (WSMR) WSMR, NM												
	** - RhinoCorps LLC (Albuquerque, NM), ITT (Colorado Springs, CO)												
(U) <u>Support</u>													
Management & Professional Support Services	CPAF-C/T &M-C	Multiple***	5.519	0.565	Jan-07	0.501	Jan-08	0.506	Jan-09	Continuing	TBD	TBD	
Subtotal Support			5.519	0.565		0.501		0.506		Continuing	TBD	TBD	
Remarks:	*** - ITT Systems (Albuquerque, NM), ANSER (Arlington, VA), SAIC (Arlington, VA)												
(U) <u>Test &amp; Evaluation</u>													
N/A											0.000	0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000	
Remarks:													
(U) <u>Management</u>													
N/A											0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000	
Remarks:													
(U) Total Cost			42.093	5.393		6.306		6.427		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

4807 Nuclear Weapons & CP Technologies

**Advanced Technologies Activities**

**Agent Defeat Weapon Technology Demonstrations**



**Agent Defeat Weapon Concept Studies**



**Advanced Nuclear Concept Studies**



**Counter-CBRNE Operations Technology Demonstration**



**Counterproliferation Planning Tools Development**

**Agent Defeat Weapon Prediction Tools**



**Counter-CBRNE Operations Tools**



**Nuclear Weapons Effects/Vulnerability Tools**



**Warfighter Operational Reachback Support (as Required)**



= Release of next version of software tool

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Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2008</b>		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>	<b>0604222F Nuclear Weapons Support</b>	<b>4807 Nuclear Weapons &amp; CP Technologies</b>		
		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>				
(U) Advanced Modeling & Simulation in Support of CBRNE Consequence Management		1-4Q	1-4Q	1-4Q
(U) Effects Modeling Tools				
(U) ---Complete Initial Validation		1-4Q		
(U) ---Complete Initial Releasable Version		1-4Q		
(U) ---Conduct Joint VV&A			1-4Q	1-4Q
(U) ---Joint Accredited Version Release			1-4Q	1-4Q
(U) ---Issues Updates		1-4Q	1-4Q	1-4Q
(U) Chemical Biological (CB) Agent Neutralization Calculator - Issue Updates		2-3Q	2-3Q	2-3Q
(U) Nuclear Weapons Effects/Vulnerability Prediction Tools Against Chemical/Biological Targets - Continue Development		1-4Q	1-4Q	1-4Q
(U) Enhanced Cruise Missile (ECM)				
(U) ---Develop Nuclear Weapons Requirements Documents		2-4Q	2-4Q	1-2Q
(U) ---Accomplish Phase 6.2 Study			4Q	1-4Q
(U) Anti-Biological/Chemical Weapon		1-4Q	1-4Q	
(U) ---Complete Phase 1 Study		1-4Q	1-4Q	
(U) ---Phase 2 Study			3-4Q	1-4Q
(U) Agent Defeat Weapon (ADW)				
(U) ---Develop Requirements and Acquisition Documentation		2-4Q	1-4Q	
(U) ---Accomplish Shredder Concept Assessment		1-4Q		
(U) ---Accomplish Bulk Neutralization Proof-of-Concept Demonstration		1-3Q		
(U) ---Develop Baseline Legacy Weapon Test Database		1-4Q	1-4Q	1-4Q
(U) Land Based Strategic Deterrent				
(U) ---Follow On Development Efforts		1-4Q	1-4Q	1-4Q
(U) ---ICBM Future Warhead Concepts Study			1-4Q	1-4Q
(U) Nuclear Weapons Effects/Special Nuclear Study and Analyses		1-4Q	1-4Q	1-4Q
(U) Counter-CBRNE Prompt Global Strike Analysis of Alternatives Study		1-4Q		
(U) Advanced Weapon Concepts Studies and Analyses				
(U) ---Chemical/Biological Testing and Characterization				1-4Q
(U) ---Advanced Weapon Guidance, Navigation, & Control for Special Weapon Applications				1-4Q
(U) ---Fuze Development & Support for Agent Defeat Weapon Applications				1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604222F Nuclear Weapons Support</b>			PROJECT NUMBER AND TITLE <b>5708 Nuclear Weapons Support</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5708 Nuclear Weapons Support	4.935	7.220	7.214	7.237	7.219	7.372	7.529	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) Provide direct technical and engineering support for all Air Force (AF) nuclear weapon systems, support systems, facilities, and special procedures. Perform studies and analysis for nuclear capable aircraft and missile systems to include ground and maintenance support equipment required to meet certification, safety, security, reliability, operational, and other requirements; oversee and manage the AF nuclear certification process; interface with the Department of Defense (DoD), Department of Energy (DOE) to include their national laboratories, the Air Staff, operational commands, and AF nuclear weapon system related System Program Offices (SPOs) to accomplish weapon sustainment/life extension programs

(U) Budget Activity Justification: These efforts are Budget Activity 5, System Development and Demonstration, because they are system specific programs to identify and develop life extension programs for as well as solutions to problems and/or deficiencies in AF nuclear weapons, weapon systems and the supporting infrastructure.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2007	FY 2008	FY 2009
(U) Nuclear Delivery System Support. Prepare nuclear surety design criteria, standards, specifications, and related requirements documents for all AF ground-launched missile systems; provide nuclear surety design guidance to program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification and nuclear compatibility certification of weapon system modifications; administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance; and perform nuclear certification oversight functions. Provide leadership to and management of the AF-led Project Officers Groups for AF nuclear weapon delivery systems to include technical analysis and compatibility testing to support life extension programs and delivery system modifications.	4.308	6.131	6.128
(U) Nuclear Weapons/Systems Assessments. Develop and/or update joint Department of Defense (DoD)-Department of Energy (DOE) nuclear surety assessment methodologies; conduct safety assessment of warhead maintenance operation in AF facilities; conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications of Air Force storage and maintenance facilities; provide nuclear surety support for all support equipment, facilities and special procedures; and develop and manage nuclear facility design criteria.	0.545	0.726	0.724
(U) Nuclear Weapons Program Support. Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support AF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies. Perform advanced weapons and weapon systems studies.	0.082	0.363	0.362
(U) Total Cost	4.935	7.220	7.214

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) **D. Acquisition Strategy**

RDT&E projects performed by AF organizations are direct funded, other DoD and government agencies by Military Interdepartmental Purchase Request (MIPR) or other appropriate means. Contractor efforts are accomplished via cost plus award fee (CPAF) contacts awarded as a result of open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604222F Nuclear Weapons Support</b>					<b>5708 Nuclear Weapons Support</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u> In-house Studies/Analysis & Other Government Activities (Government Civilian Personnel)	Direct Payment	AF Nuclear Weapons Center (AFNWC) (Kirtland AFB, NM)	21.603	2.773	Oct-06	2.844	Oct-07	2.888	Oct-08	Continuing	TBD	TBD	
Studies, Analyses, & Evaluations Engineering & Technical Services	Various CPAF-C	Multiple* Sverdrup (Albuquerque, NM)	1.659	0.415	Jan-07	2.385	Jan-08	1.961	Jan-09	Continuing	TBD	TBD	
			4.311	0.950	Dec-06	1.171	Dec-07	1.191	Dec-08	Continuing	TBD	TBD	
Subtotal Product Development			27.573	4.138		6.400		6.040		Continuing	TBD	TBD	
Remarks:	* - Typically government agencies such as Defense Threat Reduction Agency (DTRA) (Ft Belvoir, VA); DOE national laboratories such as Sandia National Laboratories (SNL) (Kirtland AFB, NM & Livermore, CA) & Lawrence Livermore National Laboratory (LLNL) (Livermore, CA); others as needed												
(U) <u>Support</u> Management & Professional Support Services	CPAF-C	MacAulay Brown (Albuquerque, NM)	2.096	0.320	Dec-06	0.469	Jan-08	0.819	Jan-09	Continuing	TBD	TBD	
Subtotal Support			2.096	0.320		0.469		0.819		Continuing	TBD	TBD	
Remarks:													
(U) <u>Management</u> In-House Programmatic/Financial Management	Direct Payment	AF Nuclear Weapons Center (Kirtland AFB, NM)	3.859	0.477	Oct-06	0.351	Oct-07	0.355	Oct-08	Continuing	TBD	TBD	
Subtotal Management			3.859	0.477		0.351		0.355		Continuing	TBD	TBD	
Remarks:													
(U) <u>TAMS</u> (U) Total Cost			33.528	4.935		7.220		7.214		Continuing	TBD	TBD	
Remarks:													

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604222F Nuclear Weapons Support

PROJECT NUMBER AND TITLE

5708 Nuclear Weapons Support

FY07	FY08	FY09	FY10	FY11	FY12	FY13
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**Nuclear Weapons System Project Officers Group Activities (Joint DoD/DOE)**



**Nuclear Weapons System Certification**

Studies & Analyses



Testing Support



**Tech Order Development & Management**



**Data Base Development & Management**



**Facility & Weapon System Design/Evaluation**

Criteria Development



Implementation Guidance



**Nuclear Weapons Program Acquisition Support (Joint DoD/DOE)**

Pre-Acquisition Concept Studies



Weapon Sustainment Activities



Weapon Retirement Activities



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Exhibit R-4a, RDT&E Schedule Detail		DATE	
		<b>February 2008</b>	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE	
<b>05 System Development and Demonstration (SDD)</b>	<b>0604222F Nuclear Weapons Support</b>	<b>5708 Nuclear Weapons Support</b>	
	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Weapon System Project Officers Group (POG) Activities	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Certification			
(U) ---Nuclear Certification Management Meetings	2-4Q	2-4Q	2-4Q
(U) ---Independent Surety Analysis	1-4Q	1-4Q	1-4Q
(U) ---Compatibility Analysis	1-4Q	1-4Q	1-4Q
(U) ---Surveillance Tests	1-4Q	1-4Q	1-4Q
(U) ---Aircraft Monitor & Control (AMAC) Tests	2Q	2Q	2Q
(U) ---Land Based Strategic Nuclear Deterrence Analysis	1-4Q	1-4Q	1-4Q
(U) ---Intercontinental Ballistic Missile (ICBM) Security Mod Program	1-4Q	1-4Q	1-4Q
(U) ---ICBM Crypto Upgrade Program	1-4Q	1-4Q	
(U) ---Joint Strike Fighter (JSF) Integration Certification	3-4Q	1-4Q	1-4Q
(U) ---JSF Weapons Support Equipment Certification	3-4Q	1-4Q	1-4Q
(U) Data Base Development & Management	1-4Q	1-4Q	1-4Q
(U) Tech Order (TO) Development & Management	1-4Q	1-4Q	1-4Q
(U) ---JSF TO Development	1-4Q	1-4Q	1-4Q
(U) Studies, Analyses, & Assessments			
(U) ---ICBM Operational Safety Review	1-4Q	1-3Q	
(U) ---Long Term Storage Operational Safety Review	2-4Q	1-4Q	1-2Q
(U) ---Weapons Maintenance Program Safety	1-4Q	1-4Q	1-4Q
(U) ---Facilities Utilization/Design Studies	1-4Q	1-4Q	1-4Q
(U) Nuclear Weapons Program Support			
(U) ---Pre Acquisition Concept Studies (Phase 6.1/6.2/6.2A) (as requested)	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Sustainment Activities (Phase 6/6.6)	1-4Q	1-4Q	1-4Q
(U) ---Nuclear Weapon Retirement Activities (Phase 7)	2-4Q	2-4Q	2-4Q
(U) ---System II Interface Development and Integration (in conjunction with the DOE national laboratories)	3-4Q	1-4Q	1-4Q
(U) ---Development of new System II AMAC Tester	2-4Q	1-4Q	1Q
(U) Information Technology Activities	1-4Q	1-4Q	1-4Q



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604226F B-1B</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD
4596 Conventional Mission Upgrades	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD

FY2007 funding total includes \$17.03M in GWOT supplemental.  
 FY2008 funding totals do not include \$40.0M GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1 grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupported pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1 improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades, integration of Mode S/Mode 5 Identification, Friend or Foe (IFF), and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. Mode S/Mode 5 Identification, Friend or Foe (IFF) capability is included to bring the B-1B in compliance with air traffic directives and the transition of the military to a secure, reliable IFF system. The LCTP effort provides a limited (Sniper) targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. Also, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost (TOC).

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B upgrade program is included in Budget Activity 5, System Development and Demonstration.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	130.053	159.126	128.892
(U) Current PBR/President's Budget	153.757	152.164	128.871
(U) Total Adjustments	23.704	-6.962	
(U) Congressional Program Reductions		-6.000	
Congressional Rescissions		-0.962	
Congressional Increases	17.030		
Reprogrammings	10.000		
SBIR/STTR Transfer	-3.326		

(U) **Significant Program Changes:**

FY07: funding adjusted for an increase for \$17.03M Global War on Terror (GWOT) plus \$10.0M below threshold reprogramming (BTR) funding added for Laptop Controlled Targeting Pod (LCTP) Urgent Need Request (UNR)

FY08: funding adjusted for a \$9.0M increase for 16-Carry bomb rack and a (\$15.0M) program reduction

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604226F B-1B</b>		PROJECT NUMBER AND TITLE <b>4596 Conventional Mission Upgrades</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4596 Conventional Mission Upgrades	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1 grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupported pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1 improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades, integration of Mode S/Mode 5 Identification, Friend or Foe (IFF), and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. Mode S/Mode 5 Identification, Friend or Foe (IFF) capability is included to bring the B-1B in compliance with air traffic directives and the transition of the military to a secure, reliable IFF system. The LCTP effort provides a limited (Sniper) targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. Also, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost (TOC).

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B upgrade program is included in Budget Activity 5, System Development and Demonstration.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	143.241	143.554	118.216
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	5.247	3.753	5.262
(U) Continuing Mission Support	4.832	2.919	2.988
(U) Modeling & Simulation / Studies & Analyses	0.437	1.938	2.405
(U) Total Cost	153.757	152.164	128.871

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604226F B-1B

PROJECT NUMBER AND TITLE

4596 Conventional Mission Upgrades

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	68.812	34.391	71.774	141.201	167.221	108.461	131.778	777.525	1,501.163
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	3.186	7.333	2.515	8.994	9.738	6.351	6.476	58.266	102.859
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	2.040	2.431	2.656	2.720	2.756	2.811	2.865	5.734	24.013
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	10.279	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.279
(U) Appn 28, PE 0207446F, Bomber TDL Core	0.000	36.309	11.702	0.000	0.000	0.000	0.000	0.000	48.011
Related RDT&E:									
(U) Program Element 0205164F, Global Positioning System (GPS)									
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)									
(U) Program Element 0208006F, Air Force Mission Planning Systems (AFMPS), Joint Mission Planning System (JMPS)									

(U) **D. Acquisition Strategy**

(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); installed performance responsibility; use of cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0604226F B-1B</b>	<b>4596 Conventional Mission Upgrades</b>

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
(U) Gyro Stabilization System (GSS)	SS/CPIF	Boeing, Long Beach, CA	9.700	12.547	Nov-06	2.596	Oct-07				24.843	
(U) Central Integrated Test System (CITS)	SS/CPIF	Boeing, Long Beach, CA	17.900	12.945	Jan-07	5.442	Feb-08	1.550	Oct-08		37.837	
(U) Vertical Situation Display (VSD)	SS/CPIF	Boeing, Long Beach CA	8.400	19.836	Oct-06	24.600	Nov-07	25.067	Nov-08		77.903	
(U) Radar Modernization Improvement Program (RMIP)	SS/CPIF	Boeing, Long Beach, CA	20.400	54.211	Oct-06	47.218	Oct-07	50.306	Oct-08	42.220	214.355	
(U) Inertial Navigation System (INS)	SS/CPIF	Boeing, Long Beach, CA		0.250	May-07	24.954	Jan-08	27.492	Nov-08	16.564	69.260	
(U) Fully Integrated Data Link (FIDL)	SS/CPIF	Boeing, Long Beach, CA	24.000	8.016	Nov-06	10.225	Nov-07	4.653	Nov-08		46.894	
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)	SS/CPFF	561st, Robins AFB, GA	24.229	6.163	Nov-06	8.816	Oct-07	8.515	Dec-08	8.657	56.380	
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)	SS/CPFF	561st, Robins AFB, GA	22.148	0.870	Nov-06						23.018	
(U) Laptop Controlled Targeting Pod (LCTP)	SS/CPIF	Boeing, Long Beach, CA		25.087	Apr-07						25.087	
(U) Threat Situational Awareness System (TSAS)	SS/CPIF	Boeing, Long Beach, CA	2.100	4.106	Jan-07	8.148	Feb-08				14.354	
(U) Digital Communications Improvement (DCI)	SS/CPIF	Boeing, Long Beach, CA	3.600			0.522	Feb-08				4.122	
(U) 16-Carry	SS/CPIF	Boeing, Long Beach, CA				9.000	Apr-08				9.000	
(U) BRU-56	SS/CPIF	Boeing, Long Beach, CA	0.700								0.700	
(U) Pneumatic Assist Rack (PAR)	SS/CPIF	Boeing, Long Beach, CA	1.800								1.800	
(U) Tech Order Enhancement		OC-ALC, Tinker AFB, OK				1.500	Mar-08				1.500	
(U) JEFX 2008		OC-ALC, Tinker AFB, OK				0.500	Dec-07				0.500	
(U) Mode S/5	SS/CPIF	Boeing, Long Beach, CA								4.720	4.720	
(U) Training Systems (Simulator)	C/FPIF	Rockwell Collins, Sterling VA	4.100	0.080	Nov-06	0.500	Mar-08	2.790	Nov-08	5.115	12.585	

R-1 Line Item No. 60

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Project 4596

Exhibit R-3 (PE 0604226F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>		<b>0604226F B-1B</b>					<b>4596 Conventional Mission Upgrades</b>				
Subtotal Product Development		139.077	144.111	144.021	120.373	77.276	624.858	0.000			
Remarks:											
(U)	<u>Support</u>										
(U)	A&AS	Various	3.962	Jan-07	3.181	Jan-08	2.988	Jan-09	3.533	13.664	
(U)	Studies & Analyses / Modeling & Sim	Various	0.100	Jan-07	1.209	Jan-08	0.248	Jan-09	7.314	9.308	
Subtotal Support		0.100	4.399	4.390	3.236	10.847	22.972	0.000			
Remarks:											
(U)	<u>Test &amp; Evaluation</u>										
(U)	AFFTC	P.O.	60.700	Jan-07	3.753	Dec-07	5.262	Dec-08	5.604	80.566	
Subtotal Test & Evaluation		60.700	5.247	3.753	5.262	5.604	80.566	0.000			
Remarks:											
(U)	<u>Management</u>										
Subtotal Management		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Remarks:											
(U)	Total Cost	199.877	153.757	152.164	128.871	93.727	728.396	0.000			

Exhibit R-4, RDT&E Schedule Profile

DATE

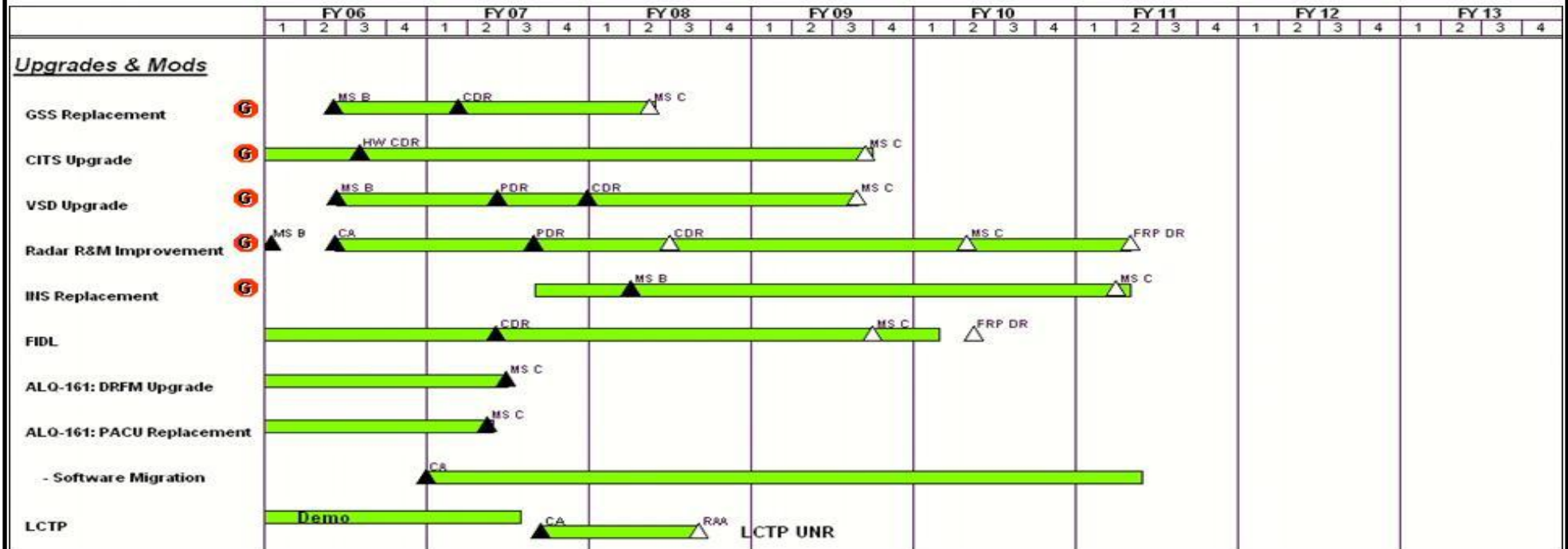
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604226F B-1B

PROJECT NUMBER AND TITLE  
4596 Conventional Mission Upgrades

# Development Activity



CA - Contract Award	△ Forecast Activity
MS - Milestone	▲ Completed
PDR - Preliminary Design Review	█ RDT&E Funding
CDR - Critical Design Review	(G) Grounding Item
FRP DR- Full Rate Production Decision Review	
HW - Hardware	
LCTP - Laptop Controlled Targeting Pod	
R.A.A - Required Assets Available	
UNR - Urgent Need Request	

3 Jan 08

R-1 Line Item No. 60

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Project 4596

Exhibit R-4 (PE 0604226F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604226F B-1B</b>	PROJECT NUMBER AND TITLE <b>4596 Conventional Mission Upgrades</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Gyro Stab Sys (GSS) -- CDR	1Q		
(U) Gyro Stab Sys (GSS) -- MS C		2Q	
(U) Central Integrated Test System (CITS) -- MS C			3Q
(U) Vertical Situation Displays (VSD) Upgrade -- PDR	2Q		
(U) Vertical Situation Displays (VSD) Upgrade -- CDR	4Q		
(U) Vertical Situation Displays (VSD) Upgrade -- MS C			3Q
(U) RADAR Improvement Upgrade -- PDR	3Q		
(U) RADAR Improvement Upgrade -- CDR		2Q	
(U) Inertial Nav Sys (INS) -- MS B		1Q	
(U) Fully Integrated Data Link (FIDL) -- CDR	2Q		
(U) Fully Integrated Data Link (FIDL) -- DT&E Flight Test		4Q	
(U) Fully Integrated Data Link (FIDL) -- MS C			3Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- MS C	2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- MS C	2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) Software Migration -- Contract Award	1Q		
(U) Laptop Controlled Targeting Pod (LCTP) -- Contract Award	3Q		
(U) Laptop Controlled Targeting Pod (LCTP) -- RAA		3Q	



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PE NUMBER: 0604233F  
 PE TITLE: Specialized Undergraduate Pilot Training

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.112	14.927	7.462	3.977	5.105	3.665	5.338	Continuing	TBD
4102 Joint Primary Aircraft Training System (JPATS)	2.486	4.646	2.287	2.345	3.892	2.427	4.075	Continuing	TBD
4376 T-38 Avionics Upgrade Program (AUP)	1.626	10.281	5.175	1.632	1.213	1.238	1.263	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training (SUPT) and the Department of Defense initiative for joint pilot training. The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and associated Ground Based Training Systems (GBTS). The Air Force is the Executive Service. For FY2006, FY2011 and FY2013, Project 4102, JPATS, includes funding for upgrades to the Simulator for Electronic Combat Training (SECT), a one-of-a-kind simulator at Randolph AFB TX used to train electronic warfare officers. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training. Additionally, there are funds in this project for Phase I testing of propulsion enhancements for the T-38 aircraft and to update T-38 flight performance models, Technical Orders, and AUP software for both aircraft and Aircrew Training Devices for changes brought about by the T-38 Propulsion Modernization Program (PMP).

T-38 FY2007 - FY2013 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. FY2008 and FY2009 includes development funding for improved T-38 brakes.

JPATS T-6 FY2007 - FY2013 includes annual funding for the development and test of upgrades and enhancements to both the aircraft and the Ground Based Training System (GBTS) hardware and software components.

This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

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## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.689	12.622	7.524
(U) Current PBR/President's Budget	4.112	14.927	7.462
(U) Total Adjustments	0.423	2.305	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.095	
Congressional Increases		2.400	
Reprogrammings	0.527		
SBIR/STTR Transfer	-0.104		

(U) **Significant Program Changes:**

FY2007 includes a Below Threshold Reprogramming for implementation of Military Flight Operations Quality Assurance (MFOQA) in Joint Primary Aircraft Training System (JPATS) T-6A aircraft.

FY2008 includes a Congressional increase to develop/demonstrate potential Air National Guard (ANG) operational mission capabilities for the AT-6B.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4102 Joint Primary Aircraft Training System (JPATS)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4102 Joint Primary Aircraft Training System (JPATS)	2.486	4.646	2.287	2.345	3.892	2.427	4.075	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). The aircraft and GBTS will be used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, navigators, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support.

FY2008 includes a Congressional increase to develop/demonstrate potential Air National Guard (ANG) operational mission capabilities for the AT-6B.

FY2009 and other annual JPATS funding requests are used to develop and test upgrades and enhancements to program hardware and software components.

FY2011 and FY2013 include funding to upgrade the Simulator for Electronic Combat Technology (SECT), which supports Air Education and Training Command's (AETC) implementation of Joint Undergraduate Navigator Training.

Budget Activity Justification: This program element is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JPATS studies & development efforts.	2.486	2.316	2.287
(U) AT6B		2.330	
(U) Total Cost	2.486	4.646	2.287

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	2.486	4.646	2.287	2.345	3.892	2.427	4.075	Continuing	TBD
(U) Other APPN									
(U) Aircraft Procurement, Air Force, BA-3									
(U) JPATS	302.541	244.227	27.654	15.960	0.000	0.000	0.000	0.000	590.382

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604233F Specialized Undergraduate Pilot Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4102 Joint Primary Aircraft Training System (JPATS)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) JPATS, BA-6	0.000	0.000	14.750	2.560	0.470	0.000	0.000	0.000	17.780
(U) JPATS Mod Funding	6.138	17.089	20.755	34.003	45.578	36.633	20.965	Continuing	TBD
(U) JPATS Post Production	0.000	0.000	0.000	0.000	9.719	0.000	0.000	0.000	11.448
(U) Military Construction, Air Force									
(U) PE 0804741F, JPATS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
(U) RDT&E, Navy, BA-7									
(U) PE 0603208N, Training System Aircraft, H1150, JPATS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
(U) Aircraft Procurement, Navy, BA-3	145.013	293.277	289.253	291.102	293.790	297.402	239.348	26.299	1,875.484
(U) JPATS									
(U) APN 5 Mod Funding	1.649	9.805	8.892	6.929	0.000	1.597	1.631	104.100	134.603
(U) APN 6 Spares	3.826	8.435	8.637	10.131	9.661	9.288	6.664	0.000	56.642
(U) Military Construction, Navy	0.000	23.850	0.000	0.000	0.000	0.000	0.000	0.000	23.850
(U) Aircraft Procurement, Air Force, BA 7									
(U) SECT	0.000	5.819	0.000	0.000	1.513	0.000	1.599	0.000	8.931

**(U) D. Acquisition Strategy**

JPATS was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. Initially, the JPATS Program competitively awarded two contracts: a Firm Fixed Price Contractor Logistics Support (CLS) - Operations and Maintenance funds - contract and a Fixed Price Incentive Firm Target (FPIF) manufacturing development (MD)/production contract with seven options. The FY2002 (Lots 9-13) production contract for both the air vehicle and GBTS is Firm Fixed Price, FAR Part 12 (commercial). The FY2007 production contract for both the air vehicle and GBTS will be awarded as a FAR Part 15 action.

The acquisition strategy for the Congressionally-directed AT-6B effort is under development.

The SECT upgrade effort is an Engineering Change Proposal (ECP) to the competitively awarded Firm Fixed Price Contractor Logistics Support (CLS) contract.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604233F Specialized Undergraduate Pilot Training</b>				<b>4102 Joint Primary Aircraft Training System (JPATS)</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Hawker Beechcraft Corporation (HBC)	C/FPI	HBC, Wichita KS	220.530	2.486	Aug-07	2.316		2.287		Continuing	TBD	TBD
AT-6B	TBD	TBD	0.000	0.000		2.330		0.000		0.000	2.330	TBD
SECT Upgrade	C/FFP	AAI Services Corp, Hunt Valley MD	4.088	0.000		0.000		0.000		Continuing	TBD	4.088
Subtotal Product Development			224.618	2.486		4.646		2.287		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			224.618	2.486		4.646		2.287		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4102 Joint Primary Aircraft Training System (JPATS)

JPATS Schedule

ID	Task Name	06				07				08				09			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	TAS Development																
2	UWARS Development																
3	Life Raft Development																
4	Parachute Surveillance Development																
5	IDARS Memory Upgrade Development																
6	Canopy Fracture Initiation System																
7	Landing Gear Handle Redesign																
8	PCL Cut Off Protection																

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4102 Joint Primary Aircraft Training System (JPATS)

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) JPATS GBTS Traffic Alert System Development Complete	3Q		
(U) JPATS - Certification of New Emergency Locator Transponder	1Q		
(U) JPATS Follow-on Contract Award	3Q		
(U) JPATS Complete FOT&E	3Q		
(U) JPATS Integrated Data Acquisition Recording System (IDARS) Memory Upgrade Development	1-4Q		
(U) JPATS Brake System Redesign	3Q	3Q	
(U) JPATS Canopy Fracture Initiation System Development		1Q	2Q
(U) JPATS Start of Student Training at Sheppard AFB TX		2Q	
(U) JPATS Parachute Surveillance System Development Complete		4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>			PROJECT NUMBER AND TITLE <b>4376 T-38 Avionics Upgrade Program (AUP)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4376 T-38 Avionics Upgrade Program (AUP)	1.626	10.281	5.175	1.632	1.213	1.238	1.263	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The T-38 Avionics Upgrade Program (AUP) is an integrated modernization of the T-38A and AT-38B cockpits to support mission-ready fighter training and converts all T-38A and AT-38B aircraft to T-38C configuration. The modernized digital cockpit will include Global Positioning System (GPS), Head-Up Display (HUD), Inertial Navigation System (INS), Multi-Function Displays (MFDs), Up-Front Control Panel (UFCP), Data Transfer System (DTS), No-Drop Bombing System (NDBS), and Hands-On Throttle and Stick (HOTAS) switchology. HUD symbology is the new USAF standard recently certified as a primary flight reference. Also included is the acquisition of three types of Aircrew Training Devices (ATDs) to replace the existing T-51 simulators. The program includes the design, integration, test, and installation of the cockpit prototype in aircraft, ATDs, and other training devices, as well as engineering services, studies, analysis and support to determine the feasibility of incorporating changes for purposes of making informed life-cycle cost business decisions.

FY 2007 - FY2013 funding is to develop and test aircraft and ATD hardware/software block updates, mission planning software, requirements driven by DoD, FAA and National Aerospace System (NAS) mandated changes (Crash Survivable Flight Data Recorder, Cockpit Voice Recorder, Emergency Locator Transmitter, etc.), enhancements identified during test and evaluation Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues such as Selective Availability Anti-Spoofing Module (SAASM), and precision and GPS approaches. Other upgrades will include enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations, such as a scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Companion Aircraft Model (CAM) operations.

FY 2008 and FY 2009 includes development funding for the T-38C Improved Brake System Program (IBSP). This effort will include development/missionization of Commercial Off The Shelf (COTS) brakes, wheels, and anti-skid systems as well as necessary flight testing, validation, any additional studies and analysis, and appropriate updates to all ATDs.

Budget Activity Justification. This project is in Budget Activity 5, System Development and Demonstration (SDD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Develop and test Block 7 AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.	1.626		
(U) Develop and test Block 8 AUP aircraft and ATD hardware/software upgrades, mission planning software,		1.489	



Exhibit R-2a, RDT&E Project Justification

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February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604233F Specialized Undergraduate Pilot Training</b>	PROJECT NUMBER AND TITLE <b>4376 T-38 Avionics Upgrade Program (AUP)</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.			
(U) Develop and test Block 9 AUP aircraft and ATD hardware/software upgrades, mission planning software, requirements driven by DoD/ FAA/NAS mandates, and/or improvements identified during Test and Evaluation and AETC operations.			1.602
(U) Improved Brake System Program, wheel and brake replacement, anti-skid capability modification and its associated integration issues, studies and analyses		8.792	3.573
(U) Total Cost	1.626	10.281	5.175

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E	1.626	10.281	5.175	1.632	1.213	1.238	1.263	Continuing	TBD
(U) Other APPN									
(U) PE 0804741F, T-38 Avionics Upgrade, BP 1100	40.345	0.781	0.000	0.000	0.000	0.000	0.000	0.000	510.596
(U) PE 0804741F, T-38 Improved Brakes, BP 1100	0.000	0.000	9.798	9.597	5.531	5.612	5.688	29.804	66.030

(U) **D. Acquisition Strategy**  
 The T-38C AUP competitively awarded three contracts: a) a cost plus award fee EMD contract with six firm fixed price production options; b) a firm fixed price CLS contract for avionics including Contractor Owned and Maintained Base Supply (COMBS) (O&M funds); and c) a fixed price award fee maintenance contract for the current and new Aircrew Training Devices (ATDs). During FY2004 new firm fixed priced contracts were negotiated to complete the AUP modification, and unpriced delivery orders for the period FY2005-2008 were negotiated for the aircraft CLS contract. FY2005-2009 block updates are being exercised under the new contract.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604233F Specialized Undergraduate Pilot Training</b>					<b>4376 T-38 Avionics Upgrade Program (AUP)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> The Boeing Corporation	C/CPAF	The Boeing Corporation St. Louis MO		1.626		1.489		1.602		Continuing	TBD	TBD
TBD	PO	TBD		0.000		8.792	Mar-08	3.573		0.000	12.365	TBD
Subtotal Product Development			0.000	1.626		10.281		5.175		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	1.626		10.281		5.175		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604233F Specialized Undergraduate  
Pilot Training

PROJECT NUMBER AND TITLE  
4376 T-38 Avionics Upgrade Program  
(AUP)

T-38 Avionics Upgrade Program

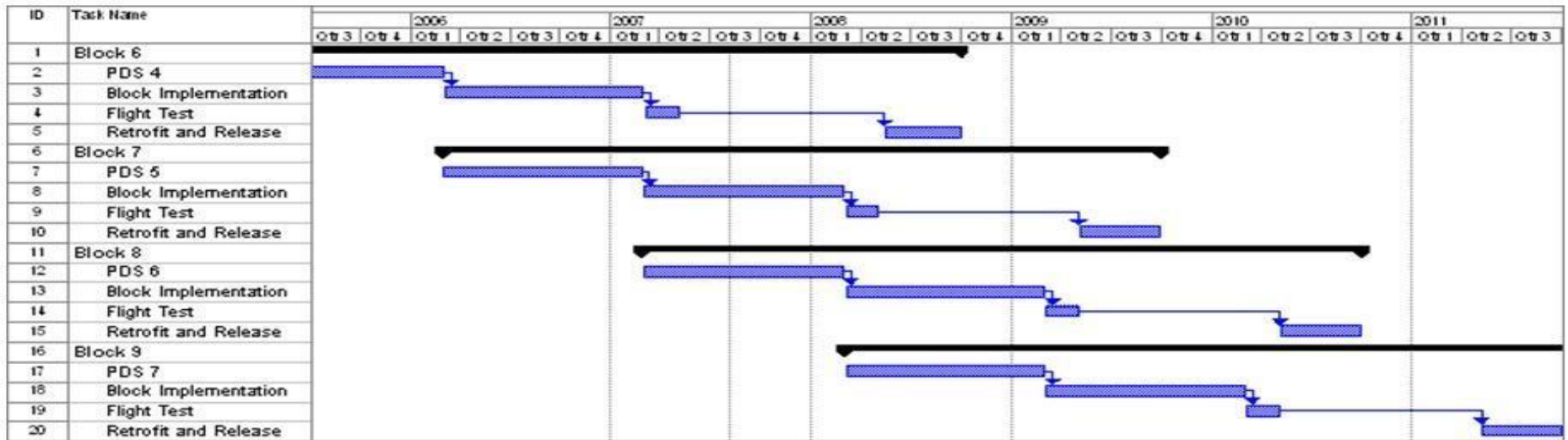


Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4376 T-38 Avionics Upgrade Program (AUP)

T-38 Improved Brake System Program

ID	Task Name	Duration	2006		2007				2008				2009				2010				2011				2012				2013							
			Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2						
1	REQUIREMENTS	563 days?	[Gantt bar spanning from Q3 2006 to Q4 2007]																																	
2	PROPOSAL PREP/ISS	415 days?																																		
3	CONTRACT AWARD	1 day?																																		
4	DESIGN INTEGRATION	260 days																																		
5	TEST	150 days																																		
6	PRODUCTION	2218 days																																		

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604233F Specialized Undergraduate Pilot Training

PROJECT NUMBER AND TITLE

4376 T-38 Avionics Upgrade Program (AUP)

(U) Schedule Profile

(U) AUP Block 6

(U) AUP Block 7

(U) AUP Block 8

(U) AUP Block 9

(U) IBSP Requirements

(U) IBSP Proposal Preparation/Source Selection

(U) IBSP Contract Award

(U) IBSP Design Intergration

FY 2007

3Q

2Q

2Q

FY 2008

3Q

2Q

2Q

FY 2009

4Q

1Q

1Q

1Q

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**UNCLASSIFIED**

PE NUMBER: 0604240F  
 PE TITLE: B-2 Advanced Technology Bomber

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	214.649	295.945	351.417	429.058	143.981	57.040	19.378	Continuing	TBD
3843 B-2 Advanced Technology Bomber	214.649	295.945	351.417	429.058	143.981	57.040	19.378	Continuing	TBD

FY2008 funding totals do not include \$14.1M GWOT requirements still pending congressional consideration

**(U) A. Mission Description and Budget Item Justification**

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth (anti-access and global strike missions) characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home safely. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility and lethality of this national asset tasked across a broad spectrum, from tactical to national objectives. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode 5/S Identification Friend or Foe (IFF), Defensive Management System (DMS) Display Systems, and Moving Target Kill upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG). Upgrades include extremely high frequency components and the computer infrastructure upgrades, such as but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space; Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management. Display systems, radar, and Defense Management System (DMS) upgrades improve system performance, increase reliability and supportability, counter hardware obsolescence, and update the current analog design with modern digital technology, positioning B-2 for increased combat lethality and the world's premier, anti-access moving target kill capability. Defense Management System upgrades and improved displays are essential to meeting Aircraft Availability Improvement Program (AAIP) goals in this aging aircraft.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons into the B-2 to destroy a wider array of target sets, to include moving target sets, as well as destroy more targets per sortie. The Massive Ordnance Penetrator (MOP) armament effort will lead to a B-2 fit check and lay the foundation for initial capability and ultimately, a fully operational capability. In addition, the Moving Target Kill (MTK) effort will leverage a high precision munition such as Small Diameter Bomb II (SDB II) as the mobile target munition and form the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface. MOP and MTK projects initiate the efforts to design, develop, integrate and test hardware and software required to employ both weapons from the B-2. The

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

## BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

## PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

30K lb MOP will provide the nation with the ability to hold additional Hardened and Deeply Buried Targets (HDBT) at risk that are out of reach of the current 5K lb class penetrator munitions. The B-2 is the only anti-access penetrating platform capable of carrying the MOP. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launch Assemblies (RLA) and the Smart Bomb Release Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing, hot structures, tailpipe material maintenance improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, RF diagnostics and LO diagnostic tools development such as improvements of the Signature Diagnostic System database and Low Observable Combat Readiness Model. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities.

This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	241.608	244.019	249.374
(U) Current PBR/President's Budget	214.649	295.945	351.417
(U) Total Adjustments	-26.959	51.926	
(U) Congressional Program Reductions		-0.003	
Congressional Rescissions		-1.889	
Congressional Increases		53.800	
Reprogrammings	-20.237	0.018	
SBIR/STTR Transfer	-6.722		
(U) <u>Significant Program Changes:</u>			



**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604240F B-2 Advanced Technology Bomber**

Changes to FY08 budget are primarily due to Congressional Plus-up to Radar Modernization Program (RMP). Increased funds are required for development and flight test challenges. Changes to the FY09 budget are primarily due to RMP and adjustments to EHF SATCOM and Computers. Increased funding to EHF Increment 2 in FY09/10 reduces schedule risk.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604240F B-2 Advanced Technology Bomber</b>			<b>3843 B-2 Advanced Technology Bomber</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3843 B-2 Advanced Technology Bomber	214.649	295.945	351.417	429.058	143.981	57.040	19.378	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, payload and stealth (anti-access and global strike missions) characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, and return home safely. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility and lethality of this national asset tasked across a broad spectrum, from tactical to national objectives. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3843 B-2 Advanced Technology Bomber</b>
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not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launch Assemblies (RLA) and the Smart Bomb Release Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing, hot structures, tailpipe material maintenance improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, RF diagnostics and LO diagnostic tools development such as improvements of the Signature Diagnostic System database and Low Observable Combat Readiness Model. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities.

This program is included in budget activity code 05, System Development and Demonstration because of the significant development and testing associated with the maintenance and upgrade of B-2 capabilities.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
(U) Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning, Trainer support, long range planning, studies, program integration activities, and other government costs.	7.330	13.839	15.209
(U) Continue development of Aft Deck, Low Observable improvements, Mode 5/S IFF, Proximity Sensor Logic Unit (PSLU), Moving Target Kill (MTK), Massive Ordnance Penetrator (MOP), Display Systems, Integrated Windshield Solution, Trainer Upgrades, and other airframe and avionics improvements.	27.979	42.269	39.438
(U) Continue development of EHF SATCOM and Computers to include Increment 1 Component Advanced Design (CAD), Increment 1 System Development and Demonstration (SDD) and design and fabrication of new and modified components for two test aircraft and two Force Development Evaluation (FDE) aircraft, and Increment 2 CAD and SDD	76.290	135.098	213.699
(U) Continue development of Radar Modernization Program including continuing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six	103.050	104.739	83.071

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**Exhibit R-2a, RDT&E Project Justification**

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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3843 B-2 Advanced Technology Bomber</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
developmental units.			
(U) Total Cost	214.649	295.945	351.417

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) A/C Proc, AF, Combat A/C/BA07/B-2A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) A/C Proc, AF, Post Prod Support/BA07	17.662	0.000	0.000	0.000	0.000	1.180	2.896	Continuing	TBD
(U) A/C Proc, AF, Modifications/BA05/B-2A	50.939	207.654	330.392	67.678	73.698	133.534	188.117	Continuing	TBD
(U) A/C Prod, AF, ICS	29.662	34.545	36.783	31.011	21.810	13.224	8.766	Continuing	TBD
(U) A/C Proc, AF, Cmn Spt Eq/BA07/Items<\$2M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
(U) A/C Proc, AF, A/C Initial Spares/BA06/B-2A	2.083	4.337	0.830	5.282	14.493	12.194	6.612	Continuing	TBD
(U) A/C Proc, AF, Other Procurement/BA07/B-2A	0.000	0.000	19.566	19.971	62.582	0.000	0.000	0.000	TBD
(U) Proc (Other), AF/BA 02,03, 04/B-2A	8.055	4.204	4.359	0.000	0.000	0.000	0.000	0.000	TBD
(U) Military Construction/BA01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

(U) **D. Acquisition Strategy**

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee (CPAF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604240F B-2 Advanced Technology Bomber</b>					<b>3843 B-2 Advanced Technology Bomber</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Air Vehicle	Multiple	Various		205.653	Oct-06	280.933	Oct-07	323.027	Oct-08	Continuing	TBD	
Aircrew Training	Multiple	Various		0.000	N/A	0.530	Jan-08	12.450	Jan-09	Continuing	TBD	
Mission Planning	Multiple	Various		0.771	Jul-07	1.635	Jan-08	1.538	Jan-09	Continuing	TBD	
Engines	Multiple	Various		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
Subtotal Product Development			0.000	206.424		283.098		337.015		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Other Govt Costs	N/A	Various		6.290	Oct-06	9.024	Oct-07	10.933	Oct-08	Continuing	TBD	
Subtotal Support			0.000	6.290		9.024		10.933		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Govt Test	N/A	AFFTC		1.805	Oct-06	3.365	Oct-07	3.469	Oct-08	Continuing	TBD	
Subtotal Test & Evaluation			0.000	1.805		3.365		3.469		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Cancelled Year Invoices	N/A	Various		0.130	Jun-07	0.458	Mar-08				0.588	
Subtotal Management			0.000	0.130		0.458		0.000		0.000	0.588	0.000
Remarks:												
(U) Total Cost			0.000	214.649		295.945		351.417		Continuing	TBD	0.000
Award dates listed are the first incremental funding opportunity associated with cost categories												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604240F B-2 Advanced Technology Bomber

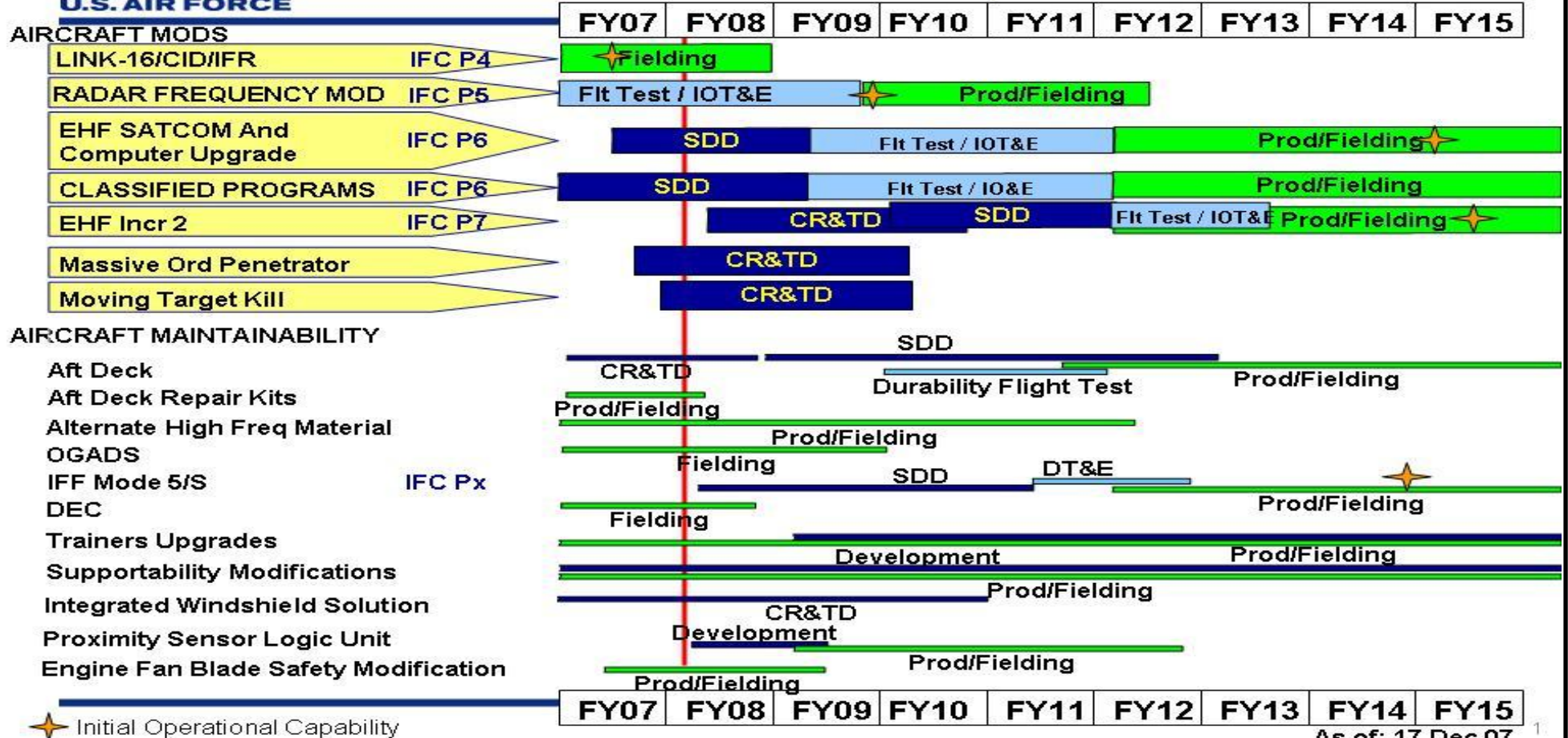
PROJECT NUMBER AND TITLE

3843 B-2 Advanced Technology Bomber



U.S. AIR FORCE

# B-2 Detailed Schedule



★ Initial Operational Capability

As of: 17 Dec 07

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604240F B-2 Advanced Technology Bomber</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3843 B-2 Advanced Technology Bomber</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) EHF Increment 1 Milestone B	2Q		
(U) EHF Increment 1 SDD Contract Award	3Q		
(U) EHF Flight Test Begins			1Q
(U) EHF Increment 2 CAD Contract Award		2Q	
(U) Mode S/5 IFF Contract Award		2Q	
(U) Proximity Sensor Logic Unit Contract Award		2Q	
(U) Moving Target Kill Contract Award	3Q		
(U) Massive Ordnance Penetrator Contract Award	2Q		
(U) Aft Deck Milestone B		3Q	
(U) Aft Deck SDD Contract Award		4Q	

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PE NUMBER: 0604261F  
 PE TITLE: Personnel Recovery Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604261F Personnel Recovery Systems</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	103.337	104.289	0.000	0.000	0.000	0.000	0.000	0.000	207.626
5213 CSAR-X	103.337	94.352	0.000	0.000	0.000	0.000	0.000	0.000	197.689
5249 HC-130Recap	0.000	9.937	0.000	0.000	0.000	0.000	0.000	0.000	9.937

In FY 2007, Project Number 5213, CSAR-X, RDT&E efforts were transferred from PE 0207224F, Combat Rescue and Recovery, CSAR-X, to more accurately reflect funding within the CSAR-X program.

The FY 2009 PB separates the CSAR-X and HC-130Recap projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

Procurement funding for CSAR-X remains in PE 0207224F and is reported in P-Docs.

Procurement funding for HC/MC-130 Recap is included in Air Combat Command PE 0207224F and Air Force Special Operations Command PE 0207230F, as reported in P-Docs.

**(U) A. Mission Description and Budget Item Justification**

Program Element 0604261F includes development projects 5213, 5249, and for the Combat Search and Rescue Replacement Vehicle (CSAR-X), HC-130 Recapitalization (Recap), respectively. The FY 2008 PB, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. For more detailed information regarding these programs see the respective R-2a exhibits under the new PEs.

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The HC-130 Recapitalization (Recap) Program will augment and eventually replace the aging USAF fleet of Combat Rescue Tanker (CRT) aircraft which is experiencing airworthiness, maintainability, and operational limitations. The low density/high demand CRT fleet consists of several C-130 variants--37 aircraft in all--in Active Duty, Air Force Reserve, and Air National Guard squadrons.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604261F Personnel Recovery Systems

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	200.695	290.059	0.000
(U) Current PBR/President's Budget	103.337	104.289	
(U) Total Adjustments	-97.358	-185.770	
(U) Congressional Program Reductions	0.000	-185.111	
Congressional Rescissions	-92.000	-0.659	
Congressional Increases			
Reprogrammings	0.000		
SBIR/STTR Transfer	-5.358		

(U) **Significant Program Changes:**

- CSAR-X: Based on contract award delays Congress rescinded \$92M of FY07 funding and reduced the FY08 President's Budget by \$185.7M. Additionally, the conferees directed that \$99M of the \$185M CSAR-X reduction be directed to maintaining and upgrading the HH-60G CSAR platform so that it may safely and effectively perform the mission until CSAR-X is operational.

- The FY 2009 PB separates the CSAR-X and HC-130Recap projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

- CSAR-X program successfully completed a Block 0 Milestone B in November 2006. This budget reflects Milestone B Block 0 FY08 requirements.

- HC-130 Recap was a New Start in FY08 with funds transferred from terminated "HC-130 Conversion Program," PE 0207224F, BPAC 655249

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604261F Personnel Recovery Systems</b>			<b>5213 CSAR-X</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5213 CSAR-X	103.337	94.352	0.000	0.000	0.000	0.000	0.000	0.000	197.689
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The 2009 PB separates the two projects into distinct PEs (0605277 and 0605278, respectively) to provide more budget clarity.

(U) **A. Mission Description and Budget Item Justification**

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide the USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, to include passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: RDT&E funding includes, but is not limited to, the development of three Block 0 Test Vehicles, non-recurring engineering, software development, integration, testing and certification of the CSAR-X mission components required by the Capability Development Document (CDD), as well as simulator development for both aircrew and maintenance trainers.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SPO support to include, but not limited to the development of test and evaluation master plan, preparation of Block 10 Milestone (MS) A and Block 0 MS C documentation, and execution of SDD contract.	7.564	5.055	
(U) Studies and Analysis	1.320	3.164	
(U) Government Test & Evaluation	1.245	7.152	
(U) Development Support		3.714	
(U) Software		9.791	
(U) Simulator Development		9.140	
(U) Block 0 System Development and Demonstration (SDD) to include, but not limited to non-recurring engineering, test vehicle hardware, and data.	93.208	56.336	
(U) Block 10 SDD to include, but not limited to non-recurring engineering, test vehicle hardware, software, simulator development, and data.			

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604261F Personnel Recovery Systems</b>	PROJECT NUMBER AND TITLE <b>5213 CSAR-X</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Total Cost	103.337	94.352	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF (including Advanced Procurement), PE 0207224F			15.000	207.571	672.172	637.814	824.340	Continuing	TBD
(U) RDT&E, AF PE 0605277			305.062	364.818	379.234	413.090	378.855	Continuing	TBD

(U) **D. Acquisition Strategy**  
 The CSAR-X program will pursue an incremental development strategy composed of Block 0 and Block 10 increments, each with separate milestone decision points. Block 0 will include development and fielding of a new Combat Search and Rescue (CSAR) weapon system. Block 0 will correct HH-60G force-size shortfalls while improving current CSAR capabilities of range, payload, armament, and defensive systems. Block 10 will provide for the insertion of additional systems and improved technologies into the CSAR-X to meet all thresholds stated in the CDD.

Block 0 production deliveries is planned to begin in FY12. At the conclusion of Block 10 Operational Testing, the program will begin Block 10 aircraft production and the retrofitting of Block 0 aircraft to a Block 10 configuration. The program will procure and field 141 CSAR-X helicopters along with support equipment, spares, aircrew and maintenance trainers, and associated Type 1 training.

Block 10 development is planned to begin in FY10 after a successful Milestone A decision. Block 10 will develop two Test Vehicles to the Block 10 configuration allowing for design, integration, and testing of the Block 10 capabilities.

The program is currently in source selection and development schedules are offeror dependent.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604261F Personnel Recovery Systems</b>					<b>5213 CSAR-X</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Studies & Analysis	Various	Various		1.320		3.164					4.484	
Block 0 SDD	CPIF/AF	TBD		93.208		35.023					128.231	
Test Vehicle Hardware	CPIF/AF	TBD				14.589					14.589	
Software	CPIF/AF	TBD				9.791					9.791	
Simulator Development	CPIF/AF	TBD				9.140					9.140	
Block 10 SDD	CPIF/AF	TBD									0.000	
Subtotal Product Development			0.000	94.528		71.707		0.000		0.000	166.235	0.000
Remarks:												
(U) <u>Support</u>												
Development Support	CPIF/AF	TBD				3.714					3.714	
Subtotal Support			0.000	0.000		3.714		0.000		0.000	3.714	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Gov't Test & Evaluation		46 TW, Eglin AFB, FL		1.245		7.152					8.397	
Contractor Test & Evaluation	CPIF/AF	TBD				6.724					6.724	
Subtotal Test & Evaluation			0.000	1.245		13.876		0.000		0.000	15.121	0.000
Remarks:												
(U) <u>Management</u>												
SPO Support				7.564		5.055					12.619	
Subtotal Management			0.000	7.564		5.055		0.000		0.000	12.619	0.000
Remarks:												
(U) Total Cost			0.000	103.337		94.352		0.000		0.000	197.689	0.000

Exhibit R-4, RDT&E Schedule Profile

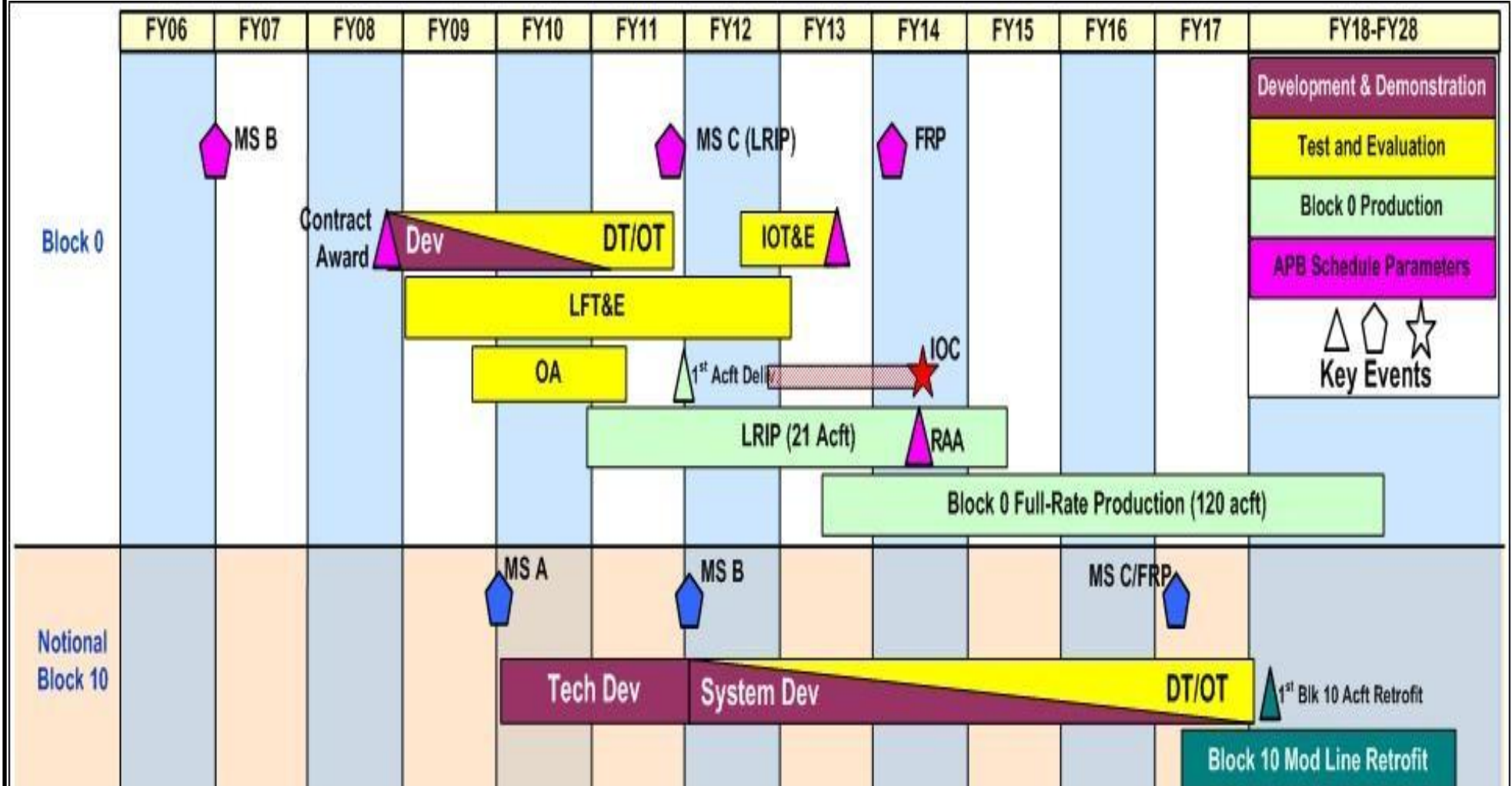
DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604261F Personnel Recovery Systems

PROJECT NUMBER AND TITLE  
5213 CSAR-X



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604261F Personnel Recovery Systems</b>	PROJECT NUMBER AND TITLE <b>5213 CSAR-X</b>
---	---	--

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Block 0 Milestone (MS) B	1Q		
(U) Conduct CSAR-X Source Selection (Amendment 5)		1-3Q	
(U) Block 0 Contract Award (Including Amendment 5)		4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604261F Personnel Recovery Systems</b>			PROJECT NUMBER AND TITLE <b>5249 HC-130Recap</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5249 HC-130Recap	0.000	9.937	0.000	0.000	0.000	0.000	0.000	0.000	9.937
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. HC/MC-130 Recap was a FY 2008 New Start.

<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Acquisition Planning, Milestone Preparation, RFP development and Source Selection Activities		2.101	
(U) Systems Engineering and Integration		4.000	
(U) Test and Evaluation Planning, Conduct and Support		3.836	
(U) Total Cost	0.000	9.937	0.000

<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) HC/MC-130 Recap RDT&E PE 0605278F		0.000	11.692	10.054	4.015	2.504	2.500	Continuing	TBD
(U) HC/MC-130 Recap APAF (Including Advance Procurement)	0.000	75.221	587.677	734.688	671.980	608.478	588.465	Continuing	TBD

(U) **D. Acquisition Strategy**  
 AF plans to procure modified KC-130Js in FY 2009 and FY 2010 to meet the Warfighter's immediate requirement and conduct a business case analysis to determine the acquisition strategy to procure the remaining aircraft.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604261F Personnel Recovery Systems</b>				<b>5249 HC-130Recap</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Systems Engineering and Integration	TBD	TBD		0.000		4.000	Nov-07				4.000	TBD
Subtotal Product Development			0.000	0.000		4.000		0.000		0.000	4.000	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test and Evaluation Conduct	TBD	TBD		0.000		2.000	Mar-08				2.000	TBD
Test and Evaluation Support	TBD	TBD		0.000		1.836	Mar-08				1.836	TBD
Subtotal Test & Evaluation			0.000	0.000		3.836		0.000		0.000	3.836	TBD
Remarks:												
(U) <u>Management</u>												
SPO Support	TBD	TBD				2.101					2.101	TBD
Subtotal Management			0.000	0.000		2.101		0.000		0.000	2.101	TBD
Remarks:												
(U) Total Cost			0.000	0.000		9.937		0.000		0.000	9.937	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

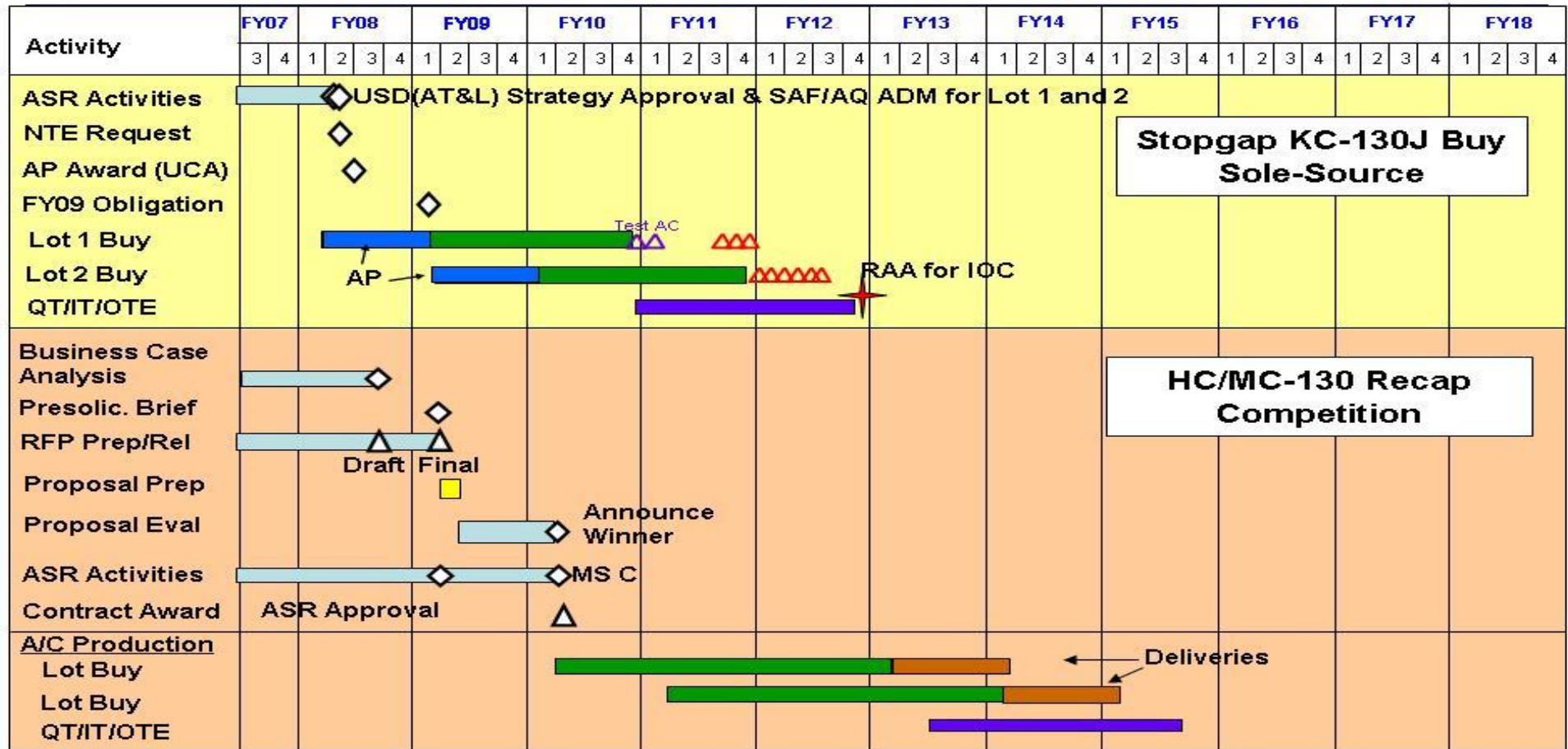
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604261F Personnel Recovery  
Systems

PROJECT NUMBER AND TITLE  
5249 HC-130Recap

For Official Use Only

# HC/MC-130 Recapitalization Program Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604261F Personnel Recovery Systems</b>	PROJECT NUMBER AND TITLE <b>5249 HC-130Recap</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Conduct Market Research	1-3Q		
(U) Develop Acquisition Strategy	1-4Q		
(U) JROC Validation of CDD		1Q	
(U) Acquisition Strategy Approval		2Q	
(U) Advance Procurement Contract Award (Lot 1)		2Q	
(U) Production Contract Award (Lot 1)			1Q
(U) Advance Procurement Contract Award (Lot 2)			1Q

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PE NUMBER: 0604270F  
 PE TITLE: EW Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604270F EW Development</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	95.949	102.601	54.995	86.443	65.881	0.507	0.512	Continuing	TBD
3891 Advanced IR Counter Measures (AIRCM)	0.009	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3945 TEWS Upgrade	0.662	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4832 Precision Location and Identification (PLAID)	19.441	5.517	0.007	0.000	0.000	0.000	0.000	Continuing	TBD
8462 Miniature Air Launched Decoy	75.837	97.084	54.988	86.443	65.881	0.507	0.512	Continuing	TBD

The Advanced Strategic and Tactical Infrared Expendables (ASTE) component of AIRCM was transferred to Ogden Air Logistics Center, Hill AFB (OO-ALC) under PE 28030F War Reserve Ammunition.

**(U) A. Mission Description and Budget Item Justification**

This program element (PE) consolidates Air Force funding and management of common Electronic Warfare (EW) systems from engineering development through transition to operational capability. EW is an integral part of offensive and defensive Counter-air, Counterland, and Countersea operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electro-magnetic spectrum. This PE supports Electronic Support (ES), Electronic Protection (EP), and Electronic Attack (EA). ES programs support the collection, analysis, and dissemination of information related to the detection, geo-location, characterization, and identification of threats to air operations. EP programs provide self-protection through active and passive measures that deceive threats to air operations. EA programs provide kinetic and non-kinetic means to defeat threats that rely on the electro-magnetic spectrum.

This program is in budget activity 5 - System Development and Demonstration (SDD) because of the common development to meet user requirements that provide electronic warfare combat capability.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	92.832	101.649	16.637
(U) Current PBR/President's Budget	95.949	102.601	54.995
(U) Total Adjustments	3.117	0.952	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.653	
Congressional Increases		1.600	
Reprogrammings	5.100	0.005	
SBIR/STTR Transfer	-1.983		

**(U) Significant Program Changes:**

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

- FY2007, Project 654832, funds added to support AT3 ACTD development and integration
- FY2008, Project 654832, congressional add for Rapid Replacement of Mission Critical Logistics Electronic Components
- FY2009-FY2011, Project 658462, funds added for continued development of MALD-J

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>3891 Advanced IR Counter Measures (AIRCМ)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3891 Advanced IR Counter Measures (AIRCМ)	0.009	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

The Advanced Strategic and Tactical Infrared Expendables (ASTE) component of AIRCM was transferred to Ogden Air Logistics Center, Hill AFB (OO-ALC) under PE 28030F War Reserve Ammunition.

**(U) A. Mission Description and Budget Item Justification**

The Advanced Infrared Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated infrared-guided surface-to-air and air-to-air missiles. These missiles may employ sophisticated next-generation electro-optics or dual-mode IR and radio frequency seekers. AIRCM will provide advanced IR expendable countermeasures and/or IRCM techniques that will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF weapon systems and the Navy's F/A-18 E/F. This also explicitly includes any and all flare and decoy development and testing that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. These activities may also be paid for under platform specific funding or through other testing activities such as joint services or NATO test groups. The Advanced Strategic and Tactical Infrared Expendables (ASTE) component of AIRCM was transferred to Ogden Air Logistics Center, Hill AFB (OO-ALC) for sustainment and modernization. FY07 funds are being used to close out technical support to complete transition to OO-ALC.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AIRCM Modeling & Simulation, flight test analysis and technical support	0.009		
(U)			
(U)			
(U) Total Cost	0.009	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement of Ammunition, AF, PE 0208030F, WSC flares	42.180	32.337	164.729	145.487	144.296	144.520	147.417	Continuing	TBD

**(U) D. Acquisition Strategy**

The planned acquisition strategy for AIRCM efforts is competitive cost-plus

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604270F EW Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3891 Advanced IR Counter Measures (AIRCМ)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Support</u>												
CESS/TW IRCM technical support for EW roadmap	Various	Combat Electronic Systems Squadron, WPAFB OH									0.000	
542 EWSG/CI support	Various	542 Electronic Warfare Group Warner Robins ALC (WR-ALC)	0.000	0.009							0.009	
Subtotal Support			0.000	0.009		0.000		0.000		0.000	0.009	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.009		0.000		0.000		0.000	0.009	0.000



**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604270F EW Development**

PROJECT NUMBER AND TITLE

**3891 Advanced IR Counter Measures (AIRCМ)**

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures (AIRCМ)

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U)

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>3945 TEWS Upgrade</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3945 TEWS Upgrade	0.662	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

The Tactical Electronic Warfare Suite (TEWS) Upgrade program will develop a Fiber Optic Towed Decoy (FOTD) for the joint Integrated Defensive Electronic Countermeasures (IDECM) Navy-led program. The current AF approved program will provide a FOTD suitable for future F-15 requirements and will include a Reel-In/Reel-Out (RORI) prototype launcher capability.

**(U) A. Mission Description and Budget Item Justification**

The FOTD improves electronic countermeasure performance against tier one-threat systems and improves electronic warfare system performance against future missile threat systems. The Radio Frequency (RF) towed decoy is a countermeasure that increases survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement.

This program develops and establishes integration for an Air Force FOTD system. The FOTD portion of the budget provides Air Force participation in the Navy-led IDECM program that is jointly developing, integrating, flight testing, conducting effectiveness testing, and live fire testing using a FOTD. The Air Force will provide for its unique development, integration, and testing requirements that are not covered by the Navy-led joint development effort. The Air Force also participates in a joint FOTD risk reduction effort with the Navy looking at alternate FOTDs and methods of deployment to develop an alternative launcher system (Reel-Out/Reel-In [RORI]), which reduces life cycle cost. The Air Force completes FOTD testing and development in FY07.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) F-15 ( F-15 TEWS & Two Tube FOTD & Flight Test)	0.000		
(U) FOTD Integration and RORI Development	0.000	0.000	0.000
(U) Mission and Test Support	0.662	0.000	0.000
(U) Total Cost	0.662	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement, AF PE 0207442F, War Consumable (RF decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

**(U) D. Acquisition Strategy**

The acquisition strategy for IDECM RDT&E is competitive, cost-plus incentive fee, cost-plus award fee and cost-plus fixed fee.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604270F EW Development</b>					<b>3945 TEWS Upgrade</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH								0.000	0.000	
Development Raytheon	CPIF	Raytheon, Goleta, CA								0.000	0.000	
Raytheon Development (FO-50 Two Tube)	CPFF	Raytheon, Goleta, CA								0.000	0.000	
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Misc								0.000	0.000	
RORI Launcher Prototype/Development	CPFF	Raytheon, CA & BAE, NH								0.000	0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
ASC/AA - IDECM	Various	Misc			Nov-06		Nov-07		Nov-08	0.000	0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Flight Test Support (Effectiveness Testing)	Various	Misc		0.662	Apr-07	0.000		0.000		0.000	0.662	
Eglin Flight Test Support	Various	Misc			Apr-07					0.000	0.000	
NRL F-15 Effectiveness Flight Test					Jan-07						0.000	
Subtotal Test & Evaluation			0.000	0.662		0.000		0.000		0.000	0.662	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.662		0.000		0.000		0.000	0.662	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

## RDT&E Schedule Profile Milestones

ID	Task Name	2006				2007				2008			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	RORI Launcher Prototype Demo Flt Test		★										
2	FOTD Envelope Expansion Final Flt Test (ALE-55)				☆								
3	RORI Launcher Protoype Final Demo Flt Test				☆								
4	FOTD Envelope Expansion Final Flt Test (AFOTD)				☆								
5	FOTD Effectiveness Flt Test						☆						
6	Program Close out & HW Disposition										☆		
7	Program Closed Out										☆		

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3945 TEWS Upgrade

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) FOTD Effectiveness Flight Test

2Q

(U) Program Closeout & HW Disposition

1-3Q

(U) Program Closeout

3Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604270F EW Development			4832 Precision Location and Identification (PLAID)		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	19.441	5.517	0.007	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The AN/ALR-69A radar warning receiver (RWR) is an evolutionary development program consisting of a core digital receiver/processor with growth increments. The core ALR-69A program objectives are to improve identification of threat type, provide substantially more receiver sensitivity compared to the legacy AN/ALR-69, and utilize digital processor technology to operate in a dense signal environment. Effort has begun on evolutionary growth spirals for single and multi-ship geolocation. The underlying technology and algorithms enabling precise threat geolocation and Specific Emitter Identification (SEI) are often collectively known as Precision Location and Identification (PLAID) technology. When integrated with existing mission planning systems, the AN/ALR-69A will improve aircrew situational awareness by providing real time threat avoidance route information. ALR-69A development is currently focused on a replacement RWR for AFSOC and AMC C-130 aircraft but this digital RWR is also installed in three ANG F-16Cs for developmental and operational testing and this RWR is also under consideration by AFSOC, AMC and ACC for installation in other mission design series aircraft. Quantities shown reflect preproduction ALR-69A systems being used in testing. Full rate production for AFSOC and AMC C-130 aircraft begins in FY09.

Multiple platform geolocation capability is being developed under an OSD-ATL and CENTCOM sponsored Advanced Tactical Targeting Technology (AT3) Advanced Concept Technology Demonstration (ACTD). A plan to develop this technology for US Armed Forces airborne platforms has been approved.

In FY07 Congress added \$1.0M AF RDT&E funds to the EW Development PE 064270F for "Rapid Replacement of Mission Critical Logistics Electronics Components" (RRMCLEC). Warner Robins Air Logistics Center (ALC) is performing RRMCLEC work and tracking those funds. RRMCLEC will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Raytheon Core C-130 SDD	6.060	0.477	
(U) Raytheon Option 11 AT3 ACTD	4.299	1.400	
(U) AT3 ACTD Program Office Support	1.038	0.850	
(U) Engineering Support	1.281	0.300	
(U) AFOTEC Det 1 46 OGS Responsible Test Organization (RTO)	1.020	0.000	
(U) AT3 ACTD Test and Evaluation	1.566	0.690	
(U) Platform Integration	3.177	0.200	0.007
(U) Rapid Replacement of Mission Critical Logistics Electronic Components	1.000	1.600	
(U) Total Cost	19.441	5.517	0.007

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) DARPA Funding (AT3 ACTD)									1.300
(U) OSD Funding (AT3 ACTD)									14.000
(U) PE 0207442F Common ECM Equipment	0.000	10.308	10.532	1.651	0.000			Continuing	TBD
(U) PE 0401115F ALR-69 (RWR) AMC C-130 Airlift Squadrons. PLAID procurement to commence in FY07	34.090	30.227	23.711	39.021	31.492	9.337	9.522	Continuing	TBD

(U) **D. Acquisition Strategy**

Acquisition was accomplished through full and open competition. The SDD contract was awarded to Raytheon Corporation in August 2001.

Program is based on 'Evolutionary Acquisition Strategy'.

- CORE SDD: SOF-130 DT/OT
- Option 1: F-16 DT/OT
- Option 2: Risk Reduction, AT3 Bridge Requirements Definition
- Option 3: F-16 Geo-Location
- Option 4: SOF-130 Geo-Location
- Options 5-10: Production
- Option 11: Advanced Tactical Targeting Technology (AT3)



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604270F EW Development</b>				<b>4832 Precision Location and Identification (PLAID)</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		6.060		0.477				0.000	6.537	23.152
Raytheon Option 3/4 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA								0.000	0.000	5.440
Raytheon Option 11 AT3 + Fee	Sole Source - Raytheon	Raytheon - Goleta CA		4.299	Apr-07	1.400	Feb-08			0.000	5.699	8.384
Subtotal Product Development			0.000	10.359		1.877		0.000		0.000	12.236	36.976
Remarks:												
(U) <u>Support</u>												
AT3 Program Office Support Program Office	PR	Various Contractors		1.038						0.000	0.850	1.255
Engineering	Various			1.281		0.300				0.000	1.581	2.500
Subtotal Support			0.000	2.319		1.150		0.000		0.000	3.469	5.365
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFOTEC Det 1 46 OGS C-130	PO			1.020						0.000	1.020	4.455
AT3 ACTD T&E (Western Test Range)	PO			1.566		0.690					2.256	0.739
Subtotal Test & Evaluation			0.000	2.586		0.690		0.000		0.000	3.276	5.194
Remarks:												
(U)												
Platform Integration - C-130, F-16 AT3 ACTD	Various	Various		3.177		0.200		0.007		0.000	3.384	7.027
Platform Integration Options 3/4	Various	Various									0.000	0.395
Subtotal			0.000	3.177		0.200		0.007		0.000	3.384	7.422
Remarks:												
(U)												
Rapid Replacement of Mission Critical Logistics Electronic Components	IDIQ Time and Matls	Scientific Research Corp - Atlanta GA		1.000		1.600					2.600	3.900
ALQ-172 AEA Upgrade	Sole Source, BOA	ITT, Clifton, NJ									0.000	
Subtotal			0.000	1.000		1.600		0.000		0.000	2.600	3.900
Remarks:												
(U) Total Cost			0.000	19.441		5.517		0.007		0.000	24.965	58.857

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Project 4832

Exhibit R-3 (PE 0604270F)

Exhibit R-4, RDT&E Schedule Profile

DATE  
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BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604270F EW Development

PROJECT NUMBER AND TITLE  
4832 Precision Location and Identification (PLAID)



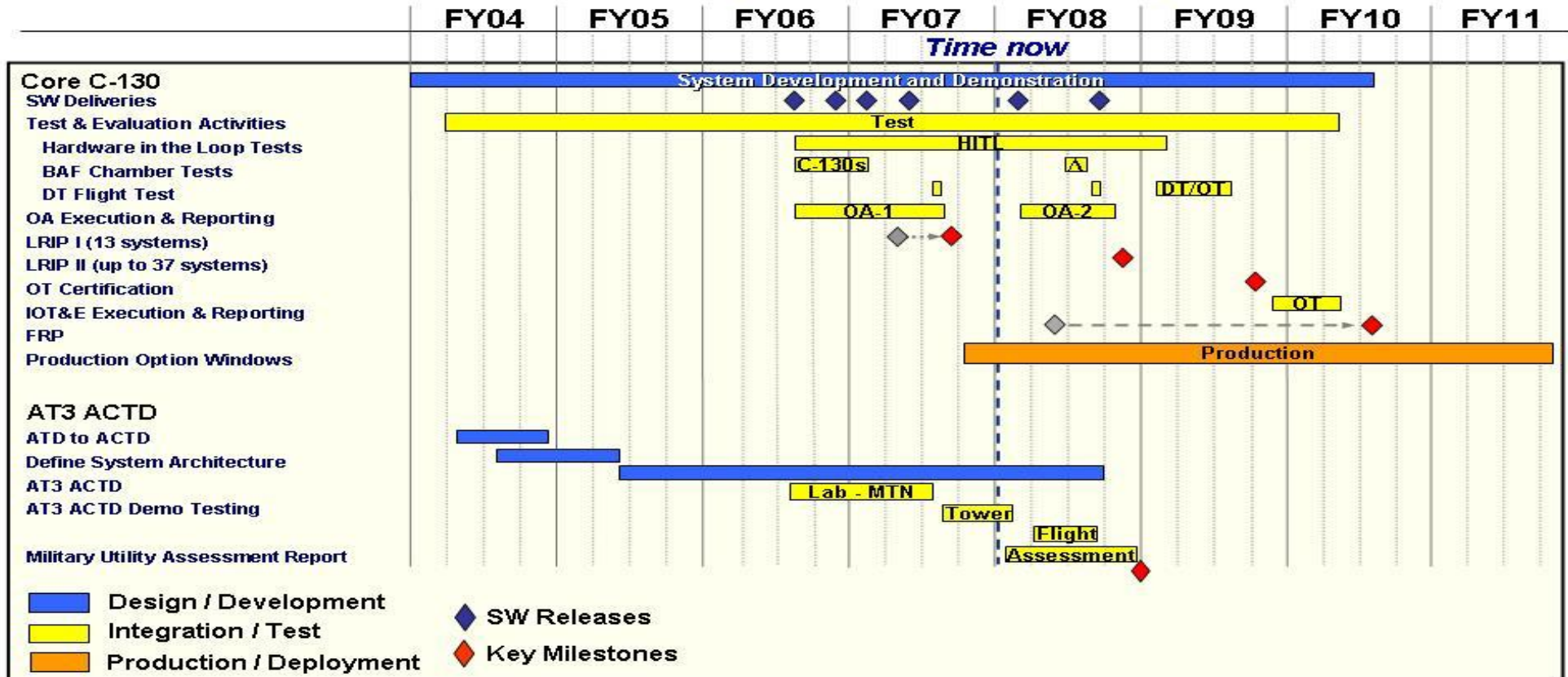
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# ALR-69A Schedule

U.S. AIR FORCE

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)

(U) **Schedule Profile**

(U) Developmental Testing and Evaluation

(U) Initial Operational Test and Evaluation

(U) LRIP I Decision

(U) LRIP II Decision

FY 2007

FY 2008

FY 2009

1-3Q

4Q

3Q

4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604270F EW Development</b>			PROJECT NUMBER AND TITLE <b>8462 Miniature Air Launched Decoy</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
8462 Miniature Air Launched Decoy	75.837	97.084	54.988	86.443	65.881	0.507	0.512	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This project develops the Miniature Air Launch Decoy (MALD) and MALD Jammer (MALD-J). The decoy and jammer configurations are key enablers supporting the Air Force Global Strike, Global Response, Space and C4ISR, and the Air and Space Expeditionary Force Concepts of Operations. MALD is a low cost, powered, expendable decoy designed to represent the kinematics and radar signature characteristics of various combat aircraft. The MALD will be employed from various aircraft platforms to stimulate, saturate, and deceive an enemy Integrated Air Defense System (IADS) thus increasing the survivability of coalition strike aircraft.

MALD-J will provide stand-in jamming capability for the Airborne Electronic Attack Systems of Systems. MALD-J will be launched against a preplanned target and will jam specific radars in a stand-in role to degrade or deny the IADS detection of friendly aircraft or munitions. MALD-J will be able to operate in both decoy and jammer modes.

Planned efforts for this program are risk reduction (to include prototyping) and System Development and Demonstration (SDD) of the decoy, jammer, and any future configurations. This will include design, development, test, aircraft integration, and seamless verification.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MALD SDD Contract	38.950	36.218	0.000
(U) MALD-J Risk Reduction and SDD Contract	20.329	50.025	48.378
(U) MALD Program Office Support (Government)	2.708	1.816	0.000
(U) MALD-J Program Office Support (Government)		1.816	1.296
(U) MALD B-52 Aircraft Integration	3.269	0.500	
(U) MALD-J B-52 Aircraft Integration		0.460	0.335
(U) MALD Mission and Test Support	8.885	4.749	
(U) MALD-J Mission and Test Support	1.491	1.117	4.774
(U) MALD F-16 Aircraft Integration	0.205	0.100	
(U) MALD-J F-16 Aircraft Integration		0.283	0.205
(U) Total Cost	75.837	97.084	54.988

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN (PE 0207442F)	0.000	9.544	56.438	112.244	44.861	119.364	151.784	Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

8462 Miniature Air Launched Decoy

(U) **C. Other Program Funding Summary (\$ in Millions)**

MALD/MALD-J procurement)

(U) **D. Acquisition Strategy**

A full and open competition for MALD was held in FY03 resulting in award of a cost plus award fee contract to Raytheon.

MALD-J risk reduction is based on a pair of decision points to evaluate progress towards meeting required effectiveness for the jammer payload. The Phase 1 effort is geared toward completing the subsystem design and characterizing effectiveness measures for that design. Phase 2 risk reduction will take the full system through PDR and establish an Integrated Baseline for the following MALD-J SDD program.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604270F EW Development</b>					<b>8462 Miniature Air Launched Decoy</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u> MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center									0.000	40.074	
MALD SDD	CPAF	Raytheon Missile Systems, Tucson AZ	114.384	38.950	Oct-07	36.218	Mar-08	0.000			189.552	TBD	
MALD-J RR and SDD				20.329	Apr-07	50.025	Mar-08	34.378	Dec-08		104.732		
MALD-J Improvement Risk Reduction								14.000			14.000		
MALD B-52 Aircraft Integration	MIPR	B-52 SPO	10.250	3.269	Jun-07	0.500	Nov-08				14.019	0.000	
MALD-J B-52 Aircraft Integration	MIPR	B-52 SPO				0.460	Jun-08	0.335	Jun-09		0.795		
MALD F-16 Aircraft Integration	MIPR	F-16 SPO	0.694	0.205	Dec-06	0.100	Mar-08				0.999	0.000	
MALD-J F-16 Aircraft Integration	MIPR	F-16 SPO				0.283	Jun-08	0.205	Jun-09		0.488		
Subtotal Product Development			125.328	62.753		87.586		48.918		0.000	324.585	TBD	
Remarks:													
(U) <u>Support</u>													
MALD Contractor Support to AAC/AAMSW/SASG/RC	Various	Various	5.924	1.678	Dec-06	1.316	Dec-07				8.918		
MALD-J Contractor Support to AAC/AAMSW/SASG/RC	Various	Various				1.316	Dec-07	0.861	Dec-08		2.177		
Subtotal Support			5.924	1.678		2.632		0.861		0.000	11.095	0.000	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
MALD Government Test Planning	Various	Various	11.862	8.885		4.749					25.496		
MALD-J Government Test Planning	Various	Various		1.491		1.117		4.774			7.382		
Subtotal Test & Evaluation			11.862	10.376		5.866		4.774		0.000	32.878	0.000	
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.												
(U) <u>Management</u>													
MALD AAC/AAMSW/SASG/RC	Various	AAC, Eglin AFB FL	1.866	1.030		0.500					3.396		
MALD-J AAC/AAMSW/SASG/RC	Various	AAC, Eglin AFB FL				0.500		0.435			0.935		
Subtotal Management			1.866	1.030		1.000		0.435		0.000	4.331	0.000	
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and information technology expenses.												
(U) Total Cost			144.980	75.837		97.084		54.988		0.000	372.889	TBD	

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Project 8462

Exhibit R-3 (PE 0604270F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

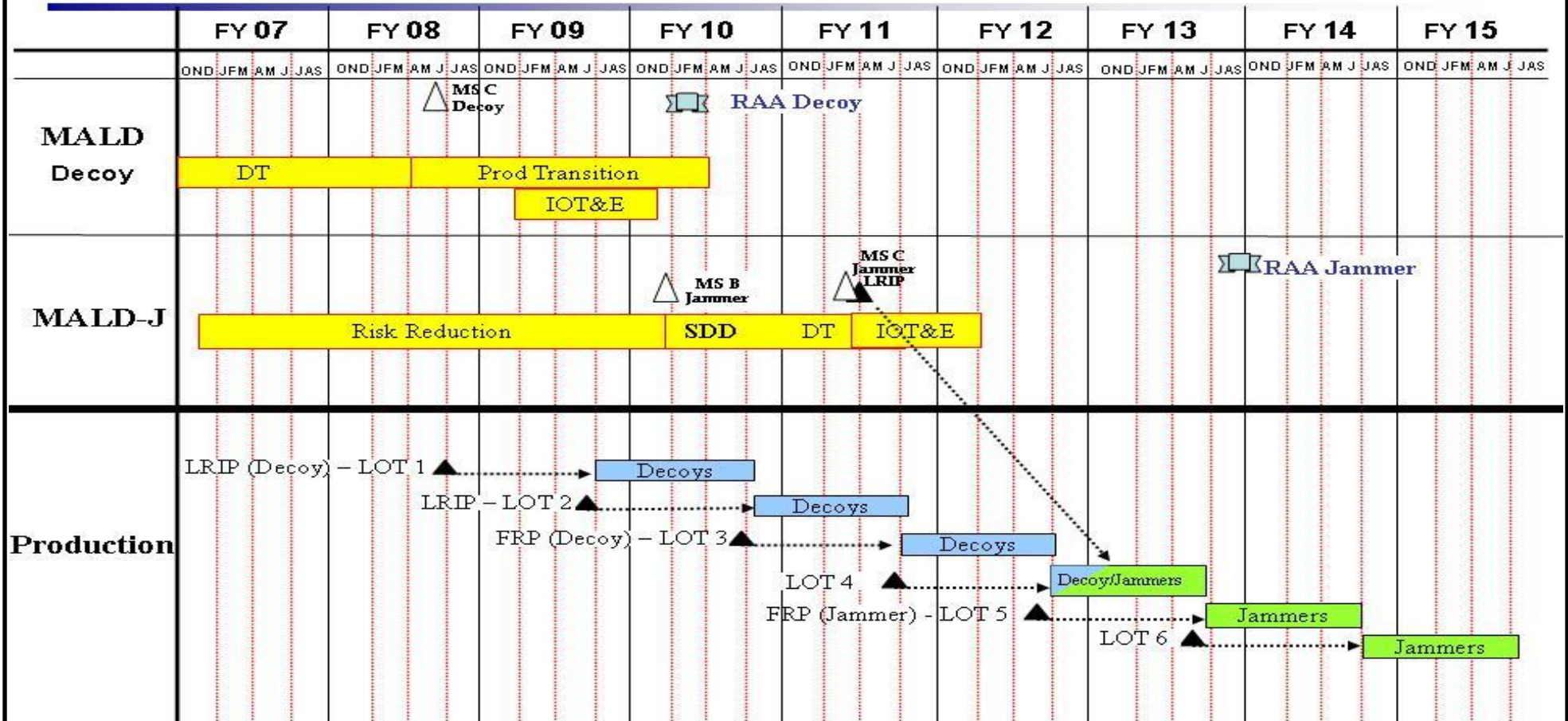
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604270F EW Development

PROJECT NUMBER AND TITLE  
8462 Miniature Air Launched Decoy



# MALD / MALD-J Schedule



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Project 8462

Exhibit R-4 (PE 0604270F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

8462 Miniature Air Launched Decoy

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) MALD Flight Readiness Review

1Q

(U) MALD MS C

3Q

(U) MALD IOT&E

1-4Q



**UNCLASSIFIED**

PE NUMBER: 0604287F  
 PE TITLE: Physical Security Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604287F Physical Security Equipment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.090	0.034	0.052	0.052	0.052	0.053	0.054	Continuing	TBD
5120 Physical Security Equipment - SD/ED	0.090	0.034	0.052	0.052	0.052	0.053	0.054	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consists of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Networks and Information Integration (NII). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.093	0.034	0.052
(U) Current PBR/President's Budget	0.093	0.034	0.052
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604287F Physical Security Equipment</b>			PROJECT NUMBER AND TITLE <b>5120 Physical Security Equipment - SD/ED</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5120 Physical Security Equipment - SD/ED	0.090	0.034	0.052	0.052	0.052	0.053	0.054	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 This program is a budget activity level 5 based on the engineering and manufacturing development activities ongoing within the program. The purpose of this program is to design physical security equipment (PSE) systems for all DoD components, to support its physical security and Force Protection missions. This program supports the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that members of the physical security equipment action group (PSEAG), which consists of the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Networks and Information Integration (NII). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs have multi-service application. This program element supports the Army's advanced engineering development of robotic and detection systems. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION - Conduct operational test of MDARS-E. - Provide Engineering Support for fielding the MDARS-E.			
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2007 plans.	0.093		
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2008 plans.		0.034	
(U) ROBOTIC SECURITY SYSTEMS INTEGRATION In FY 2006, PE 0604287F - Physical Security Equipment efforts transferred to PE 604161D8Z - Nuclear and Conventional Physical Security Equipment. Please see PE 604161D8Z for FY 2009 plans.			0.052
(U) Total Cost	0.093	0.034	0.052

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

(U) D. Acquisition Strategy

Not Applicable

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604287F Physical Security Equipment</b>				<b>5120 Physical Security Equipment - SD/ED</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> PM-FPS (US Army) Subtotal Product Development Remarks:	MIPR		0.000	0.093		0.034		0.052		0.000	0.179	0.000
(U) <u>Support</u>  Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Program Office Support Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.093		0.034		0.052		0.000	0.179	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment - SD/ED

Exhibit R-4, Schedule Profile		Date: September 2005																																		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)		PE NUMBER AND TITLE PE 0604287F Physical Security Equipment																PROJECT NUMBER AND NAME 5120 Physical Security Equipment - SD/ED																		
Fiscal Year	2003				2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conduct Operational test of MDARS																																				
Provide Engineering Support for fielding MDARS																																				

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604287F Physical Security  
Equipment

PROJECT NUMBER AND TITLE

5120 Physical Security Equipment -  
SD/ED

(U) Schedule Profile

(U) Conduct operational test of MDARS-E

(U) Provide engineering support for fielding the MDARS-E

(U) Robotic Security Systems Integration

FY 2007

1-2Q

1-4Q

1-4Q

FY 2008

1-4Q

1-4Q

FY 2009

1-4Q

1-4Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604329F Small Diameter Bomb</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	122.276	144.279	125.067	128.670	77.116	78.621	80.233	159.140	1,306.034
5006 Small Diameter Bomb	12.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	367.682
5191 Small Diameter Bomb Increment II	89.887	144.279	125.067	128.670	77.116	78.621	80.233	159.140	908.153
5258 Focused Lethality Munition (FLM)	20.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.199

FY2008 funding totals do not include the \$27.9M FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

Small Diameter Bomb Increment I (SDB I) is an Air Force ACAT 1C program providing increased kills per sortie on current and future aircraft platforms. SDB I addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, A-10, Joint Strike Fighter (JSF), F-22A, F-16, B-52, and the Predator B. SDB I completed IOT&E in June 2006 and is currently in Full Rate Production (FRP).

The government is buying SDB I based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is accountable to the government for not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

Small Diameter Bomb II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, and provides a migration path to net-centric ops capability. Threshold aircraft are the F-15E for the US Air Force and the Joint Strike Fighter (JSF) for the US Navy. The Navy Initial Operating Capability (IOC) is scheduled for FY 2016 on JSF Conventional Take-Off and Landing (CTOL) aircraft. Objective aircraft include: F-22A, F-35A, F-16, A-10, MQ-9, B-1, B-2, B-52, and the F/A-18. SDB II will be compatible with the BRU-61 miniature munitions carriage and the SDB I container systems. SDB II began Risk Reduction in FY06 and Milestone B is scheduled in FY10. Milestone C is planned for FY13 followed by RAA on the F-15E in FY14. SDB will continue incremental development to pursue network centric interoperability. SDB is a key component of the Air Force's Global Strike Task Force CONOP.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604329F Small Diameter Bomb**

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM): is a Joint Capabilities Technology Demonstrations (JCTD) program to increase the near field blast but decrease collateral damage, thus giving increased options to the war fighter. Extends access to targets restricted by collateral damage limitations. The technical approach is to combine and leverage 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases Near-Field Blast Impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance, 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property, 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, minor weapon OFP changes allow it to match SDB I accuracy, 4) Remains compatible with BRU-61 miniature munition carriage and SDB I container system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	105.481	145.191	125.112
(U) Current PBR/President's Budget	122.276	144.279	125.067
(U) Total Adjustments	16.795	-0.912	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.921	
Congressional Increases			
Reprogrammings	19.700	-0.009	
SBIR/STTR Transfer	-2.905		

**(U) Significant Program Changes:**

FY07 reprogramming changes were for FLM development.

FY09 Risk Reduction test schedule requires fewer test targets with FY09 being the last year of the SDB II risk reduction phase.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>						PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>		PROJECT NUMBER AND TITLE <b>5006 Small Diameter Bomb</b>		
Cost (\$ in Millions)		FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5006	Small Diameter Bomb	12.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	367.682
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Small Diameter Bomb Increment I (SDB I) is an Air Force ACAT 1C program providing increased kills per sortie on current and future aircraft platforms. SDB I addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather operations, precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft is the F-15E. Objective aircraft include the B-1, B-2, A-10, Joint Strike Fighter (JSF), F-22A, F-16, B-52, and the Predator B. SDB I completed IOT&E in June 2006 and is currently in Full Rate Production (FRP).

The government is buying SDB I based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at contract award. The contractor will assume performance responsibility as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is accountable to the government for not only for the design of the missile system, but also for planning and executing the seamless verification program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for testing. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the test program according to the scope of the SDD contract.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because this RDT&E effort develops the Small Diameter Bomb weapon system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue aircraft integration.	1.588	0.000	0.000
(U) Continue program office support.	0.324	0.000	0.000
(U) Continue mission support.	0.422	0.000	0.000
(U) Continue System Development and Demonstration (SDD) phase for fixed target variant.	9.855	0.000	0.000
(U) Continue SDD testing and continue test support.	0.000	0.000	0.000
(U) Total Cost	12.189	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Missile Procurement, AF, 0207327F, App 3020	114.664	94.653	133.209	164.462	137.387	139.764	142.570	101.191	1,109.231

**(U) D. Acquisition Strategy**

All major contracts within this Program Element have been awarded through full and open competition. Two contractors were selected for the 24 month CAD phase

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604329F Small Diameter Bomb**

PROJECT NUMBER AND TITLE

**5006 Small Diameter Bomb**

using Firm Fixed Price contracts. The Air Force downselected to Boeing in August 2003. SDD is a fixed target variant with near precision and significant weapon effectiveness. SDD is a Cost Plus Award Fee contract.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604329F Small Diameter Bomb</b>					<b>5006 Small Diameter Bomb</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
CAD Contract 1	FFP	Lockheed Martin, Orlando FL	53.616							0.000	53.616	53.616
CAD Contract 2	FFP	Boeing, St Louis MO	53.616							0.000	53.616	53.616
SDD Baseline Contract	CPAF	Boeing, St Louis MO	197.764	9.855	Oct-03					0.000	207.619	207.619
Subtotal Product Development			304.996	9.855		0.000		0.000		0.000	314.851	314.851
Remarks:												
(U) <u>Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	15.618	1.467	N/A					0.000	17.085	17.085
Other A/C SPOs	PO (In-House)	Wright Patterson AFB, OH	1.972	0.123	N/A					0.000	2.095	2.095
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	7.264	0.000	Dec-06					0.000	7.264	7.264
Other	Misc	Various	5.916	0.662	N/A					0.000	6.578	6.578
Subtotal Support			30.770	2.252		0.000		0.000		0.000	33.022	33.022
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO (In-House)	Eglin AFB, FL	17.957	0.000	N/A					0.000	17.957	17.957
Subtotal Test & Evaluation			17.957	0.000		0.000		0.000		0.000	17.957	17.957
Remarks:												
(U) <u>Management</u>												
COLSA	C/CPAF	Eglin AFB, FL	1.770	0.082	Aug-05					0.000	1.852	1.852
Subtotal Management			1.770	0.082		0.000		0.000		0.000	1.852	1.852
Remarks:												
(U) Total Cost			355.493	12.189		0.000		0.000		0.000	367.682	367.682



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5006 Small Diameter Bomb

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Lot 3 FRP Award

1Q

(U) Lot 4 Award

1Q

(U) Lot 5 Award

1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604329F Small Diameter Bomb</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5191 Small Diameter Bomb Increment II</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
5191 Small Diameter Bomb Increment II	89.887	144.279	125.067	128.670	77.116	78.621	80.233	159.140	908.153	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Small Diameter Bomb II (SDB II) is a joint interest program providing the warfighter a capability to attack mobile targets from stand-off in weather. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, and provides a migration path to net-centric ops capability. Threshold aircraft is the F-15E for the US Air Force and the Joint Strike Fighter (JSF) for the US Navy. The Navy Initial Operating Capability (IOC) is scheduled for FY 2016 on JSF Conventional Take-Off and Landing (CTOL) and Short Take-Off Vertical Landing (STOVL) aircraft. Objective aircraft include: F-22A, F-35A, F-16, A-10, MQ-9, B-1, B-2, B-52, and the F/A-18. SDB II will be compatible with the BRU-61 miniature munitions carriage and the SDB I container systems. SDB II began Risk Reduction in FY06 and Milestone B is scheduled in FY10. Milestone C is planned for FY13 followed by RAA on the F-15E in FY14. SDB will continue incremental development to pursue network Centric interoperability. SDB is a key component of the Air Force's Global Strike Task Force CONOP.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SDB II Risk Reduction	79.045	128.297	113.256
(U) Aircraft Integration	3.845	5.741	3.489
(U) Program Office Support	6.997	10.241	8.322
(U) Total Cost	89.887	144.279	125.067

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E,N (Includes F-35 B/C Integration and Support Cost)	9.775	9.623	19.574	22.440	10.137	35.047	40.767	161.100	308.463

**(U) D. Acquisition Strategy**

All major contracts within this Program Element were awarded through full and open competition. Two contractors were selected for a 42 month Risk Reduction phase using Cost Plus Fixed Fee contracts. Down select to one contractor will occur prior to System Development and Demonstration (SDD). SDD will be a Cost Plus Fixed Fee with performance incentives. This approach allows higher risk, less mature technologies to be fielded in an evolutionary fashion. Limited US Navy funding and resources support the Risk Reduction phase.

The Government is buying the SDB II based on contractor-developed System Performance Specification (SPS) which will become contractually binding at down

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>	PROJECT NUMBER AND TITLE <b>5191 Small Diameter Bomb Increment II</b>

select. The contractor will be accountable for system performance as defined in the SPS and will include a system warranty. Accordingly, the contractor is accountable to the government for not only for the design of the weapon system, but also for planning and executing the Development Test and Evaluation (DT&E) program to verify the system performance. The Government formally arranges and funds the use of Government flight test support for DT&E. Although funded by the Government, flight test support funds are part of the negotiated commitment between the contractor and the Government ensuring the contractor is able to execute the DT&E Program according to the scope of the RR/SDD contract.

Note: SDB II program Acquisition Strategy and funding adjusted to incorporate GAO recommendation. (B295402, 18 Feb 05)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604329F Small Diameter Bomb</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5191 Small Diameter Bomb Increment II</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Risk Reduction Contract 1	CPFF	Boing, St. Louis MO	9.361	39.523	May-06	64.148	May-06	56.628	May-06	0.000	169.659	169.659
Risk Reduction Contract 2	CPFF	Raytheon, Tucson AZ	9.361	39.523	May-06	64.148	May-06	56.628	May-06	0.000	169.659	169.659
SDD	CPIF	TBD								468.526	468.526	468.526
Subtotal Product Development			18.721	79.045		128.296		113.256		468.526	807.844	807.844
Remarks:												
(U) <u>Support</u>												
F-15 SPO	PO (In-House)	Wright Patterson AFB, OH	1.525	2.936	Apr-06	3.341	Apr-06	3.109	Apr-06	4.000	14.911	14.911
BRU-61/A	PO (In-House)	St. Louis, MO	0.465	0.909	N/A	2.400	N/A	0.380	N/A	0.600	4.754	4.754
TEAS (Sverdrup Inc.)	C/CPAF	Eglin AFB, FL	3.098	2.407	Oct-06	4.000	Oct-06	4.149	Oct-06	15.224	28.878	28.878
Other	Misc.	Various	1.331	4.590	N/A	6.165	N/A	3.973	N/A	16.082	32.141	32.141
Subtotal Support			6.419	10.842		15.906		11.611		35.906	80.684	80.684
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO (In-House)	Eglin AFB, FL		0.000	N/A	0.000	N/A	0.000	N/A	18.739	18.739	18.739
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		18.739	18.739	18.739
Remarks:												
(U) <u>Management</u>												
TAMS	C/CPAF	Eglin AFB, FL		0.000	Oct-06	0.077	Oct-06	0.200	Oct-06	0.609	0.886	0.886
Subtotal Management			0.000	0.000		0.077		0.200		0.609	0.886	0.886
Remarks:												
(U) Total Cost			25.140	89.887		144.279		125.067		523.780	908.153	908.153



Exhibit R-4, RDT&E Schedule Profile

DATE

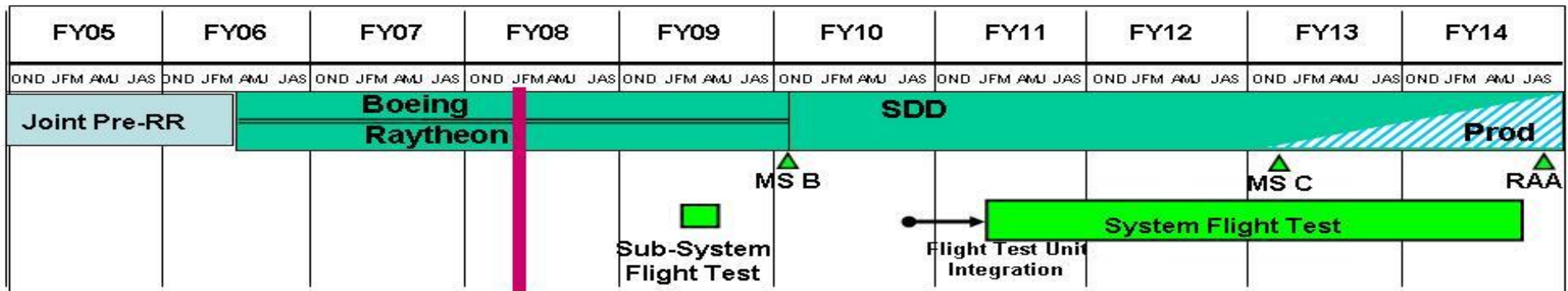
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE  
5191 Small Diameter Bomb Increment II

# SDB II Program Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>	PROJECT NUMBER AND TITLE <b>5191 Small Diameter Bomb Increment II</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Complete Risk Reduction Phase			4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604329F Small Diameter Bomb</b>			PROJECT NUMBER AND TITLE <b>5258 Focused Lethality Munition (FLM)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5258 Focused Lethality Munition (FLM)	20.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.199
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY2008 funding totals do not include the \$27.9M FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

Small Diameter Bomb (SDB) Focused Lethality Munition (FLM) is a Joint Capabilities Technology Demonstration (JCTD) program to increase the near field blast but decrease collateral damage, thus giving increased options to the warfighter. Extends access to targets restricted by collateral damage limitations.

The technical approach is to combine and leverage 4 technologies: 1) MBX-1209 Multi-phase Blast Explosive (MBX) increases near-field blast impulse over SDB I, reduces collateral damage in far-field and allows designer to approximate SDB I weight & balance, 2) A carbon fiber warhead case reduces to tiny non-lethal fibers upon fill detonation, minimizing fragmentation effects to personnel & property, 3) Using SDB I hardware except warhead and approximating SDB I longitudinal center of gravity, minor weapon OFP changes allow it to match SDB I accuracy, 4) Remains compatible with the BRU-61 miniature munition carriage and SDB I container system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Support, Design, Development, and Integration contract	17.293	0.000	0.000
(U) Testing, Targets and Test support	2.176	0.000	0.000
(U) Program Office Support	0.256	0.000	0.000
(U) Mission Support	0.475	0.000	0.000
(U) Total Cost	20.200	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E Defense Agency (Fund Code 5K)	4.000	5.000	1.000	0.000	0.000	0.000	0.000	0.000	12.000

**(U) D. Acquisition Strategy**

The Focused Lethality Munition (FLM) Joint Capabilities Technology Demonstration (JCTD) contract was sole sourced to Boeing based on only one responsible source to field this capability. It is a Cost Plus Fixed Fee contract with an additional Incentive Fee to motivate schedule.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604329F Small Diameter Bomb</b>				<b>5258 Focused Lethality Munition (FLM)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
System Support Development	CPFF	Boeing, St Louis Mo	6.650	17.293		0.000		0.000		0.000	23.943	23.943
Subtotal Product Development			6.650	17.293		0.000		0.000		0.000	23.943	23.943
Remarks:												
(U) <u>Support</u>												
Air Force Research Lab (AFRL)	PO	Eglin AFB FL	0.445	0.000							0.445	0.445
Sverdrop	C/CPAF	Eglin AFB FL	0.000	0.000							0.000	0.000
Other	MISC	Eglin AFB FL	1.300	0.731							2.031	2.031
Subtotal Support			1.745	0.731		0.000		0.000		0.000	2.476	2.476
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Testing and Test support	PO	Eglin AFB FL	1.604	2.176							3.780	3.780
Subtotal Test & Evaluation			1.604	2.176		0.000		0.000		0.000	3.780	3.780
Remarks:												
(U) <u>Management</u>												
COLSA	C/CPAF	Eglin AFB FL	0.000	0.000							0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			9.999	20.200		0.000		0.000		0.000	30.199	30.199

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE  
5258 Focused Lethality Munition (FLM)



# SDB I Focused Lethality Munition Program Schedule

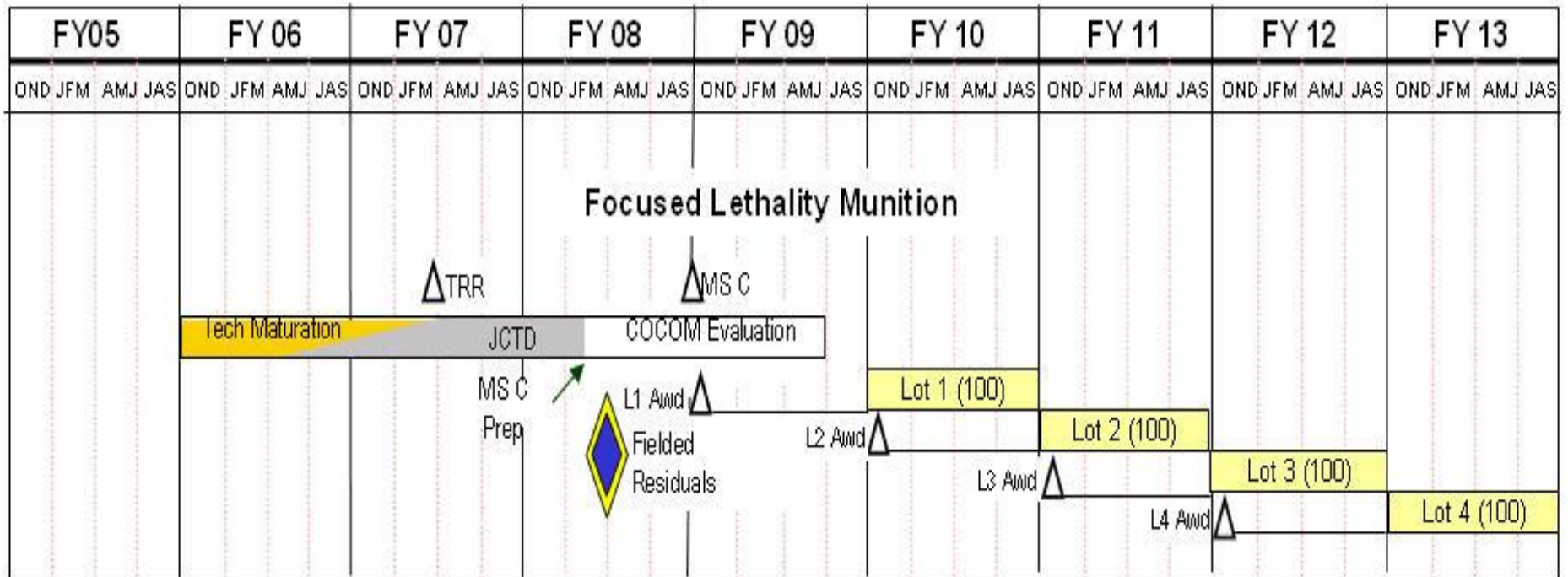


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604329F Small Diameter Bomb

PROJECT NUMBER AND TITLE

5258 Focused Lethality Munition (FLM)

(U) Schedule Profile

- (U) FLM JCTD Contract Award
- (U) Technology Readiness Review
- (U) Ground Testing
- (U) Flight Testing
- (U) Military Utility Assessment
- (U) Delivery of Residual Assets

FY 2007

FY 2008

FY 2009

2Q

4Q

3-4Q

2-3Q

2Q

**UNCLASSIFIED**

PE NUMBER: 0604421F  
 PE TITLE: Counterspace Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	44.596	63.819	74.918	81.116	58.108	58.747	59.848	Continuing	TBD
A001 Counter Satellite Communications System	8.265	17.715	29.808	31.585	21.640	22.060	22.504	Continuing	TBD
A003 Rapid Identification Detection and Reporting System (RAIDRS)	24.320	34.839	37.648	41.911	28.705	28.773	29.271	Continuing	TBD
A005 Counterspace C2	12.011	11.265	7.462	7.620	7.763	7.914	8.073	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

This program supports the conduct of critical planning, technology insertion, and system acquisition in support of Air Force space control systems and associated command and control development to meet current and future military space control needs. Development and acquisition of counterspace systems will be conducted, capitalizing on the technology development and risk reduction efforts of PE 0603438F, Space Control Technology. This funding supports all development phases of the acquisition process: concept development, risk reduction, design, and demonstration. Space control systems include both offensive counterspace (OCS) and defensive counterspace (DCS) systems. OCS systems include the means to disrupt, deny, degrade, or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. DCS systems include both active and passive measures to protect U.S. and friendly space related capabilities (satellites, communications links, and supporting ground systems) from enemy attack or interference. This includes development efforts to prevent adversarial ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. Counterspace Command and Control ( C2) supports the development of command and control and mission planning capabilities in support of the fielding and employment of counterspace systems.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	50.253	53.412	105.309
(U) Current PBR/President's Budget	44.596	63.819	74.918
(U) Total Adjustments	-5.657	10.407	
(U) Congressional Program Reductions		-0.189	
Congressional Rescissions		-0.404	
Congressional Increases		11.000	
Reprogrammings	-4.500		
SBIR/STTR Transfer	-1.157		

(U) **Significant Program Changes:**

R-1 Line Item No. 67  
 Page-1 of 14

Exhibit R-2 (PE 0604421F)

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604421F Counterspace Systems**

FY 2007: \$4.5M reduction for higher priority Air Force requirements

FY 2008: \$11M Congressional add. (\$7M for RAIDRS Block 20 and \$4M for Space Control Test Capabilities)

FY 2009: \$41.8M reduction for higher priority Air Force requirements



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A001 Counter Satellite Communications System</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A001 Counter Satellite Communications System	8.265	17.715	29.808	31.585	21.640	22.060	22.504	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This effort supports concept exploration and follow-on system development of mobile/transportable counter satellite communications capabilities derived from technologies examined in PE 0603438F, Space Control Technology, in the area of Offensive Counter Space. It includes architecture engineering, system hardware design and development, software design and integration, testing and procurement of capabilities to provide disruption of satellite communications signals in response to USSTRATCOM requirements.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the demonstration, engineering and manufacturing development of counterspace and space control systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Block 10 Capability Upgrades	1.302	2.198	4.271
(U) Study/refine, develop, prototype risk reduction, integrate, test and field the next Block (Block 20) advanced counter communications capability	0.300	8.004	18.209
(U) Architecture Development Support	2.438	2.056	2.107
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	4.225	5.457	5.221
(U) Total Cost	8.265	17.715	29.808

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) OPAF (PE 0604421F) Counterspace Systems	16.486	0.000	9.041	0.000	10.296	10.498	10.707	Continuing	TBD

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible, to upgrade existing capabilities as well as to acquire next generation capabilities through incremental acquisitions.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>					<b>A001 Counter Satellite Communications System</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Architectural Engineering Support	Various	Various	20.918	2.438	Jan-07	2.056	Dec-07	2.107	Dec-08	Continuing	TBD	TBD
Block 10 Capability Upgrades	CPAF	Harris Corp, Melbourne, FL	7.075	0.787	Jan-07						7.862	7.862
Block 10 Capability Upgrades	CPAF	General Dynamics, Santa Clara, CA	0.000	0.515	May-07	2.198	Feb-08	4.271	Dec-08	Continuing	TBD	TBD
Block 20 Prototype Development & Future Capability Studies	Various	Various	1.897	0.300	Jan-07	8.004	Dec-07	18.209	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			29.890	4.040		12.258		24.587		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
System Program Office Support	Various	SMC, El Segundo, CA	5.723	4.225	Oct-06	5.457	Oct-07	5.221	Oct-08	Continuing	TBD	TBD
Subtotal Support			5.723	4.225		5.457		5.221		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
SMC			0.100							Continuing	TBD	TBD
Subtotal Test & Evaluation			0.100	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			35.713	8.265		17.715		29.808		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

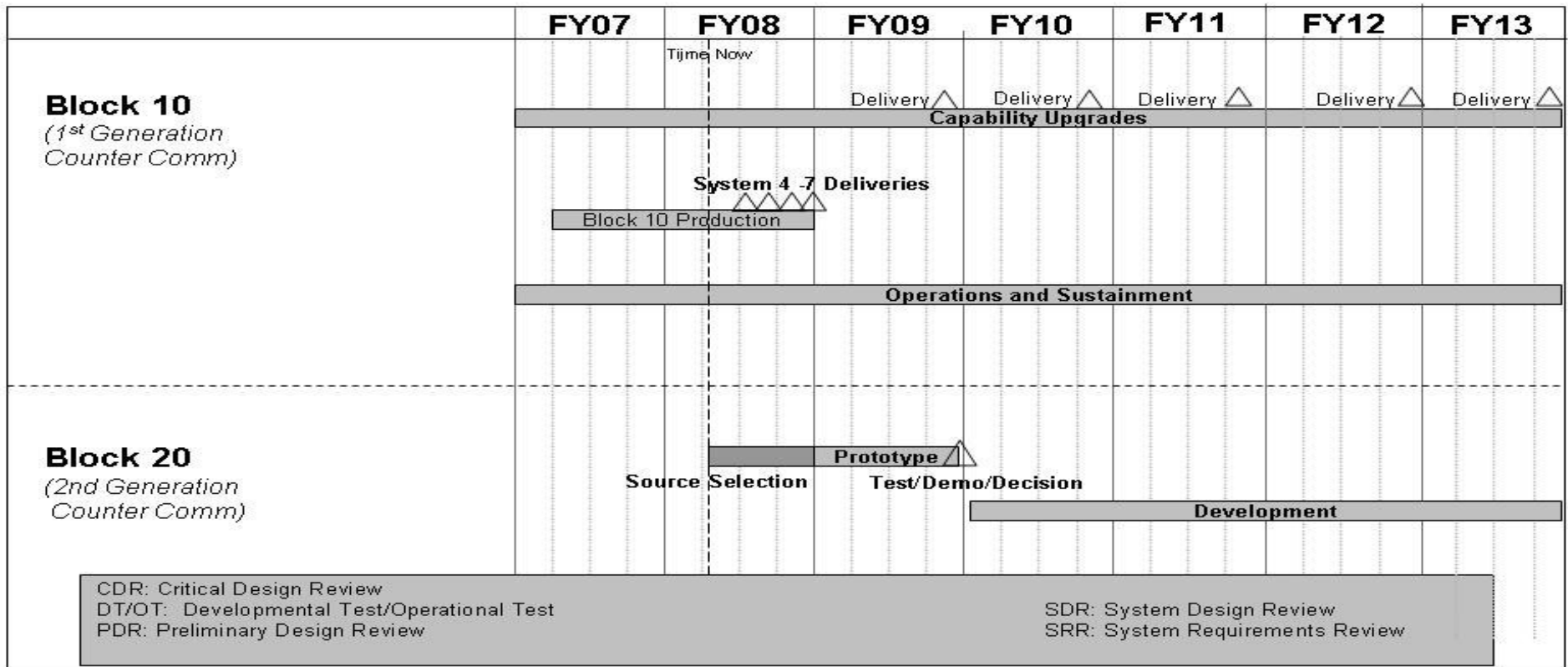
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A001 Counter Satellite  
Communications System

# CCS Schedule



UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604421F Counterspace Systems**

PROJECT NUMBER AND TITLE

**A001 Counter Satellite  
Communications System**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Capability Upgrades	3-4Q	1-4Q	1-4Q
(U) Block 10 Follow-on Buy Approval	2Q		
(U) Block 10 Production	2-4Q	1-4Q	1-2Q
(U) Block 10 Deliveries		2-4Q	1Q
(U) Block 20 Studies	1-4Q	1-4Q	
(U) Block 20 Prototype Development		1-4Q	1-2Q
(U) Block 20 Prototype Demo			3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604421F Counterspace Systems</b>			<b>PROJECT NUMBER AND TITLE</b> <b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A003 Rapid Identification Detection and Reporting System (RAIDRS)	24.320	34.839	37.648	41.911	28.705	28.773	29.271	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This effort supports mission area architecture development, concept exploration, and engineering and manufacturing development to provide attack detection, threat identification and characterization, and support rapid mission impact assessments of U.S. space systems. This effort will investigate and implement the technical architecture, operational concept, support concept, training, verification (test), and deployment of a Rapid Attack Identification Detection and Reporting System (RAIDRS). Incremental capability deliveries are planned.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Block 10	18.094	14.903	23.259
(U) Continue concept definition, pre-acquisition architecture development and system development of Rapid Attack Identification Detection and Reporting System (RAIDRS) Block 20	0.790	11.962	6.265
(U) RAIDRS Block 10 Test Support		0.252	0.111
(U) Architecture Development & Systems Engineering	1.813	3.399	3.579
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	3.623	4.323	4.434
(U) Total Cost	24.320	34.839	37.648

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) OPAF (PE 0604421F), Counterspace Systems	13.739	22.691	20.191	27.925	8.940	8.311	8.429	Continuing	TBD

**(U) D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. System will be designed and acquired in Block increments using a Block Acquisition strategy.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>					<b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Architecture Development & Systems Engineering	Various	Various	15.078	1.813		3.399		3.579	Nov-08	Continuing	TBD	TBD
RAIDRS Block 10 System Development	CPAF	Integral Systems Inc, Lanham, MD	20.388	18.094	Jan-07	14.903	Nov-07	23.259	Nov-08	Continuing	TBD	TBD
RAIDRS Block 20 Concept Development	Various	Various	4.787	0.790	Jul-07	5.075	Dec-07	1.866	Nov-08	Continuing	TBD	TBD
RAIDRS Block 20 Requirements Development/Risk Reduction	TBD	TBD	0.000	0.000		6.887	Feb-08	1.478	Jan-09	Continuing	TBD	TBD
RAIDRS Block 20 System Development	TBD	TBD	0.000	0.000		0.000		2.921	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			40.253	20.697		30.264		33.103		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office Support for RAIDRS	Various	SMC, El Segundo	7.164	3.623	Oct-06	4.323	Oct-08	4.434	Oct-08	Continuing	TBD	TBD
Subtotal Support			7.164	3.623		4.323		4.434		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
RAIDRS Block 10 Test Support	Various	Various	0.000	0.000		0.252		0.111		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.252		0.111		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			47.417	24.320		34.839		37.648		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

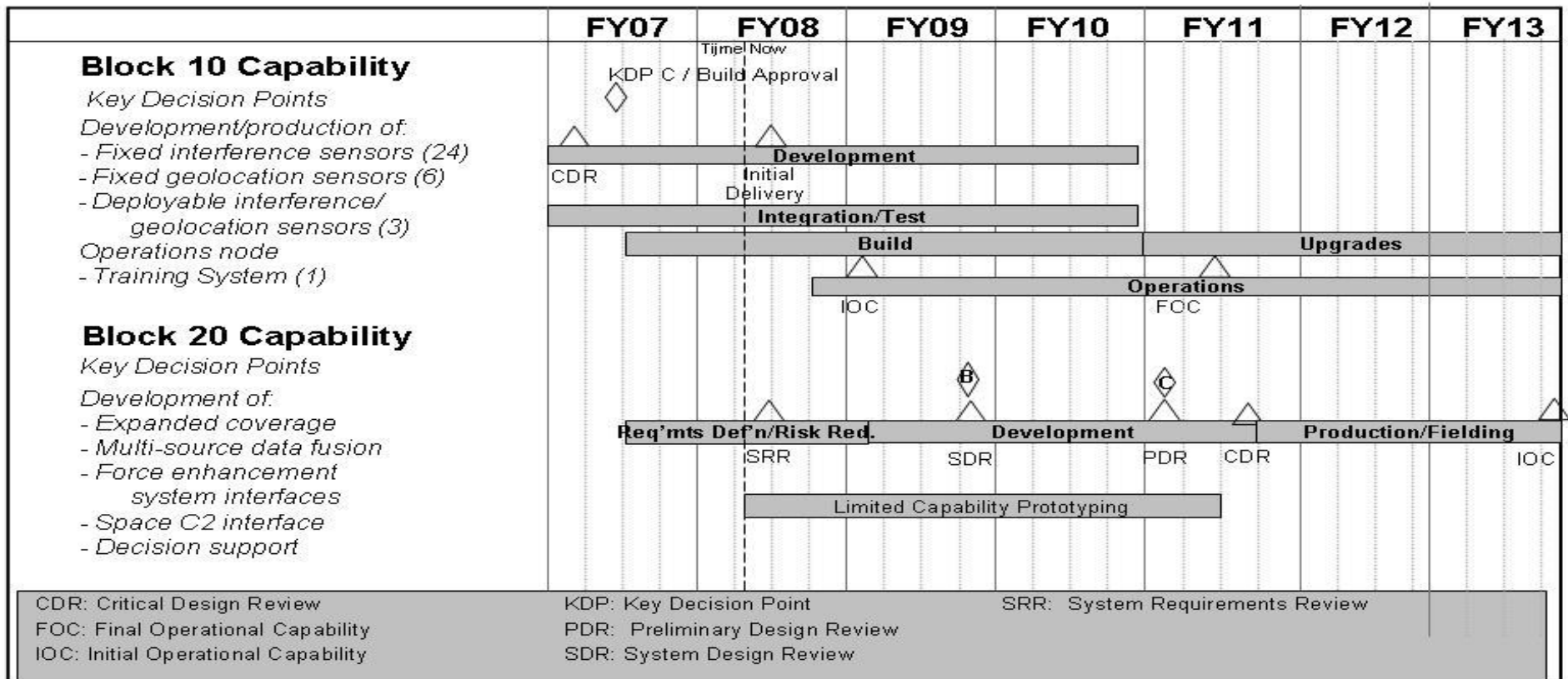
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A003 Rapid Identification Detection and Reporting System (RAIDRS)

# RAIDRS Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>	PROJECT NUMBER AND TITLE <b>A003 Rapid Identification Detection and Reporting System (RAIDRS)</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) RAIDRS Block 10 Critical Design Review	1Q		
(U) RAIDRS Block 10 Key Decision Point (KDP C & Build Approval)	2Q		
(U) RAIDRS Block 10 Initial Delivery		2Q	
(U) RAIDRS Block 10 Initial Operational Capability			1Q
(U) RAIDRS Block 20 SRR		2Q	
(U) RAIDRS Block 20 SDR			1Q
(U) RAIDRS Block 20 KDP B			2Q
(U) RAIDRS Block 20 System Development Contract Award			2Q



Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604421F Counterspace Systems</b>			PROJECT NUMBER AND TITLE <b>A005 Counterspace C2</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A005 Counterspace C2	12.011	11.265	7.462	7.620	7.763	7.914	8.073	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This effort supports the development of command and control and mission planning capabilities in support of the fielding and employment of Counterspace Systems. It provides for the integration and development of collaborative tools to link deployable counterspace systems with Joint Warfighting C2 systems and to enable integrated planning and execution of the counterspace mission. Developed capabilities will be integrated into current and future command and control systems. This program will also leverage the Joint Execution and Tasking System for Space (JETSS) efforts in support of space control and the counterspace mission areas.

This program is in Budget Activity 5, System Development and Demonstration, because it supports the engineering and manufacturing development of counterspace and space control systems.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Model, conduct "virtual testing," and analyze architectural options for the Rapid Attack Identification Detection and Reporting System (RAIDRS) and for the Counter Satellite Communications System (CCS) Command and Control (C2) and operational data flows.	5.061	4.000	
(U) Continue development of Counterspace mission planning and command and control capability (JETSS)	4.307	4.925	5.561
(U) Counterspace C2 Architecture Development	1.506	0.879	0.931
(U) Program Office and other Technical Support, to include technical support, studies, systems engineering and integration	1.137	1.461	0.970
(U) Total Cost	12.011	11.265	7.462

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) None									

(U) **D. Acquisition Strategy**

All contracts will be awarded using competitive procedures to the maximum extent possible to acquire next generation capabilities through incremental acquisitions.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604421F Counterspace Systems</b>					<b>A005 Counterspace C2</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> C2 Modeling, "virtual test," and analysis	MIPR	Davidson Technology, Huntsville, AL	8.087	5.061	Nov-06	4.000	Nov-08				17.148	17.148	
Develop Counterspace Planning and C2 System (JETSS)	CPAF	General Dynamics, Santa Clara, CA	0.000	4.307	Oct-06	4.925	Dec-07	5.561	Jan-09	Continuing	TBD		
Subtotal Product Development			8.087	9.368		8.925		5.561		Continuing	TBD	17.148	
Remarks:													
(U) <u>Support</u> Counterspace Architecture Development	CPFF	Northrup Grumman Mission Systems, Redondo Beach, CA	0.000	1.506	Jan-07	0.879	Dec-07	0.931	Nov-08		3.316		
Subtotal Support			0.000	1.506		0.879		0.931			0.000	3.316	0.000
Remarks:													
(U) <u>Test &amp; Evaluation</u>											0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) <u>Management</u> Program Office and Other Technical Support	Various	SMC, El Segundo, CA	0.000	1.137	Nov-06	1.461	Nov-07	0.970	Nov-08	Continuing	TBD		
Subtotal Management			0.000	1.137		1.461		0.970		Continuing	TBD	0.000	
Remarks:													
(U) Total Cost			8.087	12.011		11.265		7.462		Continuing	TBD	17.148	

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604421F Counterspace Systems

PROJECT NUMBER AND TITLE  
A005 Counterspace C2

# Counterspace C2 Schedule

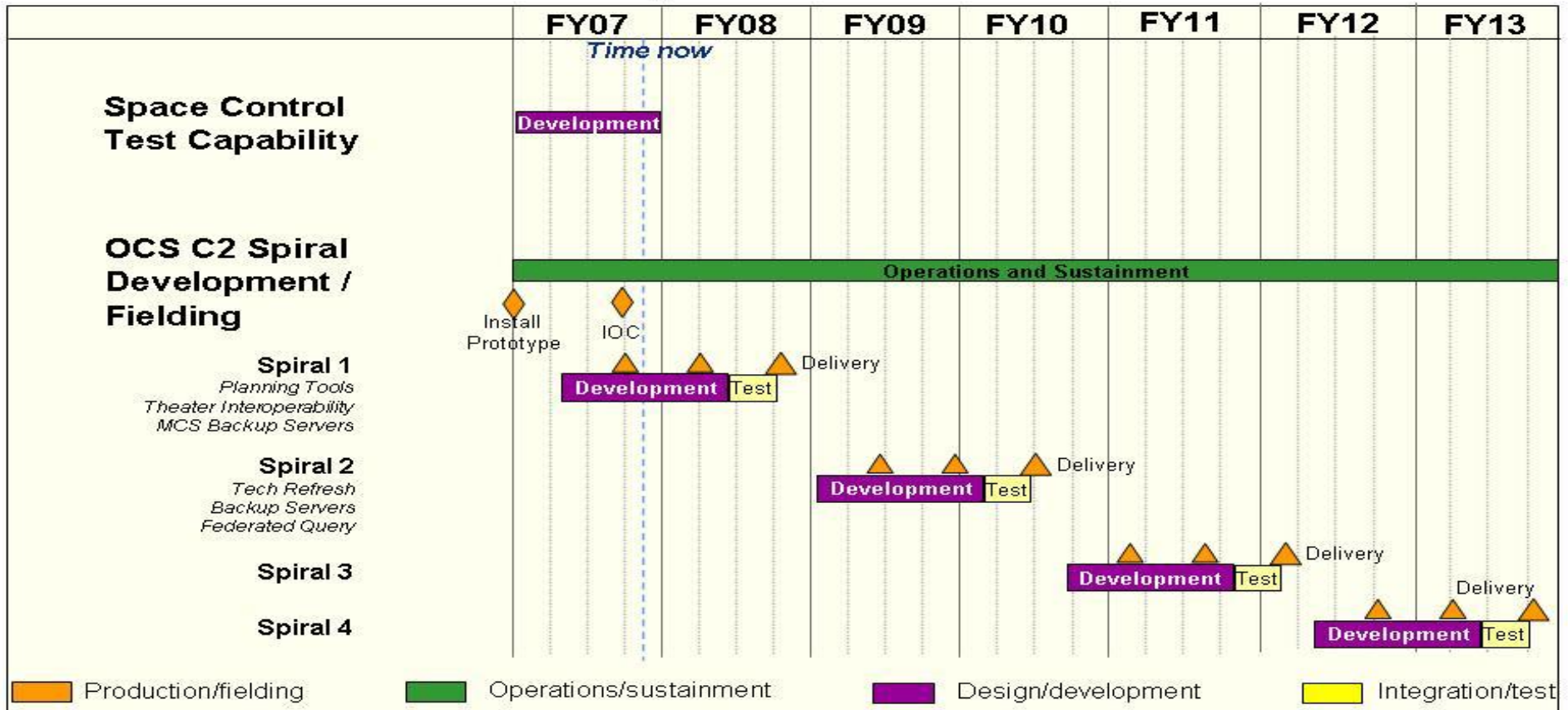


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604421F Counterspace Systems

PROJECT NUMBER AND TITLE

A005 Counterspace C2

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Modeling, "virtual test," analysis	1-2Q		
(U) Develop/test JETTS Spiral	1-4Q	1-4Q	1-4Q
(U) JETTS Initial Operational Capability	4Q		
(U) C2 Spiral Delivery		3Q	

**UNCLASSIFIED**

PE NUMBER: 0604425F  
 PE TITLE: Space Situation Awareness Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604425F Space Situation Awareness Systems</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	166.696	196.363	210.501	319.962	391.396	345.600	259.366	Continuing	TBD
A006 Space-Based Space Surveillance	155.440	156.468	120.747	192.612	236.392	241.251	155.723	Continuing	TBD
A008 Integrated Space Situation Awareness	11.256	26.047	44.481	61.742	60.708	24.341	22.088	Continuing	TBD
A009 Space Fence	0.000	13.848	45.273	65.608	94.296	80.008	81.555	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Space Situation Awareness (SSA) is knowledge of all aspects of space related to operations. The foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element develops new Air Force sensors for the SSA network and improved information capabilities for integration across it; also includes developmental planning and technology needs forecasting for future blocks and emerging needs. A companion program element, 0305940F, Space Situation Awareness Operations, fields, upgrades, operates, and sustains sensors and information integration capabilities within that network. Development activities are necessary to deploy new, advanced sensors capable of finding, fixing, tracking, and reconnoitering the expanding number of debris objects on orbit as well as the increasing number of satellites launched by other nations, many of them smaller and more capable than previous spacecraft. These activities are also required to better integrate the disparate elements of SSA in order to enable rapid, responsive space operations.

These efforts are in Budget Activity 5, System Development and Demonstration, because they develop new SSA capabilities.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	121.696	187.804	160.458
(U) Current PBR/President's Budget	166.696	196.363	210.501
(U) Total Adjustments	45.000		
(U) Congressional Program Reductions			
Congressional Rescissions		-1.241	
Congressional Increases		9.800	
Reprogrammings	45.299		
SBIR/STTR Transfer	-0.299		

**(U) Significant Program Changes:**

FY 07: \$45.299 reprogrammed into Space-Based Space Surveillance Block 10 development to maintain schedule toward an FY 2009 launch.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>		PROJECT NUMBER AND TITLE <b>A006 Space-Based Space Surveillance</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
A006 Space-Based Space Surveillance	155.440	156.468	120.747	192.612	236.392	241.251	155.723	Continuing	TBD	
Quantity of RDT&E Articles	0	0	1	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Building upon the success of the Space-Based Visible technology demonstration, which proved the utility of surveilling orbiting objects from space, the Space-Based Space Surveillance (SBSS) project will develop a constellation of optical sensing satellites to search, detect, and track objects in Earth orbit. It will accomplish this via collecting and processing space object identification and satellite metric data, then communicating it to command and control nodes. Surveillance from space augments existing ground sensors with timely 24-hour, all-weather object search capabilities. In conjunction with information from other Space Situation Awareness network sensors, SBSS data will enable more timely detection and tracking of space objects, particularly those in geosynchronous orbits.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new spacecraft system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 design, development, and risk reduction	135.016	127.126	95.278
(U) Block 10 launch vehicle integration	9.176	18.200	5.893
(U) Block 20 concept, design, development, and risk reduction	0.000	0.000	7.586
(U) Program Office Support, Technical Studies & Analysis, Systems Engineering & Integration	11.248	11.142	11.990
(U) Total Cost	155.440	156.468	120.747

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Missile Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	31.396	94.336	Continuing	TBD

**(U) D. Acquisition Strategy**

This system is being acquired via a block approach. Block 10 will develop and field a pathfinder satellite-based capability to replace the aging Space-Based Visible sensor on the orbiting Midcourse Space Experiment research & development spacecraft with a capability significantly improving the timeliness of data on objects in geosynchronous orbit. Block 20 will develop additional satellites to provide simultaneous, worldwide space surveillance in order to observe smaller objects on shorter timelines. Lessons learned from the former block will guide development of the latter. Block 10 was awarded competitively under an option on the existing Mission Area Prime Integrating Contract for the space control mission area. The specific contracting approach for additional capabilities is being determined.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604425F Space Situation Awareness Systems</b>					<b>A006 Space-Based Space Surveillance</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Block 10 design and development	C/CPAF	Northrop Grumman, Redondo Beach, CA		131.946	Nov-06	125.417	Nov-07	93.765	Nov-08	Continuing	TBD	
Technical risk reduction	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA		0.600	Jan-07	0.600	Jan-08	0.300	Jan-09	Continuing	TBD	
Mission planning and mission data processing				2.470	Jan-07	1.109	Jan-08	1.213	Jan-09	Continuing	TBD	
Launch vehicle integration	MIPR	Space and Missile Systems Center Det., Kirtland AFB, NM		9.176	Nov-06	18.200	Nov-07	5.893	Nov-08	0.000	33.269	
Block 20 concept, design, and development	TBD	TBD		0.000		0.000		7.586		Continuing	TBD	
Subtotal Product Development			0.000	144.192		145.326		108.757		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Program Office Support, Technical Studies & Analysis, Systems Engineering & Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA		11.248	Oct-06	11.142	Oct-07	11.990	Oct-08	Continuing	TBD	
Subtotal Support			0.000	11.248		11.142		11.990		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Not applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	155.440		156.468		120.747		Continuing	TBD	0.000

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Project A006

Exhibit R-3 (PE 0604425F)

Exhibit R-4, RDT&E Schedule Profile

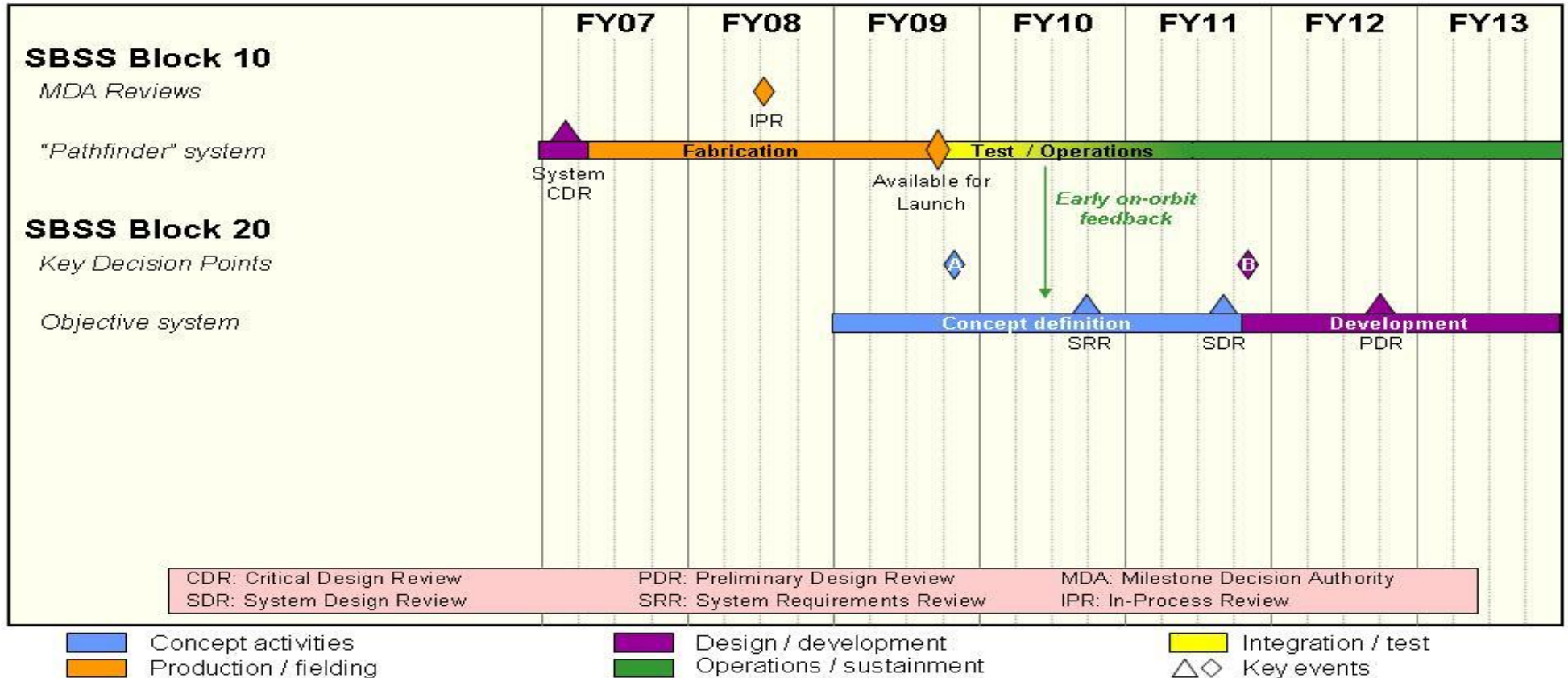
DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE  
A006 Space-Based Space Surveillance





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>	PROJECT NUMBER AND TITLE <b>A006 Space-Based Space Surveillance</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Block 10 Critical Design Review	1Q		
(U) Block 10 MDA Review		3Q	
(U) Block 10 Available for Launch			3Q
(U) Block 20 Key Decision Point A			4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604425F Space Situation Awareness Systems</b>			<b>A008 Integrated Space Situation Awareness</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A008 Integrated Space Situation Awareness	11.256	26.047	44.481	61.742	60.708	24.341	22.088	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

This effort was formerly called Space Situation Awareness Initiatives.

(U) **A. Mission Description and Budget Item Justification**

Integrated Space Situation Awareness (ISSA) efforts provide the knowledge environment necessary to enable rapid, responsive decisions by the Commander, U.S. Strategic Command's Joint Functional Component Command for Space and other space capability users which ensures the protection of U.S. space assets from proliferating adversary threats. ISSA's focus is the integration of disparate data components of Space Situation Awareness (SSA) to create the timely, actionable knowledge necessary for maintaining space superiority and exercising command and control of space forces. The current priority is to migrate and upgrade the legacy space surveillance capabilities from the Space Defense Operations Center (SPADOC) into a net-centric based enterprise enabling automated, real-time correlation, integration, and distribution of data obtained across the traditional sensors in the space surveillance network. In addition to the space surveillance function which detects and tracks space objects, called Space Situation Awareness (SSA) Foundational Enterprise (SSAFE) in last year's submission, ISSA also develops applications and tools to improve the characterization of non-cooperative space objects by exploiting data from space intelligence, reconnaissance and environment communities. This characterization is fundamental to the understanding and predicting of the consequences of space events, threats, and activities. To do so also requires the timely insight into the system status, capabilities and constraints of U.S. military, commercial and allied space assets. To accomplish these efforts ISSA conducts architecture, modeling, and prototyping efforts to keep pace with a changing threat and leverage emerging technology. Specifically, the Extended Space Sensor Architecture Advanced Concept Technology Demonstration (ESSA ACTD) prototypes how disparate and legacy space sensor network data can be translated into a net-centric operating environment. Also, an ISSA system integrator has been added to integrate and deliver this and other applications and services developed to achieve SSA. In light of the recent anti-satellite events, the Department added funds, beginning in FY09, to accelerate the SPADOC net-centric migration and upgrade and integration of non-traditional sensors and enabled the role of the ISSA System Integrator.

These efforts are in Budget Activity 5, System Development and Demonstration, because they develop and demonstrate capabilities for better integration of SSA data or develop architectures guiding associated technical and budgetary planning.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ISSA System Integrator	0.000	1.500	8.500
(U) Surveillance and Reconnaissance	2.155	13.421	16.638
(U) Environment	0.600	2.326	3.600
(U) Intelligence	1.250	2.137	2.600
(U) Sensor Integration and Force Status	0.000	3.203	10.543
(U) Extended Space Sensors Architecture Advanced Concept Technology Demonstration (ESSA ACTD)	1.500	2.100	1.000
(U) Joint Space Intelligent Decision Support (JSIDS)	1.000	0.000	0.000
(U) SSA Architecture Development	1.674	0.000	0.000

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Project A008

Exhibit R-2a (PE 0604425F)

**Exhibit R-2a, RDT&E Project Justification**

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**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>	PROJECT NUMBER AND TITLE <b>A008 Integrated Space Situation Awareness</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Fusion Tool Development, Requirements and Technical Support	3.077	0.233	0.000
(U) Program Office Support, Technical Studies & Analysis, Systems Engineering & Integration	0.000	1.127	1.600
(U) Total Cost	11.256	26.047	44.481

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	9.009	0.000	0.000	0.000	0.000	0.000	9.009

(U) **D. Acquisition Strategy**  
 Ongoing ISSA activities utilize existing engineering and study contracts and a competitively selected system integrator. ISSA's focus is on employing a rapid prototyping approach to deploy new systems and tools to progressively advance operational capabilities toward the truly integrated SSA as envisioned by existing architectures and roadmaps. The ISSA System Integrator will provide high-level technical oversight support and assist the timely deployment of prototypes and services to the warfighter.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>				PROJECT NUMBER AND TITLE <b>A008 Integrated Space Situation Awareness</b>				
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Surveillance and Reconnaissance (includes effort formerly known as SSA Foundational Enterprise (SSAFE))	C/CPAF	Various: ISC2 contract, Lockheed Martin (prime); MITRE, Colorado Spgs, CO		2.155	Nov-06	13.421	Mar-08	16.638	Nov-08	Continuing	TBD	
Environment	Various	Keta Group, Colorado Springs, CO; Northrop Grumman, Omaha, NE		0.600	Nov-06	2.326	Nov-07	3.600	Nov-08	Continuing	TBD	
Intelligence	Various	Booz Allen Hamilton, Colorado Springs, CO		1.250	Nov-06	2.137	Nov-07	2.600	Oct-08	Continuing	TBD	
Sensor Integration and Force Status	Various	Northrop Grumman, Azusa, CA; Boeing, Seal Beach, CA; MIT Lincoln Laboratory, Lexington, MA		0.000		3.203	Nov-07	10.543	Nov-08	Continuing	TBD	
ESSA ACTD	SS/Cost reimbursement (no fee)	MIT Lincoln Laboratory, Lexington, MA		1.250	Nov-06	1.350	Nov-07	0.625	Oct-08	0.000	3.225	
SSA Architecture Development	Various	Various		1.674	Nov-06	0.000		0.000			1.674	
Joint Space Intelligent Decision Support	CPFF	21st Century Systems, Omaha, NE		1.000	Mar-07	0.000		0.000		0.000	1.000	
Subtotal Product Development			0.000	7.929		22.437		34.006		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ISSA Integrator (formerly Fusion tool development, requirements, and technical support)	CPFF	TBD		0.000		1.500	Jan-08	8.500	Nov-08	Continuing	TBD	
Fusion Tool Development, Requirements and	Various	Electronic		3.077	Oct-06	0.233	Oct-06	0.000			3.310	

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Project A008

Exhibit R-3 (PE 0604425F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604425F Space Situation Awareness Systems</b>				<b>A008 Integrated Space Situation Awareness</b>				
Technical Support		Systems Center Det., Peterson AFB, CO									
ESSA ACTD support	C/CPFF	ITSP, Colorado Springs, CO	0.250	Oct-06	0.750	Nov-07	0.375	Oct-08	Continuing	TBD	
Program Office Support, Technical Studies & Analysis, and Systems Engineering and Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA	0.000		1.127	Nov-07	1.600	Nov-08	Continuing	TBD	
Subtotal Support			0.000	3.327	3.610		10.475		Continuing	TBD	0.000
Remarks:											
(U) <u>Test &amp; Evaluation</u>											0.000
Not applicable											0.000
Subtotal Test & Evaluation			0.000	0.000	0.000		0.000		0.000	0.000	0.000
Remarks:											
(U) <u>Management</u>											0.000
Not applicable											0.000
Subtotal Management			0.000	0.000	0.000		0.000		0.000	0.000	0.000
Remarks:											
(U) Total Cost			0.000	11.256	26.047		44.481		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE  
A008 Integrated Space Situation Awareness

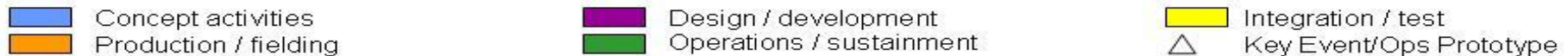
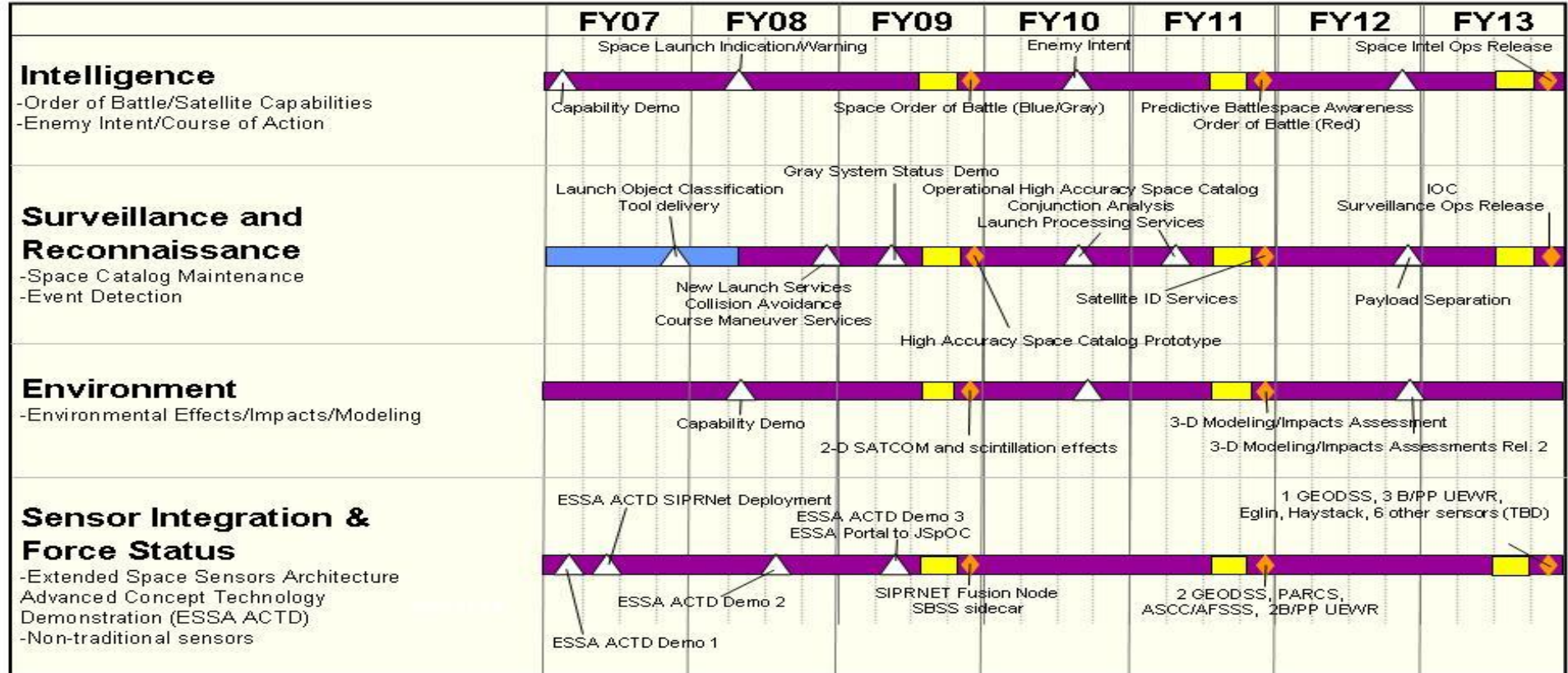


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A008 Integrated Space Situation Awareness

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Launch Object Classification Tool	4Q		
(U) Surveillance Capability Demonstration		4Q	
(U) Surveillance Operational Delivery			4Q
(U) Commercial, Allied, & Foreign Interests Demonstration			2Q
(U) Environmental Effects Capability Demonstration		2Q	
(U) Environmental Effects Capability Delivery			4Q
(U) Intelligence Capability Demonstration	1Q	2Q	
(U) Intelligence Operational Delivery			4Q
(U) ESSA ACTD Demonstrations	1Q	3Q	2Q
(U) ESSA ACTD Classified Network Demonstration	2Q		
(U) Sensor Integration Operational Delivery			4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604425F Space Situation Awareness Systems</b>		PROJECT NUMBER AND TITLE <b>A009 Space Fence</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A009 Space Fence	0.000	13.848	45.273	65.608	94.296	80.008	81.555	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Space Fence effort will develop a system of ground-based sensors to replace the aging Air Force Space Surveillance System (AFSSS), a Very High Frequency radar operational since 1961. By using higher radio frequencies in conjunction with radar transmitters and receivers co-located at sites dispersed worldwide, the Space Fence will provide timely detection of smaller orbiting objects, primarily those in low earth orbit (LEO). As a result, it will expand the detection and tracking capacity of the Space Situation Awareness network by an order of magnitude, from 10,000 to 100,000 objects, while working in concert with other network sensors.

This effort is in Budget Activity 5, System Development and Demonstration, because it is developing a new system of ground-based sensors.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Design and development	0.000	9.281	38.892
(U) Design review, management, and support	0.000	4.567	6.381
(U) Total Cost	0.000	13.848	45.273

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	61.665	63.014	Continuing	TBD

**(U) D. Acquisition Strategy**

The Air Force competitively awarded requirements definition contracts for the effort in FY 2006. An acquisition strategy for the program is being developed with the aim of awarding development contracts in FY 2009 after a full and open competition.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604425F Space Situation Awareness Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A009 Space Fence</b>
--	---	--

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Design and development	C/TBD	TBD		0.000		7.814	Jan-09	35.528	Jan-09	Continuing	TBD	
Design evaluation	SS/FP-LOE	MIT Lincoln Laboratory, Lexington, MA		0.000		0.877	Oct-07	1.916	Oct-08	Continuing	TBD	
Design evaluation	SS/FP-LOE	MITRE Corp., Bedford, MA		0.000		0.590	Oct-07	1.448	Oct-08	Continuing	TBD	
Subtotal Product Development			0.000	0.000		9.281		38.892		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Electronic Systems Center, Hanscom AFB, MA; others		0.000		2.572	Nov-07	3.561	Nov-08	Continuing	TBD	
Development review and management	C/FP LOE	Odyssey Systems, Wakefield, MA				0.851	Feb-08	0.751	Feb-09		1.602	
Development review and management	C/FP LOE	Jacobs Technology, Tullahoma, TN				0.644	Jan-08	2.069	Jan-09		2.713	
Development review and management	C/FP LOE	L3/Engility, Billerica, MA				0.500	Nov-07	0.000			0.500	
Subtotal Support			0.000	0.000		4.567		6.381		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Not applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U)											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		13.848		45.273		Continuing	TBD	0.000

R-1 Line Item No. 68

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Project A009

Exhibit R-3 (PE 0604425F)

Exhibit R-4, RDT&E Schedule Profile

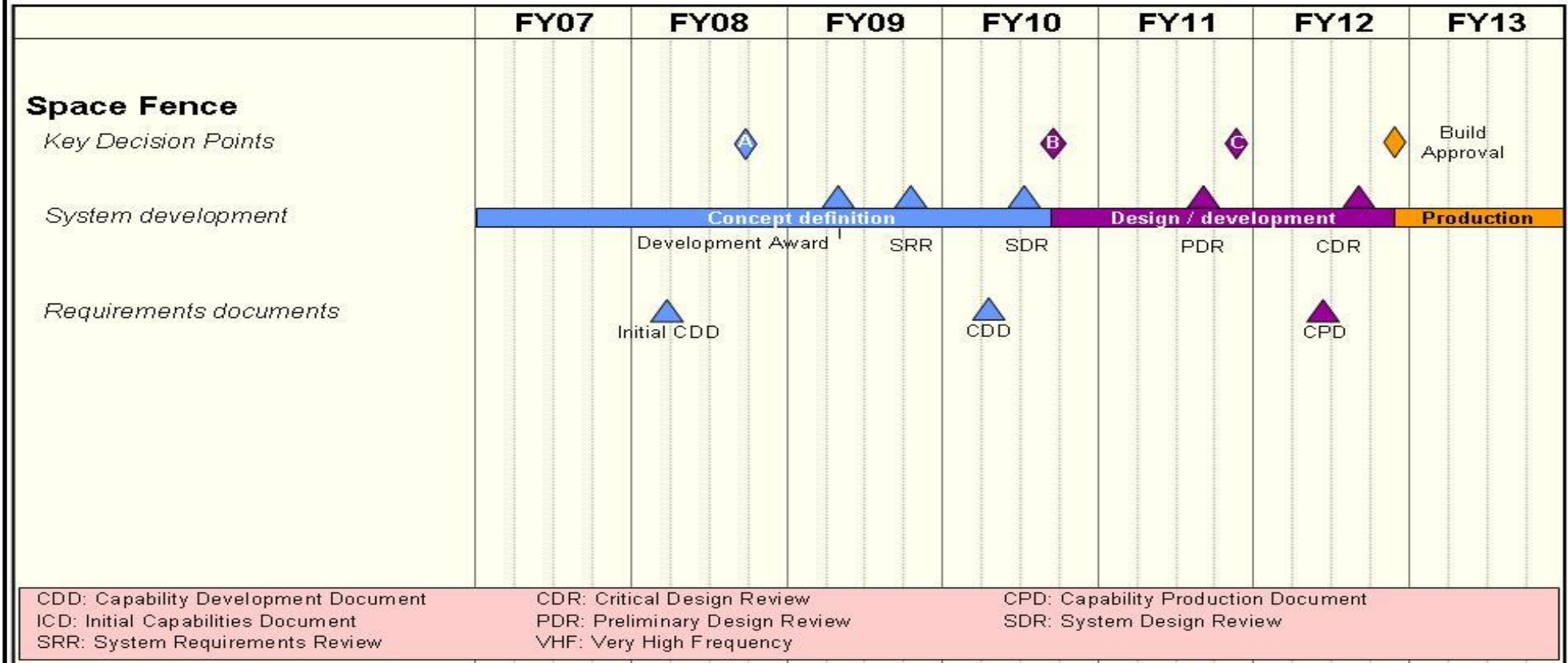
DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE  
A009 Space Fence



- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / sustainment
- ▲ ◆ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604425F Space Situation Awareness Systems

PROJECT NUMBER AND TITLE

A009 Space Fence

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Key Decision Point A

3Q

(U) Development award

2Q

(U) System Requirements Review

4Q

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PE NUMBER: 0604429F  
 PE TITLE: AIRBORNE ELECTRONIC ATTACK

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.033	23.826	34.279	53.310	11.672	11.893	12.135	Continuing	TBD
5192 Network & Sys -of-Sys Dev	12.033	23.826	34.279	53.310	11.672	11.893	12.135	Continuing	TBD

Project 655193, B-52 Stand-Off Jammer, was terminated in FY 2007.

**(U) A. Mission Description and Budget Item Justification**

This program element supports the development of the critical electronic attack capabilities, from technology demonstrations through transition to operational capability, for Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. The Joint SEAD presentation identified the Navy AEA components as the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms and indicated the Air Force will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) and its stand-in jammer variant called MALD-J, the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration and Active Electronically Scanned Array (AESA) radar equipped aircraft, and potentially, recoverable unmanned stand-in and manned long range stand-off jammer platforms.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	12.374	20.007	24.684
(U) Current PBR/President's Budget	12.033	23.826	34.279
(U) Total Adjustments	-0.341	3.819	
(U) Congressional Program Reductions		-0.030	
Congressional Rescissions		-0.127	
Congressional Increases		4.000	
Reprogrammings		-0.024	
SBIR/STTR Transfer	-0.341		

**(U) Significant Program Changes:**

- FY2008, Funds added to Network & Sys-of-Sys Dev (BPAC 655192) for B-52 CCJ Technology Maturation efforts
- FY2009, Funds added to Network & Sys-of-Sys Dev (BPAC 655192) for AEA Technology Maturation efforts

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>		PROJECT NUMBER AND TITLE <b>5192 Network &amp; Sys -of-Sys Dev</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5192 Network & Sys -of-Sys Dev	12.033	23.826	34.279	53.310	11.672	11.893	12.135	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program element supports the development of the critical electronic attack capabilities, from technology demonstrations through transition to operational capability, for Air Force and joint operations to include the Global Strike and Persistent Global Attack Concepts of Operations (CONOPS). Based on the 2001 Joint Airborne Electronic Attack (AEA) Analysis of Alternatives (AoA) and the follow-on 2002 Joint Suppression of Enemy Air Defenses (Joint SEAD) presentation to OSD(AT&L), the AEA capability will consist of a number of components working together in a joint system of systems. The Joint SEAD presentation identified the Navy AEA components as the EA-6B Improved Capability (ICAP) III and EA-18G modified escort platforms and indicated the Air Force will be responsible for coordinating overall AEA system of systems requirements. AF component capabilities include the Miniature Air Launched Decoy (MALD) and its stand-in jammer variant called MALD-J, the EC-130H Compass Call Baseline 0 (formerly Block 35) configuration and Active Electronically Scanned Array (AESA) radar equipped aircraft, and potentially, recoverable unmanned stand-in and manned long range stand-off jammer platforms.

This program is included in budget activity 5, System Development and Demonstration, because of the development and/or testing associated with Airborne Electronic Attack.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AEA Synchronization Office Support	1.074	1.250	1.300
(U) AEA System of Systems engineering/architecture development/requirements refinement	5.800	6.407	6.410
(U) AEA virtual test/modeling & simulation/EW capability investment strategy/technology demonstrations	5.159	12.169	26.569
(U) B-52 Core Component Jammer (CCJ) technology demonstration		4.000	
(U) Total Cost	12.033	23.826	34.279

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

**(U) D. Acquisition Strategy**

Project 5192 "Network and System of Systems Development" plans to use existing ASC, AFRL, and other contracts and instruments to provide engineering, architecture development, and other support for the AEA System of Systems.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604429F AIRBORNE ELECTRONIC ATTACK</b>					<b>5192 Network &amp; Sys -of-Sys Dev</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
AEA system of systems engineering	MIPR & CPFF	Various		4.750	Dec-06	5.300	Dec-07	5.110	Dec-08	Continuing	TBD	
Subtotal Product Development			0.000	4.750		5.300		5.110		Continuing	TBD	0.000
Remarks:	Includes system of systems engineering; architecture development; network requirements development; EW assessments; working group support; engineering, test planning, and milestone preparation assistance for AF AEA SoS components											
(U) <u>Support</u>												
AEA requirements support	MIPR	Various		1.050	Dec-06	1.107	Dec-07	1.300	Dec-08	Continuing	TBD	
Subtotal Support			0.000	1.050		1.107		1.300		Continuing	TBD	0.000
Remarks:	Requirements support includes contracted requirements refinement support for ACC and AF/A5R											
(U) <u>Test &amp; Evaluation</u>												
AEA Virtual test/AFEWICS/Technology Demonstrations	Various	Various		5.159	Nov-06	16.169	Nov-07	26.569	Dec-08	Continuing	TBD	
Subtotal Test & Evaluation			0.000	5.159		16.169		26.569		Continuing	TBD	0.000
Remarks:	AEA virtual test element includes modeling and simulation for SoS EW assessments, conducting technology risk mitigation demonstrations, DoD scenario initiation & distribution, SoS test planning/rehearsal, and supports Air Force Electronic Warfare Capability Investment Strategy (AFEWCIS) roadmap development, maintenance, & assessments											
(U) <u>Management</u>												
ASC/XR (AEA Synch office)	Various	Various		1.074	Oct-06	1.250	Oct-07	1.300	Oct-07	Continuing	TBD	
Subtotal Management			0.000	1.074		1.250		1.300		Continuing	TBD	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by program offices. Costs include travel, office equipment, office supplies, printing, contract services, program management administrative and communications expenses.											
(U) Total Cost			0.000	12.033		23.826		34.279		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604429F AIRBORNE ELECTRONIC  
ATTACK

PROJECT NUMBER AND TITLE  
5192 Network & Sys -of-Sys Dev



# AEA SoS Schedule

	FY08				FY09				FY10				FY11	
	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr
<b>AEA SoS Engineering</b>	[Solid blue bar]													
Architecture Development				▲			▲					▲		
Ops Views update				▲			▲					▲		
EW Assessments			▲	▲	▲		▲		▲			▲		▲
<b>Working Group Support</b>	[Solid blue bar]													
DoD Planning Scenarios		▲		▲			▲					▲		
SUPPRESSOR updates														
AEA SoS SUPPRESSOR improvements		▲				▲					▲			
<b>AEA EW Invest Strat, Virtual Test, Tech Mat</b>	[Solid blue bar]													
AF EW Invest Strategy				▲				▲					▲	
M&S Dev/Events			▲	▲		▲		▲			▲		▲	
Tech Mat/Demos	[Dotted grey bar]													
Array/Exciter Design	▲			▲	▲						▲			
Array/Exciter Build	▲			▲	▲						▲			
Integration/Flight Demo	▲			▲	▲						▲			▲



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604429F AIRBORNE ELECTRONIC ATTACK</b>	PROJECT NUMBER AND TITLE <b>5192 Network &amp; Sys -of-Sys Dev</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continuing to support ongoing AEA systems engineering efforts	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0604441F

PE TITLE: Space Based Infrared Systems (SBIRS) High EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	677.926	583.317	529.771	443.268	386.538	287.398	263.619	293.100	8,948.146
3616 SBIRS High Element EMD	677.926	583.317	529.771	443.268	386.538	287.398	263.619	293.100	8,948.146

(U) FY2007 funding total includes \$2.0 M in GWOT supplemental.

**(U) A. Mission Description and Budget Item Justification**

FY2007 funding total includes \$2.0M in GWOT supplemental.

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies, as well as technology needs forecasting, to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is in orbit and conducting on-orbit testing.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High program.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	664.880	587.004	510.544
(U) Current PBR/President's Budget	677.926	583.317	529.771
(U) Total Adjustments	13.046	-3.687	
(U) Congressional Program Reductions			
Congressional Rescissions		-3.687	
Congressional Increases	2.000		
Reprogrammings	11.046		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY07: +\$2M Global War on Terror funds added. \$11.046M reprogramming to support flight software challenges. FY09: Additional funds added to match OSD CAIG estimate.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>			PROJECT NUMBER AND TITLE <b>3616 SBIRS High Element EMD</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3616 SBIRS High Element EMD	677.926	583.317	529.771	443.268	386.538	287.398	263.619	293.100	8,948.146	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

FY2007 funding total includes \$2.0M in GWOT supplemental.

(U) The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will incorporate new technologies, as well as technology needs forecasting, to enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in US Strategic Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO), payloads hosted on satellites in Highly Elliptical Orbit (HEO), an integrated centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites, and other related support activities. The HEO-1 payload is in orbit and conducting on-orbit testing.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for the SBIRS High program.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO development, GEO 1&2 integration, assembly and test, design activities for GEO block upgrades, proposal preparation, HEO integration and test, HEO message certification, Ground System Development, System Engineering and Program Management, Host program office support, Technical Intelligence activities, Data Exploitation activities, Combined Task Force (CTF) support activities, continuation of systems integration and test studies, and related support activities).	623.704	528.248	471.946
(U) Continue System Program Office Support, to include SETA and Systems Engineering and Integration	17.702	18.049	18.954
(U) Continue technical analysis and independent verification and validation of contractor.	36.520	37.020	38.871
(U) Total Cost	677.926	583.317	529.771

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604441F Space Based Infrared Systems (SBIRS) High EMD**

PROJECT NUMBER AND TITLE

**3616 SBIRS High Element EMD**

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement (PE 0305915F, BA-03, )	6.508	3.952	80.405	1.940	1.932	1.975	2.018	0.000	98.730
(U) Missile Procurement (PE 0305915F, BA-05, P-30)	0.000	395.310	1718.043	477.391	730.583	91.907	109.528	0.000	3,522.762

**(U) D. Acquisition Strategy**

The pre-SDD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1995 for the pre-SDD phase. A single contract was awarded to Lockheed Martin in 1996 for the SDD phase.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604441F Space Based Infrared Systems (SBIRS) High EMD</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3616 SBIRS High Element EMD</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
LMMS & Hughes (Pre-SDD)	C/CPFF		159.600							0.000	159.600	159.600
LMMS (SDD)	C/CPAF	Lockheed Martin, Sunnyvale, CA	4,975.423	623.704	Oct-06	528.248	Oct-07	471.946	Oct-08	1,445.019	8,044.340	8,044.339
SBIRS Pre-SDD Contract Adjustment			4.780							0.000	4.780	4.780
Technology	Various		11.600							0.000	11.600	11.600
Phenomenology	Various		17.350							0.000	17.350	17.350
Sandia Natl Lab (Cobra Brass)	Various		10.000							0.000	10.000	10.000
Subtotal Product Development			5,178.753	623.704		528.248		471.946		1,445.019	8,247.670	8,247.669
Remarks:												
<u>(U) Support</u>												
Aerospace Corp	Reimbursable Order	Aerospace Corp, El Segundo CA	215.270	36.520	Oct-06	37.020	Oct-07	38.871	Oct-08	141.969	469.650	469.650
Prgm Mgmt Supt	Various	Various	89.348	17.702	Oct-06	18.049	Oct-07	18.954	Oct-08	86.773	230.826	230.827
Subtotal Support			304.618	54.222		55.069		57.825		228.742	700.476	700.477
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Not Applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			5,483.371	677.926		583.317		529.771		1,673.761	8,948.146	8,948.146

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

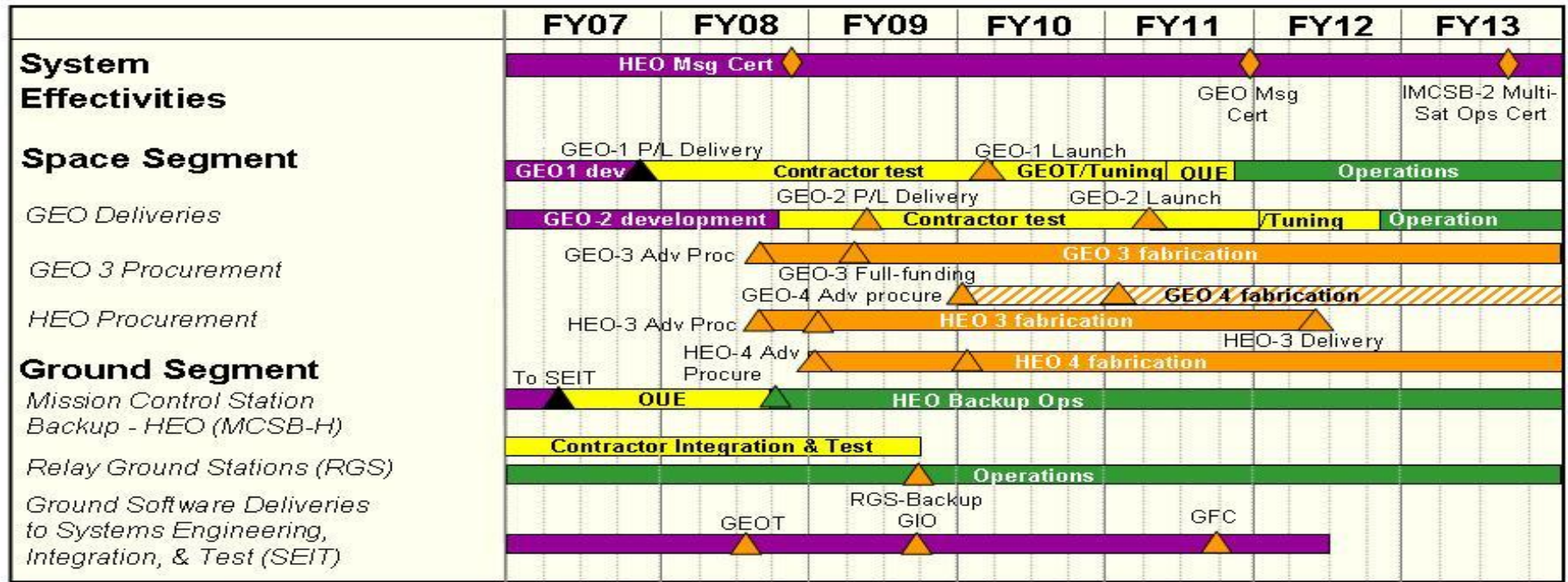
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604441F Space Based Infrared Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE

3616 SBIRS High Element EMD



**GEOT: GEO Early On-Orbit Test**      **GFC: GEO Full Capability**      **GIO: GEO Interim Operations**      **HEO: Highly Elliptical Orbit**  
**HEOT: HEO Early Orbit Test**      **HIO: HEO Interim Operations**      **IMCSB: Interim Mission Control Station Backup**  
**MCS: Mission Control Station**      **OUE: Operational User Evaluation**      **PCA: Pointing & Control Assembly**  
**RGS: Relay Ground Station**      **SST: SBIRS System Test**

■ Concept activities      ■ Design / development      ■ Integration / test  
■ Production / fielding      ■ Operations / sustainment      ▲◆ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604441F Space Based Infrared Systems (SBIRS) High EMD

PROJECT NUMBER AND TITLE

3616 SBIRS High Element EMD

(U) **Schedule Profile**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Delivery of Mission Control Station Backup-HEO (MCSB-H) to SEIT	2Q		
(U) GEO-1 Payload Thermal Vacuum Test 2	4Q		
(U) GEO-1 Payload delivery to prime for integration with spacecraft	4Q		
(U) GEO Early On-Orbit Test (GEOT) Software Delivery		3Q	
(U) GEO-1 GEOT-E Software Delivery to Integration		3Q	
(U) GEO-1 SPA Software Item Qualification Test (SIQT) Complete		4Q	
(U) HEO message certification		4Q	
(U) HEO Back-up Operations			1Q
(U) GEO-2 Payload delivery to prime for integration with spacecraft			2Q
(U) GEO Interim Operations (GIO) Software delivery			3Q



**UNCLASSIFIED**

PE NUMBER: 0604443F

PE TITLE: Third Generation Infrared Surveillance (3GIRS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604443F Third Generation Infrared Surveillance (3GIRS)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	67.552	75.410	149.064	148.116	158.128	346.944	346.649	Continuing	TBD
A020 3GIRS	67.552	75.410	149.064	148.116	158.128	346.944	346.649	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) This PE has had its title changed to 3rd Generation Infrared Surveillance (3GIRS) to reflect the decision to reposition the program as a follow on to the Space Based Infrared System High (SBIRS) High program.

(U) The 3rd Generation Infrared Surveillance (3GIRS) mission is to provide a missile warning capability to warn of ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace awareness and technical intelligence missions. As a result of the Nunn-McCurdy certification for the SBIRS High program, the USD(AT&L) directed the DoD Executive Agent for Space to plan for a new program for space-based Overhead Non-Imaging Infrared (ONIR) that generates competition for the SBIRS GEO 3 satellite and exploits alternative technologies. Alternative Infrared Satellite System (AIRSS) was to pursue an approach with acceptable technical risk that offered, at a minimum, Defense Support Program (DSP)-like missile warning capability and can ensure a launch availability date of FY15. With the Defense Acquisition Executive's decision to procure SBIRS GEO-3 in July 2007 and following congressional guidance, the Air Force has reapportioned AIRSS resources to pursue risk reduction, system definition, and ground tests to enable a 3rd Generation Space-based infrared (IR) program after the SBIRS GEO-3 satellite is delivered. The Air Force will pursue an acquisition risk reduction approach that conducts Wide Field of View (WFOV) technology maturation, along with technology needs forecasting activities prior to a system design decision in FY10.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for a follow-on to the SBIRS High program for the next generation of missile warning satellites.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	67.552	230.887	354.308
(U) Current PBR/President's Budget	67.552	75.410	149.064
(U) Total Adjustments	0.000	-155.477	
(U) Congressional Program Reductions		-155.000	
Congressional Rescissions		-0.477	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY08 reflects -\$155 million congressional mark and \$481 thousand in congressional general reductions. FY09 reduction is part of AF plan to reapportion AIRSS into a 3rd

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Third Generation Infrared Surveillance (3GIRS)

Gen Space-based IR program with a 2019 first launch.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604443F Third Generation Infrared Surveillance (3GIRS)</b>			PROJECT NUMBER AND TITLE <b>A020 3GIRS</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A020 3GIRS	67.552	75.410	149.064	148.116	158.128	346.944	346.649	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) This PE has had its title changed to 3rd Generation Infrared Surveillance (3GIRS) to reflect the decision to reposition the program as a follow on to the Space Based Infrared System High (SBIRS) High program.

(U) The 3rd Generation Infrared Surveillance (3GIRS) mission is to provide a missile warning capability to warn of ballistic missile attack on the U.S., its deployed forces, and its allies while also supporting missile defense, battlespace awareness and technical intelligence missions. As a result of the Nunn-McCurdy certification for the SBIRS High program, the USD(AT&L) directed the DoD Executive Agent for Space to plan for a new program for space-based Overhead Non-Imaging Infrared (ONIR) that generates competition for the SBIRS GEO 3 satellite and exploits alternative technologies. Alternative Infrared Satellite System (AIRSS) was to pursue an approach with acceptable technical risk that offered, at a minimum, Defense Support Program (DSP)-like missile warning capability and can ensure a launch availability date of FY15. With the Defense Acquisition Executive's decision to procure SBIRS GEO-3 in July 2007 and following congressional guidance, the Air Force has reapportioned AIRSS resources to pursue risk reduction, system definition, and ground tests to enable a 3rd Generation Space-based infrared (IR) program after the SBIRS GEO-3 satellite is delivered. The Air Force will pursue an acquisition risk reduction approach that conducts Wide Field of View (WFOV) technology maturation, along with technology needs forecasting activities prior to a system design decision in FY10.

(U) This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development activities for a follow-on to the SBIRS High program for the next generation of missile warning satellites.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Risk reduction activities	46.450	50.461	103.790
(U) Objective Systems Definition	16.838	15.315	32.635
(U) System Design	0.000	0.000	0.000
(U) FFRDC, Development Planning, SETA and Systems Engineering and Integration Technical Support	4.264	9.634	12.639
(U) Total Cost	67.552	75.410	149.064

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)									

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Third Generation Infrared  
Surveillance (3GIRS)

PROJECT NUMBER AND TITLE

A020 3GIRS

(U) **D. Acquisition Strategy**

In March 2008, the AF will take delivery of two WFOV Risk Reduction Integrated Sensor Assemblies and begin a calibration, characterization, and environmental test campaign to assess their technical maturity for the IR mission. In FY2009, the AF will continue sensor testing and technology maturation activities with the development of an integrated test bed (ITB) that will include payloads built from the Risk Reduction sensors matured under the AIRSS program and critical test equipment for the ITB. The ITB effort will demonstrate WFOV system technical maturation with the aim to lower cost, schedule, and risk for the objective system. The ITB effort will include algorithm development, ground signal processing demonstrations, key satellite sub-system risk reduction activities, and options to acquire multiple WFOV payloads. Technology maturation activities also includes an option for rideshare on a commercial communications satellite to conduct space-based testing. FY2009 system definition activities will support pre-acquisition decision preparation as the program postures for an FY2019 launch. Lessons learned from the 3G System Design Review (SDR) along with data from the ITB effort will be used to initiate new contract awards for the 3rd Generation system development efforts in the 4th Qtr of FY11. The program activities are planned to conform to the OSD competitive prototyping policy and will support a competitive commercial environment by carrying two system definition contractors through FY2010.

Key Decision Point B (KDP-B) is now planned in August 2010, with Authority to Proceed (ATP) in January 2011 - First 3rd Generation satellite delivery in 2016.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604443F Third Generation Infrared Surveillance (3GIRS)</b>					<b>A020 3GIRS</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Risk reduction activities	Various	Various	0.000	46.450	Oct-06	50.461	Mar-08	103.790	Oct-08	558.900	759.601	773.837
Objective System Definition	Various	Various	0.000	16.838	Dec-06	15.315	Oct-08	32.635		66.600	131.388	102.881
System Development	Various	Various								Continuing	TBD	TBD
Subtotal Product Development			0.000	63.288		65.776		136.425		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program office, developmental planning, and technical support including federally funded research and development center (FFRDC/SETA)	Various	Space and Missile Center, El Segundo, CA	0.000	4.264	Oct-06	9.634	Oct-07	12.639	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	4.264		9.634		12.639		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>			0.000									
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>			0.000									
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	67.552		75.410		149.064		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

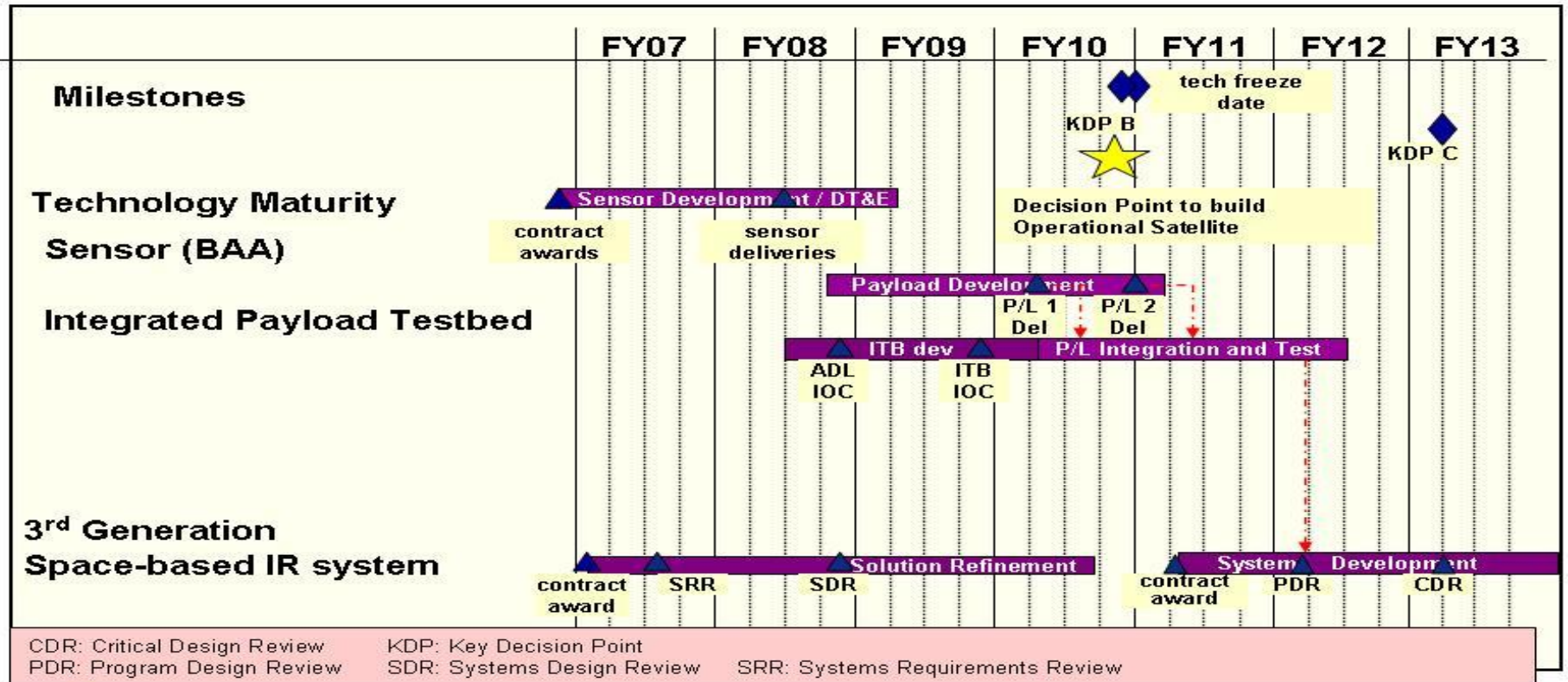
DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604443F Third Generation Infrared  
Surveillance (3GIRS)

PROJECT NUMBER AND TITLE  
A020 3GIRS



CDR: Critical Design Review    KDP: Key Decision Point  
PDR: Program Design Review    SDR: Systems Design Review    SRR: Systems Requirements Review

- Concept activities
- Design / development
- Integration / test
- Operations / sustainment
- Production / fielding
- Key events
- Launch in FY19
- System Availability <sub>1</sub>

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604443F Third Generation Infrared  
Surveillance (3GIRS)

PROJECT NUMBER AND TITLE

A020 3GIRS

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Demonstration Sensors Awards (x2 contractors)	1Q		
(U) AIRSS System Definition Awards	1Q		
(U) AIRSS System Requirements Review (SRR)	3Q		
(U) Risk Reduction Sensor Deliveries		2Q	
(U) Risk Reduction Sensors DT&E		3-4Q	1-2Q
(U) 3rd Generation System Design Review (SDR)		4Q	
(U) ITB IOC			4Q
(U) 3rd Gen System Definition Awards			4Q

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**UNCLASSIFIED**

PE NUMBER: 0604602F  
 PE TITLE: Armament/Ordnance Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.039	3.165	2.095	2.117	2.091	2.125	2.163	Continuing	TBD
3133 Armament Subsystems	11.829	3.165	2.095	2.117	2.091	2.125	2.163	Continuing	TBD
4696 Armament Standardization Program	1.059	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5613 Containers	0.151	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Starting in FY08, moved all funds and activities from BPACs 4696 Armament Standardization and 5613 Containers to BPAC 3133 Armament Subsystems (new name, old name was Bombs & Fuzes). This is done to consolidate and simplify the program element.

FY2008 funding totals do not include \$4.200 FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

The Armament Ordnance Development program provides for initial and continuing development of weapons (kinetic and non-kinetic) and munitions equipment for support and operational use. This PE develops and improves the following weapons and weapons subsystems: bomb fuzes, insensitive explosive fills (Insensitive Munitions - IM), stores-aircraft interface upgrades to include the Universal Armament Interface (UAI), directed energy technology transition to weapons, munitions materiel handling equipment (MMHE), munitions containers, and other weapon subsystems.

Armament Subsystems: This project develops and improves conventional weapons (kinetic and non-kinetic) and fuzes. The project also provides an opportunity to quickly insert emerging technologies into existing and developing munitions. It currently includes enhancing and improving the reliability of the Joint Programmable Fuze (JPF), integration of the JPF on legacy weapons, and other fuze development. The project helps the AF meet Insensitive Munitions (IM) compliance through strategic planning, development of an insensitive explosive fill, and bomb case modifications for MK-80 and BLU- series bombs to make these weapons insensitive to unplanned stimuli. This project also conducts stores-aircraft interface upgrades and standards development to include UAI. In FY08 and beyond, this project also performs the activities described in the two projects below.

Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.

This program is in Budget Activity 5 - System Development and Demonstration because the projects support the SDD phase of several munitions related items and functions.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	5.020	1.985	2.120
(U) Current PBR/President's Budget	13.039	3.165	2.095
(U) Total Adjustments	8.019	1.180	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.020	
Congressional Increases		1.200	
Reprogrammings	8.134		
SBIR/STTR Transfer	-0.115		
(U) <b><u>Significant Program Changes:</u></b>			
Eglin Steel Producibility Enhancement (ESPE) -- \$7.034M FY 2007 BTR -- supports correction of a deficiency associated with the use of "Eglin steel" in warhead manufacturing			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604602F Armament/Ordnance Development</b>			<b>3133 Armament Subsystems</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3133 Armament Subsystems	11.829	3.165	2.095	2.117	2.091	2.125	2.163	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY08, the other 2 BPACs in this program element, 4696 Armament Standardization and 5613 Containers, merge with 3133. This will then be the only BPAC in this program element. The name of this BPAC is also changed (from Bombs & Fuzes) to encompass the activities of the 2 BPACs moving here.

**(U) A. Mission Description and Budget Item Justification**

The Armament Subsystems BPAC contains a variety of work:

- Bombs and fuzes. The Joint Programmable Fuze (JPF) was developed primarily for JDAM and funded by the JDAM program. This project funds the integration of JPF on other AF legacy weapons and improvements to the JPF program, including reliability enhancements and producibility improvements. In addition, the project supports other fuze development activity, including characterization of the Hard Target Void Sensing Fuze (HTVSF), and AF participation in the DOD Fuze Integrated Product Team (IPT). This project also conducts UAI activities and is addressing an Eglin Steel Producibility Enhancement (ESPE) for warhead manufacture.
- Insensitive Munitions (IM). IM develops explosive fill and bomb case modifications to make conventional weapons insensitive to unplanned stimuli. The project also supports AF IM strategic planning to achieve IM compliance IAW U.S. Code, Title 10, Subtitle A, Part N, Chapter 141, Section 2389, "Ensuring safety regarding insensitive munitions."

Starting in FY08, this BPAC also includes the other 2 BPACs in this program element. The descriptions of these 2 BPACs, 4696 Armament Standardization and 5613 Containers, are given in their respective R-2a exhibits.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Insensitive Munitions (IM): explosive fills, bomb cases, strategic planning	2.787	0.000	0.000
(U) Eglin Steel Producibility Enhancement (ESPE) for BLU-122 warhead	7.034	0.000	0.000
(U) Hard Target Void Sensing Fuze (HTVSF) Characterization Study for JCTD	1.100		
(U) I-1000 Warhead Technology Demonstration		1.192	0.000
(U) JPF legacy weapons integration and other fuze activity. Conduct UAI activities.	0.908	0.679	0.751
(U) Design, prototype, test and develop various Munitions Material Handling Equipment (MMHE) projects for AF use	0.000	1.137	1.173
(U) Provide container design expertise and technical support to AF munitions/weapons containers developers. Manage and operate the Tri-Service Container Design Retrieval System (CDRS) database.	0.000	0.157	0.171
(U) Total Cost	11.829	3.165	2.095

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) D. Acquisition Strategy

Fuzes (including JPF) is a continuing effort with most activities performed in-house or through contracted services (small contracts). MMHE and container project activities performed in-house with limited technical and analysis contract support.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604602F Armament/Ordnance Development</b>					<b>3133 Armament Subsystems</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
<b>(U) Product Development</b>												
Kaman/Dayron (JPF)	FPIF	Orlando, FL	8.699	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.699	8.699
Air Force Research Lab (Fuze)	In-house	Eglin AFB, FL	0.158	0.312	N/A	0.233	N/A	0.250	N/A	Continuing	TBD	TBD
Air Force Research Lab/RW (IM)	In-house	Eglin AFB, FL	6.184	0.685	N/A	0.000	N/A	0.000	N/A	0.000	6.869	6.812
General Dynamics OTS (IM)	CPFF	Niceville, FL	3.085	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.085	3.086
Picatunny Arsenal, NJ (ESPE)	CPFF	Various	0.000	6.334	Jan-08	0.000	N/A	0.000	N/A	0.000	6.334	TBD
Air Force Research Lab/RWF - Support (ESPE)	In-house	Eglin AFB, FL	0.000	0.180	Dec-07	0.000	N/A	0.000	N/A	0.000	0.180	TBD
Air Force Research Lab/RWF - Contracts Support (ESPE)	CPFF	Various	0.000	0.520	Dec-07	0.000	N/A	0.000	N/A	0.000	0.520	TBD
General Dynamics (I-2000)	TBD	TBD	0.000	0.000	N/A	1.192	Apr-08	0.000	N/A	0.000	1.192	TBD
McAAP	Army	McAllester, OK	1.589	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.589	1.589
96 LRS	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.015	N/A	0.016	N/A	Continuing	TBD	TBD
EDSC	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.006	N/A	0.007	N/A	Continuing	TBD	TBD
Prototype Fabrication Shop	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.234	N/A	0.242	N/A	Continuing	TBD	TBD
Subtotal Product Development			19.715	8.031		1.680		0.515		Continuing	TBD	TBD
Remarks: CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee												
<b>(U) Support</b>												
AAC/XR (IM)	In-house	Eglin AFB, FL	1.281	0.310	N/A	0.000	N/A	0.000	N/A	0.000	1.591	1.761
AAC/XR (HTVSF)	FFP	Eglin AFB, FL	0.000	0.320	Aug-07	0.000	N/A	0.000	N/A	0.000	0.320	TBD
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	2.007	0.332	Oct-06	0.000	N/A	0.000	N/A	0.000	2.339	2.484
AAC/688 ARSS (Program Office - MMHE)	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.882	N/A	0.908	N/A	Continuing	TBD	TBD
AAC/688 ARSS (Program Office - Containers)	In-House	Eglin AFB, FL	0.000	0.000	N/A	0.157	N/A	0.171	N/A	Continuing	TBD	TBD
Subtotal Support			3.288	0.962		1.039		1.079		Continuing	TBD	TBD
Remarks: TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. FFP = Firm Fixed Price												
<b>(U) Test &amp; Evaluation</b>												
46th Test Wing (Fuze)	In-house	Various	8.026	0.596	N/A	0.446	N/A	0.501	N/A	Continuing	TBD	TBD
46th Test Wing (IM)	In-house	Eglin AFB, FL	2.866	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.866	2.866
846th Test Wing (HTVSF)	In-house	Holloman AFB, NM	0.000	0.780	Feb-08	0.000	N/A	0.000	N/A	0.000	0.780	TBD
Navy, China Lake ( IM)	Navy	China Lake, CA	3.554	1.460	N/A	0.000	N/A	0.000	N/A	0.000	5.014	4.826
Subtotal Test & Evaluation			14.446	2.836		0.446		0.501		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			37.449	11.829		3.165		2.095		Continuing	TBD	TBD

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

3133 Armament Subsystems

**The Fuze, Insensitive Munitions (IM), Munitions Materiel Handling Equipment (MMHE), and Munitions Container programs are continuing activities that support fuze development, IM compliance, MMHE design and development, and container standardization activities throughout the year. IM strategic planning is also an ongoing activity.**

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>	PROJECT NUMBER AND TITLE <b>3133 Armament Subsystems</b>
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(U) <b>Schedule Profile</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) FUZES: JPF Integration on Legacy Weapons & Other Fuze Activity	1-4Q	1-4Q	1-4Q
(U) INSENSITIVE MUNITIONS (IM): Follow-on IM Fill Development and MK-82 IM System Integration/Weapons Qual	1-4Q		
(U) INSENSITIVE MUNITIONS (IM): Strategic Planning	1-4Q	1-4Q	1-4Q
(U) Hard Target Void Sensing Fuze (HTVSF) Characterization Study	3-4Q	1-4Q	
(U) Eglin Steel Producibility Enhancement (ESPE)	4Q	1-4Q	
(U) I-1000 Warhead Technology Demonstration		3-4Q	1-3Q
(U) Study, design, and test MMHE		1-4Q	1-4Q
(U) Support CDRS Activities/Meetings		1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>			PROJECT NUMBER AND TITLE <b>4696 Armament Standardization Program</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4696 Armament Standardization Program	1.059	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY08, this BPAC merges with BPAC 3133 Armament Subsystems. FY08 and beyond funds and activities are given in Armament Subsystems.

**(U) A. Mission Description and Budget Item Justification**

Armament Standardization/Control/Munitions Materiel Handling Equipment (MMHE): These continuing projects develop and provide for acquisition of standardized, safe, and user-friendly munitions handling and armament equipment with common life cycle support. Projects will reduce proliferation and increase workload efficiencies while reducing mobility footprint. Project efforts are limited to study, design, test and development. Procurement will be performed and funded by the applicable weapons system project or air logistics center.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Design, prototype, test and develop various MMHE projects for AF use. Projects include F-16 Gun Maintenance Trailer, F-22 Pylon Loading Adapter, F-15 and B-52 Pylon Loading Adapter, MK-83 JDAM Tool, 20MM Gun Storage Dolly, F-22 Pylon Storage Stand	1.059	0.000	0.000
(U) Total Cost	1.059	0.000	0.000

In FY08, this BPAC merges with BPAC 3133 Armament Subsystems. FY08 and beyond funds given in the Armament Subsystems R-2a.

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) N/A									

**(U) D. Acquisition Strategy**

MMHE is a program of continuing efforts (projects) with activities performed in-house or through contracted services.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604602F Armament/Ordnance Development</b>					<b>4696 Armament Standardization Program</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Support</u>												
AAC/688 ARSS (Program Office)	In-house	Eglin AFB, FL	0.938	0.097	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Support			0.938	0.097		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Product Development</u>												
AAC/688 ARSS (Program Office)	In-house	Eglin AFB, FL	0.815	0.814	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
J.E. Sverdrup	FFP	Fort Walton Beach, FL	4.991	0.000	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
96 LRS	In-house	Eglin AFB, FL	1.278	0.020	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
EDSC	In-house	Eglin AFB, FL	0.104	0.018	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Prototype Fabrication Shop	In-house	Eglin AFB, FL	1.686	0.110	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Product Development			8.874	0.962		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			9.812	1.059		0.000		0.000		Continuing	TBD	TBD
In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.												

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance  
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization  
Program

The Armament Standardization Program consists of several continuing projects that support the SDD phase of several munitions-related items and functions.

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>	PROJECT NUMBER AND TITLE <b>4696 Armament Standardization Program</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Study, Design, and Test MMHE	1-4Q		
In FY08, this project merges with project 3133. FY08 and beyond activities given in new project			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>			PROJECT NUMBER AND TITLE <b>5613 Containers</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5613 Containers	0.151	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY08, this BPAC merges with BPAC 3133 Armament Subsystems. FY08 and beyond funds and activities are given in Armament Subsystems.

**(U) A. Mission Description and Budget Item Justification**

Containers: This project funds the operation of the Tri-Service Container Design Retrieval System (CDRS) that is mandated for all DOD acquisition programs for compliance IAW AFJMAN 24-206: Logistics - Packaging of Materiel. The CDRS maintains a container database to preclude proliferation and duplication of munitions containers. It also supports limited organic container design, development, and acquisition capabilities and the Joint Ordnance Commander's Working Group (JOCWG) for packaging, handling and loading.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.000	0.000	0.000
(U) Provide container design expertise and technical support to programs (Area Dominator, LAU-106, etc.)	0.006	0.000	0.000
(U) Manage and operate the CDRS database and support service	0.145	0.000	0.000
(U) Total Cost	0.151	0.000	0.000

In FY08, this BPAC merges with BPAC 3133 Armament Subsystems. FY08 and beyond funds given in the Armament Subsystems R-2a.

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A									

**(U) D. Acquisition Strategy**

Containers is a program of continuing effort throughout the year, mostly to support the Tri-Service Container Design and Retrieval System (CDRS). The purpose of this CDRS is to share ideas and standardize munitions containers throughout the Services.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604602F Armament/Ordnance Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5613 Containers</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Support</u> AAC/688 ARSS (Program Office)	In-house	Eglin AFB, FL	1.302	0.151	N/A	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Support			1.302	0.151		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Product Development</u> J.E.Sverdrup	FFP	Fort Walton Beach, FL	1.639	0.000	Feb-07	0.000	N/A	0.000	N/A	Continuing	TBD	TBD
Subtotal Product Development			1.639	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			2.941	0.151		0.000		0.000		Continuing	TBD	TBD
In FY08, this project merges with project 3133. FY08 and beyond funds and activities are given in project 3133.												

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604602F Armament/Ordnance  
Development**

PROJECT NUMBER AND TITLE

**5613 Containers**

**The Munitions Container Program is a continuing project that supports container standardization activities/meetings throughout the year.**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604602F Armament/Ordnance Development</b>	PROJECT NUMBER AND TITLE <b>5613 Containers</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Support CDRS Activities/Meetings	1-4Q		
In FY08, this project merges with project 3133. All activities in FY08 and beyond are covered in project 3133.			

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604604F Submunitions</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.304	1.976	1.730	1.837	1.700	1.728	1.762	Continuing	TBD
3166 Joint Smart Munitions Test and Evaluation	8.304	1.976	1.730	1.837	1.700	1.728	1.762	Continuing	TBD

The FY03 National Defense Authorization Act language directed Test & Evaluation (T&E) centers to charge only direct costs beginning in FY06. This resulted in a zero balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test costs) to T&E support, PE 65807F. For this PE, the T&E funding alignment begins in FY08, resulting in the funding difference between FY07 and the following years.

**(U) A. Mission Description and Budget Item Justification**

Project 3166 (aka Project Chicken Little) is a joint program that provides best value research, development, test and evaluation (RDT&E) support for developmental smart munitions and related emerging weapons technologies employed against a wide variety of vehicle targets, Theater Air Defense units, and other foreign ground-based systems. Combat related systems exhibit certain vulnerabilities that make them susceptible to incapacitation or destruction. In addition, all systems exhibit particular physical characteristics (called signatures) that smart weapons exploit to recognize and target these systems. Chicken Little collects the physical and functional attributes of actual foreign threat systems for construction of high-fidelity models used for vulnerability assessments (the evaluation of the effectiveness of a munitions against these system vulnerabilities). Chicken Little then collects these foreign targets' signatures in realistic environments with a variety of sensors and in the presence of countermeasures or camouflage. The resulting highly reliable, realistic performance data are used to support development of smart munitions by defining lethality and sensor requirements and supporting acquisition decision points. The project provides a major focal point for joint Air Force and other Services' target signature collection and dissemination for development and exploitation purposes. Customers include the major Defense and Service Intelligence Centers, all the Services, the Joint Technical Coordinating Group (JTTCG) who develop the Joint Munitions Effectiveness Manuals, the Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include target signature exploitation, target geometric modeling (for identifying vulnerabilities), improving air capabilities against protected structures (specifically hard and deeply buried targets), and testing of a variety of seekers and sensors against realistic targets in various environments. Further projects include: Tools for Target Modeling; Analytical Method for Predicting Component Failure; Conversion of JTTCG Targets to Support Signature Modeling; Electromagnetic Pulse Characterization and Effectiveness; directed energy applications; and others.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	8.327	1.988	1.750
(U) Current PBR/President's Budget	8.304	1.976	1.730
(U) Total Adjustments	-0.023	-0.012	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	0.000	-0.012	
Congressional Increases	0.000		
Reprogrammings	0.000		
SBIR/STTR Transfer	-0.023		
(U) <u>Significant Program Changes:</u>			
None			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> 05 System Development and Demonstration (SDD)				<b>PE NUMBER AND TITLE</b> 0604604F Submunitions			<b>PROJECT NUMBER AND TITLE</b> 3166 Joint Smart Munitions Test and Evaluation		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3166 Joint Smart Munitions Test and Evaluation	8.304	1.976	1.730	1.837	1.700	1.728	1.762	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 Project 3166 (aka Project Chicken Little) is a joint program that provides best value research, development, test and evaluation (RDT&E) support for developmental smart munitions and related emerging weapons technologies employed against a wide variety of vehicle targets, Theater Air Defense units, and other foreign ground-based systems. Combat related systems exhibit certain vulnerabilities that make them susceptible to incapacitation or destruction. In addition, all systems exhibit particular physical characteristics (called signatures) that smart weapons exploit to recognize and target these systems. Chicken Little collects the physical and functional attributes of actual foreign threat systems for construction of high-fidelity models used for vulnerability assessments (the evaluation of the effectiveness of a munitions against these system vulnerabilities). Chicken Little then collects these foreign targets' signatures in realistic environments with a variety of sensors and in the presence of countermeasures or camouflage. The resulting highly reliable, realistic performance data are used to support development of smart munitions by defining lethality and sensor requirements and supporting acquisition decision points. The project provides a major focal point for joint Air Force and other Services' target signature collection and dissemination for development and exploitation purposes. Customers include the major Defense and Service Intelligence Centers, all the Services, the Joint Technical Coordinating Group (JTTCG) who develop the Joint Munitions Effectiveness Manuals, the Combatant Commands, US Air Force Weapons School curriculum support, and others. Current projects include target signature exploitation, target geometric modeling (for identifying vulnerabilities), improving air capabilities against protected structures (specifically hard and deeply buried targets), and testing of a variety of seekers and sensors against realistic targets in various environments. Further projects include: Tools for Target Modeling; Analytical Method for Predicting Component Failure; Conversion of JTTCG Targets to Support Signature Modeling; Electromagnetic Pulse Characterization and Effectiveness; directed energy applications; and others.

This program is funded in BA5 - System Development and Demonstration (SDD) because it supports development programs prior to full rate production decision.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue weapon effectiveness evaluation and weaponization studies	0.647	0.082	0.072
(U) Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies	0.672	0.082	0.072
(U) Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink	1.794	0.706	0.618
(U) Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development	1.174	0.646	0.566
(U) Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons	0.722	0.230	0.201
(U) Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced	0.712	0.230	0.201

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604604F Submunitions

PROJECT NUMBER AND TITLE

3166 Joint Smart Munitions Test and Evaluation

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

Hardened Targets (AHT)

FY 2007

FY 2008

FY 2009

(U) Virtual Teleoperation for Unmanned Aerial Vehicle

2.583

0.000

0.000

(U) Total Cost

8.304

1.976

1.730

(U) **C. Other Program Funding Summary (\$ in Millions)**

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

Cost to

Total Cost

Actual

Estimate

Estimate

Estimate

Estimate

Estimate

Estimate

Complete

(U) None

(U) **D. Acquisition Strategy**

Funds are executed organically in support of test and evaluation activities including studies, analyses, flight tests, model building and simulation. Almost all of the work is performed in-house by the 46th Test Wing.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604604F Submunitions</b>					<b>3166 Joint Smart Munitions Test and Evaluation</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Support</u> Macaulay Brown/ANSTEC	FFP	Technical Analysis and Test Support, Eglin AFB, FL	1.886	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.886	1.886	
Eglin Range O&M Contract	CPIF	Maintenance, Western Test Range, NV	0.791	0.180	Jan-07	0.000	N/A	0.000	N/A	0.000	0.971	0.891	
Subtotal Support			2.677	0.180		0.000		0.000		0.000	2.857	2.777	
Remarks:	CPIF = Cost Plus Incentive Fee; FFP = Firm Fixed Price												
(U) <u>Test &amp; Evaluation</u> Sverdrup	CPIF	Technical Analysis and Test Support, Eglin AFB, FL	11.749	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.749	11.749	
46th Test Wing (46 OG and 46 TW)	N/A	Conducting Tests and Analysis, Eglin AFB, FL	84.836	5.493	N/A	1.936	N/A	1.692	N/A	Continuing	TBD	TBD	
AFRL and University of Iowa (Virtual Teleoperation for Unmanned Aerial Vehicle)	N/A	AFRL, Wright Patterson AFB, OH (Most work performed by University of Iowa)	0.000	2.586	N/A	0.000	N/A	0.000	N/A	0.000	2.586	TBD	
Subtotal Test & Evaluation			96.585	8.079		1.936		1.692		Continuing	TBD	TBD	
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.												
(U) <u>Management</u> 46 Test Wing (46 OG)	N/A		7.199	0.045	N/A	0.040		0.038	N/A	Continuing	TBD	TBD	
Subtotal Management			7.199	0.045		0.040		0.038		Continuing	TBD	TBD	
Remarks:	46th Test Wing is the Program Office which conducts inhouse testing. Contract type and award date is N/A.												
(U) Total Cost			106.461	8.304		1.976		1.730		Continuing	TBD	TBD	

<b>Exhibit R-4, RDT&amp;E Schedule Profile</b>		DATE <b>February 2008</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604604F Submunitions</b>	PROJECT NUMBER AND TITLE <b>3166 Joint Smart Munitions Test and Evaluation</b>

**SCHEDULE**

Project 3166, Joint Smart Munition Test and Evaluation program (project Chicken Little) does not execute in accordance with established acquisition milestones. Chicken Little is a continuing test effort: Target/warhead evaluation/analysis, signature tests, and captive carry flight tests are ongoing throughout the year and continue through the FYDP. The type of activities is given in Section B. The timing, duration, and level of effort is decided at the annual Steering Committee meetings.

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604604F Submunitions</b>	PROJECT NUMBER AND TITLE <b>3166 Joint Smart Munitions Test and Evaluation</b>
---	---	---

(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Target/warhead evaluation/analysis, signature test, captive carry flight tests	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0604617F  
 PE TITLE: Agile Combat Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604617F Agile Combat Support</b>
--	--

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.715	12.146	5.790	9.565	9.776	9.961	10.159	Continuing	TBD
2895 CE Readiness	5.846	8.053	3.051	6.703	6.812	6.942	7.082	Continuing	TBD
4910 Aeromedical Readiness	3.869	4.093	2.739	2.862	2.964	3.019	3.077	Continuing	TBD

FY2008 funding totals do not include \$3.8M FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations, command and control activities, and force protection to ensure readiness. In addition, this PE provides tactical and strategic aeromedical evacuation systems, automated information systems; and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. These activities are prerequisites to establishing air superiority. Development of Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids, aeromedical evacuation and treatment equipment; and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	10.056	10.623	9.358
(U) Current PBR/President's Budget	9.715	12.146	5.790
(U) Total Adjustments	-0.341	1.523	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.078	
Congressional Increases		1.600	
Reprogrammings	-0.100	0.001	
SBIR/STTR Transfer	-0.241		

**(U) Significant Program Changes:**

FY08 Appropriations provided a \$1.6M earmark for Improvised Ordnance Detonator - Advanced Development.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604617F Agile Combat Support**

In FY09, \$3.5M was transferred from Project 2895, Civil Engineering Readiness (CE), to PE 0603112F, Advanced Materials for Weapon Systems, to support technology evaluation for Airfield Damage Repair (ADR) and Rapid Parking Ramp Expansion (RPRE)

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604617F Agile Combat Support</b>			<b>PROJECT NUMBER AND TITLE</b> <b>2895 CE Readiness</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2895 CE Readiness	5.846	8.053	3.051	6.703	6.812	6.942	7.082	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY08 Appropriations provided a \$1.6M earmark for Improvised Ordnance Detonator - Advanced Development.

In FY09, \$3.5M was transferred to PE 0603112F, Advanced Materials for Weapon Systems, to support technology evaluation for Airfield Damage Repair (ADR) and Rapid Parking Ramp Expansion (RPRE)

**(U) A. Mission Description and Budget Item Justification**

This project provides capabilities to rapidly deploy, defend and sustain airfield operations, command and control activities, and force protection to ensure readiness. These activities are prerequisites to establishing air superiority. The 688th Armament Systems Squadron (ARSS) (formerly Agile Combat Support Systems Squadron (ACSSS)) systems provide beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), rescue and recovery aids; and security and reconnaissance capabilities to support global aircraft deployment, employment, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in providing the ability to quickly establish operations, security, and base defense in support of numerous global contingencies, including Operation Enduring Freedom, Operation Iraqi Freedom, various humanitarian/relief efforts, and special operations throughout the world.

The 688th Armament Systems Squadron program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Provide Joint Robotics Program (JRP) Support	0.100	0.100	0.100
(U) Support research of new technologies to meet CDD requirement for Rapid Parking Ramp Expansion (RPRE)	0.100	0.100	0.300
(U) Initiate SDD for Advanced EOD Robotics (formally Next Generation Robotics Program)		1.200	1.381
(U) Continue(d) SDD for Multimedia Training Systems (MMTS)(Formerly MTS)	2.839	1.929	0.870
(U) Continue(d) Product Evaluation for Civil Engineer Sys & Equipment (CESEA)	2.807	3.124	0.400
(U) Improvised Ordnance Detonator - Advanced Development		1.600	
(U) Total Cost	5.846	8.053	3.051

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Other Base and Maintenance Support,	25.938	36.683	26.459	33.332	49.681	31.109	31.800	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

(U) **C. Other Program Funding Summary (\$ in Millions)**

Mobility Equipment (WSC  
845420)

(U) Other Procurement, AF, Other  
Base and Maintenance Support,  
Air Base Operability (WSC  
845100)

16.426

6.179

6.483

6.606

6.767

6.899

7.036

Continuing

TBD

(U) **D. Acquisition Strategy**

A majority of projects funded in this PE employ a streamlined acquisition approach. Whenever practical, commercial items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification and qualification testing to ensure commercial off-the-shelf equipment is properly adapted for military purposes. ACC/A8M/A7X jointly develop/approve requirements supporting Civil Engineering Readiness and Capabilities Enhancement initiatives, such as Explosive Ordnance Disposal robotics programs. The 688th Armament Systems Squadron (ARSS) at Eglin AFB, FL initiates SDD following receipt of applicable Capabilities Development Documents from those agencies. The Basic Expeditionary Airfield Resource (BEAR) Systems Readiness Board (BSRB) evaluates laboratory and commercial technologies with application for modernization of BEAR assets, such as deployable shelters, power, waste treatment and airfield support systems. With ACC/A8M/A4X/A7X direction and BEAR Program Office approval, the 688th ARSS initiates SDD, and ACC/A4X aligns BEAR production funding within PE 0401135F to support modernization of assets. Initiation of SDD includes all 6.4 activities leading up to contract award and subsequent test and evaluation culminating in a Milestone C production decision.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604617F Agile Combat Support</b>					<b>2895 CE Readiness</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Joint Robotics Program (JRP) support	FFP	688th ARSS, Eglin AFB FL		0.100	Jan-07	0.100	Jan-08	0.100	Jan-09	Continuing	TBD	TBD
Advanced EOD Robotics (formally Next Generation Robotics)	TBD	TBD				1.200	Mar-08	1.381	Jan-09	9.052	11.633	13.000
Rapid Parking Ramp Expansion (RPRE)	TBD	TBD	2.548	0.100	Dec-06	0.100	Jan-08	0.300	Dec-08	0.700	3.748	4.700
Multimedia Training Systems (MMTS)(Formerly MTS)	FFP	Multiple	7.575	2.839	Dec-06	1.929	Jan-08	0.870	Dec-08	Continuing	TBD	TBD
Civil Engineer Systems & Equipment Analysis (CESEA)	FFP	Multiple	4.255	2.807	Jan-07	3.124	Jan-08	0.400	Jan-09	Continuing	TBD	TBD
Improvised Ordnance Detonator - Advanced Development	TBD	TBD				1.600				0.000	1.600	1.600
Subtotal Product Development			14.378	5.846		8.053		3.051		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> None.											0.000	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Various	Various									Continuing	TBD	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			14.378	5.846		8.053		3.051		Continuing	TBD	TBD

NOTE: This is a level of effort Program Element with 20+ years of projects. Prior years breakout not available.

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

2895 CE Readiness

2895 CE Readiness

CE Readiness Schedule

0604617F Agile Combat Support

FY07	FY08	FY09
	MS B △	SDD
▲	▲	
	▲	△
		△
▲	▲	
	▲	△
		△

**(U) Schedule Profile**

**RAPID PARKING RAMP EXPANSION (RPRE)**

- Conduct activities to define new RPRE technologies leading to FY10 SDD

**ADVANCED EXPLOSIVES ORDNANCE DISPOSAL (EOD) ROBOTICS**

- Initiate SDD activities

**MULTIMEDIA TRAINING SYSTEMS (MMTS) DEVELOPMENT**

- Conduct FY07 MMTS Projects
- Conduct FY08 MMTS Projects
- Conduct FY09 MMTS Projects

**CIVIL ENGINEERING SYSTEMS AND EQUIPMENT ANALYSIS (CESEA)**

- Conduct FY07 MMTS Projects
- Conduct FY08 MMTS Projects
- Conduct FY09 MMTS Projects

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>	PROJECT NUMBER AND TITLE <b>2895 CE Readiness</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) RAPID PARKING RAMP EXPANSION (RPRE)			
(U) Support activities to define new technologies to meet ORD requirements	1Q	1Q	1Q
(U) ADVANCED EOD ROBOTICS (formerly Next Generation Robotics)			
(U) Initiate SDD activities		2Q	
(U) MULTIMEDIA TRAINING SYSTEMS (MMTS)			
(U) Begin FY07 MTS Projects	1Q		
(U) Complete FY07 MTS Projects	3Q		
(U) Begin FY08 MTS Projects		1Q	
(U) Complete FY08 MTS Projects		3Q	
(U) Begin FY09 MTS Projects			1Q
(U) Complete FY09 MTS Projects			3Q
(U) CIVIL ENGINEERING SYSTEMS & EQUIPMENT ANALYSIS (CESEA)			
(U) Begin FY07 CESEA Product Evaluations	1Q		
(U) Complete FY07 CESEA Product Evaluations	4Q		
(U) Begin FY08 CESEA Product Evaluations		1Q	
(U) Complete FY08 CESEA Product Evaluations		4Q	
(U) Begin FY09 CESEA Product Evaluations			1Q
(U) Complete FY09 CESEA Product Evaluations			4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>			PROJECT NUMBER AND TITLE <b>4910 Aeromedical Readiness</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4910 Aeromedical Readiness	3.869	4.093	2.739	2.862	2.964	3.019	3.077	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program provides tactical and strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements.

The Agile Combat Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, tactical shelters, and aeromedical evacuation systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue development of oxygen systems to meet deployable oxygen requirements	2.175	0.100	0.100
(U) Continue analysis, risk mitigation (breadboard), and begin SDD activities for Expeditionary Trauma Resuscitation	1.694	3.349	1.995
(U) Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs		0.644	0.644
(U) Total Cost	3.869	4.093	2.739

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF, Other Base Maintenance and Support, Medical/Dental Equipment (WSC 845060)	16.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.200

Under the lean initiative, procurement of Deployable Oxygen System and Expeditionary Trauma Resuscitation assets will be accomplished using O&M funds.

**(U) D. Acquisition Strategy**

All major projects are awarded under best-value competitive solicitation.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604617F Agile Combat Support</b>					<b>4910 Aeromedical Readiness</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Deployable Oxygen Generation System - Medium gas generators and storage units	CPFF	Pacific Consolidated Industries LLC, Riverside, CA & Carleton Life Support Systems INC, Davenport, IA	3.537	1.975	Feb-07					0.000	5.512	5.117
Deployable Oxygen Generation System - Small gas generators and storage units	CPFF	TBD				0.100		0.100		0.000	0.200	1.402
Deployable Oxygen Generation System - Large gas generators and storage units	TBD	TBD								0.000	0.000	2.170
Expeditionary Trauma Resuscitation	CPFF	Applied Research Associates, Inc, Albuquerque, NM		1.056	May-07	3.349	Apr-08	1.995	Jan-09	Continuing	TBD	3.879
Aeromedical Systems Analysis to include Analysis of Solutions for planned aeromedical and Surgeon General initiatives	N/A	N/A	0.448			0.149		0.149		Continuing	TBD	TBD
Subtotal Product Development			3.985	3.031		3.598		2.244		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Technical Engineering And Management Support (TEAMS)	Delivery Order	Core6, San Antonio, TX	0.650	0.412	Feb-07	0.425	Feb-08	0.425	Feb-09	Continuing	TBD	TBD
Program Management Support & Operations	Various	77 AESG, Brooks City-Base, TX	0.563	0.273	Nov-06	0.070	Nov-07	0.070	Nov-08	Continuing	TBD	TBD
None.											0.000	
Subtotal Support			1.213	0.685		0.495		0.495		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
DOS Test and Evaluation	MIPRs	AFMESA, Fort Detrick, MD	0.037	0.153						0.000	0.190	0.000
None.											0.000	
Subtotal Test & Evaluation			0.037	0.153		0.000		0.000		0.000	0.190	0.000
Remarks:												

R-1 Line Item No. 74

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Project 4910

Exhibit R-3 (PE 0604617F)

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
<b>05 System Development and Demonstration (SDD)</b>	<b>0604617F Agile Combat Support</b>	<b>4910 Aeromedical Readiness</b>
(U) <u>Management</u>		
Subtotal Management	0.000	0.000
Remarks:	0.000	0.000
(U) Total Cost	5.235	3.869
	4.093	2.739
		Continuing
		TBD
		TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604617F Agile Combat Support

PROJECT NUMBER AND TITLE

4910 Aeromedical Readiness

4910 Aeromedical Readiness

Aeromedical Readiness Schedule

0604617F Agile Combat Support

FY07

FY08

FY09

(U) Schedule Profile

**DEPLOYABLE OXYGEN SYSTEM (DOS)**

- Deployable Oxygen Generation System – Small (DOGS-S)
- Deployable Oxygen Generation System – Medium (DOGS-M)

**EXPEDITIONARY TRAUMA RESUSCITATION**

- Field Intravenous Reconstitution

Activities leading to 1<sup>st</sup> Qtr FY10 MS B →

SDD

MS C ▲

▲

MS B ▲

SDD

Risk Mitigation Start  
(Breadboard Development)

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604617F Agile Combat Support</b>	PROJECT NUMBER AND TITLE <b>4910 Aeromedical Readiness</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) DEPLOYABLE OXYGEN SYSTEMS			
(U) -Conduct Milestone C for medium oxygen generator and storage unit		2Q	
(U) EXPEDITIONARY TRAUMA RESUSCITATION			
(U) -Conduct Milestone B decision for Field Intravenous Resuscitation (FIVR II)		2Q	

**UNCLASSIFIED**

PE NUMBER: 0604618F  
 PE TITLE: Joint Direct Attack Munition

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604618F Joint Direct Attack Munition</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.959	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864
3890 Joint Direct Attack Munitions	20.959	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864

**(U) A. Mission Description and Budget Item Justification**

The Joint Direct Attack Munition (JDAM) program is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109/B, MK-82 and MK-83) by integrating the bombs with a guidance kit consisting of a global positioning system aided inertial navigation system (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-16C/D, F-14B/D, F/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the F-117A, A/OA-10, MQ-9 and F-35 are in progress.

JDAM follows an Evolutionary Acquisition/Spiral Development approach, implementing operational enhancements such as new warhead integrations and improved accuracy and/or targeting technologies to meet emerging warfighter requirements. The Affordable Moving Surface Target Engagement (AMSTE) adds a datalink capability to JDAM to place moving maritime interdiction targets at risk in adverse weather using Joint Surveillance Target Attack Radar System (Joint STARS) tracking information to provide in-flight target updates for the weapon. The AMSTE effort began in FY07.

The AMSTE effort was terminated in Sep 07 to pursue joint network enabled weapons. The remaining AMSTE funds will be reprogrammed to other efforts.

The Laser Joint Direct Attack Munition (LJDAM) is a joint Air Force/Navy program that modifies the JDAM GBU 500lb weapons with a laser seeker and necessary hardware. This modification will provide the capability to pursue moving targets from USAF and USN fighters and/or bombers.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	15.392		
(U) Current PBR/President's Budget	20.959		
(U) Total Adjustments	5.567		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	6.000		
SBIR/STTR Transfer	-0.433		
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack Munition

FY07: \$6M reprogrammed to fund the test efforts of Laser JDAM.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604618F Joint Direct Attack Munition</b>		PROJECT NUMBER AND TITLE <b>3890 Joint Direct Attack Munitions</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
3890 Joint Direct Attack Munitions	20.959	0.000	0.000	0.000	0.000	0.000	0.000	0.000	425.864	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Joint Direct Attack Munition (JDAM) program is a joint Air Force/Navy program with the Air Force as the lead service. Designated ACAT 1C, this program upgrades the existing inventory of general purpose bombs (MK-84, BLU-109/B, MK-82 and MK-83) by integrating the bombs with a guidance kit consisting of a global positioning system aided inertial navigation system (GPS/INS). JDAM provides an accurate, adverse weather capability. JDAM is integrated with the B-52H, B-2A, B-1B, F-16C/D, F-14B/D, F/A-18A+/C/D/E/F, F-15E, AV-8B and F-22A aircraft. Follow-on integrations with the F-117A, A/OA-10, MQ-9 and F-35 are in progress.

JDAM follows an Evolutionary Acquisition/Spiral Development approach, implementing operational enhancements such as new warhead integrations and improved accuracy and/or targeting technologies to meet emerging warfighter requirements. The Affordable Moving Surface Target Engagement (AMSTE) adds a datalink capability to JDAM to place moving maritime interdiction targets at risk in adverse weather using Joint Surveillance Target Attack Radar System (Joint STARS) tracking information to provide in-flight target updates for the weapon. The AMSTE effort began in FY07.

The AMSTE effort was terminated in Sep 07 to pursue joint network enabled weapons. The remaining AMSTE funds will be reprogrammed to other efforts.

The Laser Joint Direct Attack Munition (LJDAM) is a joint Air Force/Navy program that modifies the JDAM GBU 500lb weapons with a laser seeker and necessary hardware. This modification will provide the capability to pursue moving targets from USAF and USN fighters and/or bombers.

This program is funded in Budget Activity 5, SDD, due to its focus on devising an affordable design and manufacturing process.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Perform development and testing of the JDAM Affordable Moving Surface Target Engagement (AMSTE) capability utilizing datalink infrastructure to meet emerging warfighter requirements.	14.809		
(U) Perform LJDAM test efforts.	6.000		
(U) Investigation to include, but not limited to, analysis and testing of future JDAM operational enhancements including those to enhance accuracy, increase flexibility and increase versatility.	0.150		
(U) Total Cost	20.959	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) (U) Procurement of Ammunition, Air Force, JDAM,	194.003	112.021	105.719	106.088	109.272	106.859	108.698	0.000	3,318.191

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

(U) **C. Other Program Funding Summary (\$ in Millions)**

Appn. 3011, PE 0207583F

(U) (U) Procurement of

Ammunition, Air Force, Seek  
Eagle, Appn. 3011, PE  
0207590F 0.107

0.975

(U) (U) Warfighter Rapid

Acquisition Program (WRAP),  
Appn 3600, PE 0203761F 6.000

6.000

(U) **D. Acquisition Strategy**

The contract for the AMSTE effort is planned as a Cost Plus Fixed Fee (CPFF) contract.

The Laser JDAM contract was sole sourced to Boeing due to the unusual and compelling urgency for Laser JDAM. It is a Firm Fixed Price contract.



Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604618F Joint Direct Attack Munition</b>					<b>3890 Joint Direct Attack Munitions</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Prime Contractors Boeing and Lockheed Martin FY94/95 Only (Baseline JDAM, Mk-82, SAASM/Anti-Jam, Alternate Fuze)	C/CPAF/C PFF	Boeing (St Louis MO) and Lockheed Martin FY94/95 Only									0.000	
Prime Contractor (Boeing) -- AMSTE Development	CPFF	Boeing St Louis		10.456							10.456	
Joint Programmable Fuze/Misc	FPIF	Dayron/Kaman (Orlando, FL)									0.000	
Conceptual Studies	Various			0.150							0.150	
Subtotal Product Development			0.000	10.606		0.000		0.000		0.000	10.606	0.000
Remarks:	FY07 Funding begins AMSTE Development											
(U) <u>Support</u>												
Engineering Support	CPAF	Eglin AFB, FL									0.000	
TAMS Contractor Program Office	CPAF Various	Eglin AFB, FL Eglin AFB, FL		2.295							0.000	
Subtotal Support			0.000	2.295		0.000		0.000		0.000	2.295	0.000
Remarks:	TAMS contractor provides management and financial support to the System Program Office (SPO).											
(U) <u>Test &amp; Evaluation</u>												
Aircraft SPO Support	Various	Eglin AFB, FL		0.274							0.274	
Flight Testing - AMSTE	Various	Eglin AFB, FL/Edwards AFB and China Lake, CA/Hill AFB, UT		3.984						0.000	3.984	
Flight Testing - Laser JDAM	Various	Eglin AFB, FL/Edwards AFB and China Lake, CA/Nellis AFB, NV		3.800						0.000	3.800	
Ground Testing	Various	Eglin AFB, FL/China Lake, CA									0.000	
JPF Wind Tunnel Testing	TBD	Arnold Engineering Development Center, TN									0.000	

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Project 3890

Exhibit R-3 (PE 0604618F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE	
<b>05 System Development and Demonstration (SDD)</b>				<b>0604618F Joint Direct Attack Munition</b>				<b>3890 Joint Direct Attack Munitions</b>	
Government Furnished Equipment (GFE)	Various	N/A						0.000	
Subtotal Test & Evaluation			0.000	8.058	0.000	0.000	0.000	8.058	0.000
Remarks:									
(U) Total Cost			0.000	20.959	0.000	0.000	0.000	20.959	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604618F Joint Direct Attack Munition

PROJECT NUMBER AND TITLE  
3890 Joint Direct Attack Munitions

8 Jan 08

# LJDAM Joint Program Schedule

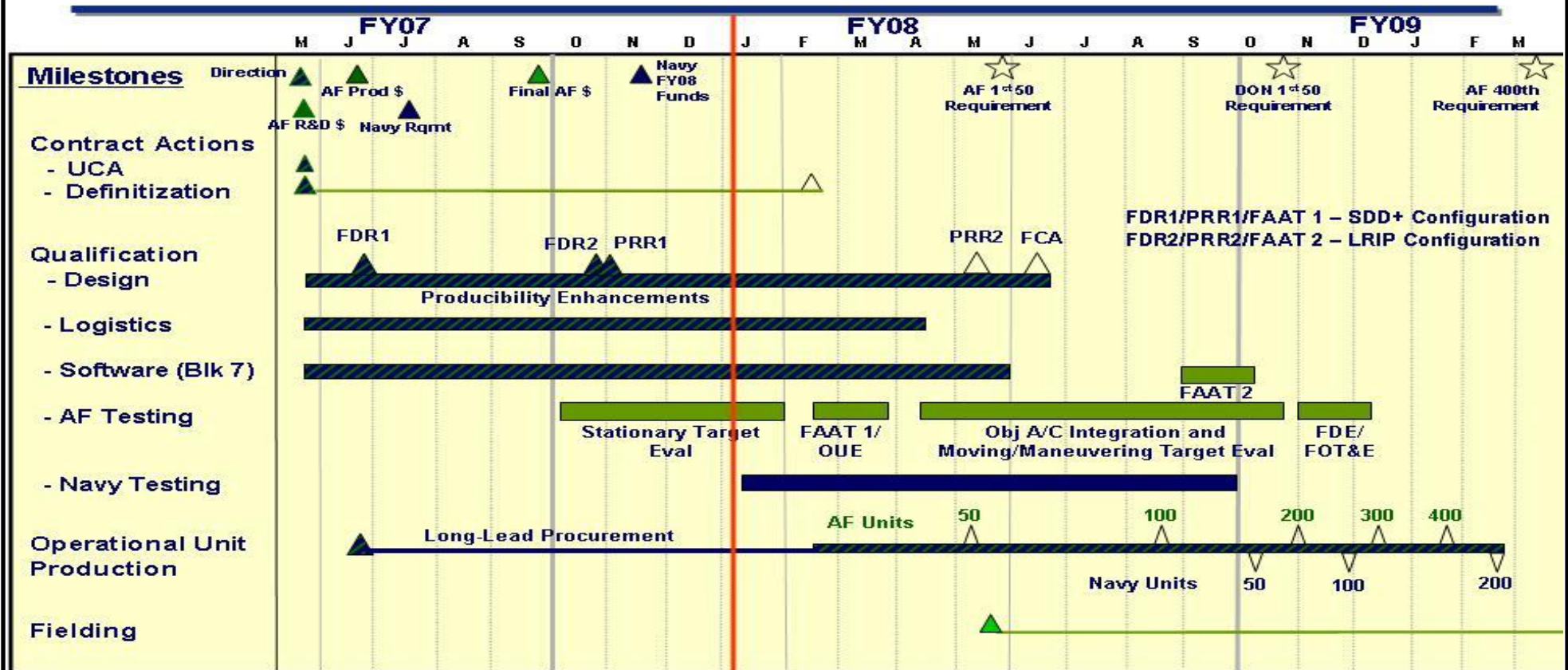


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604618F Joint Direct Attack Munition

PROJECT NUMBER AND TITLE

3890 Joint Direct Attack Munitions

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) AMSTE Development Efforts

2Q

(U) Qual/DT/OT

4Q

(U) Laser JDAM Test Efforts

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0604706F  
 PE TITLE: Life Support Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604706F Life Support Systems</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.273	13.563	10.998	14.666	17.685	15.497	15.809	Continuing	TBD
412A Life Support Systems	11.273	13.563	10.998	14.666	17.685	15.497	15.809	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program element provides for the development of life support equipment and subsystems for aircrews and airmen to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew/airmen life support systems consist of human-centered programs that enable weapons systems to use more of their full mission envelopes, maximize combat capabilities, and protect airmen. This program element allows for recapitalization of aircrew/airmen life support equipment by providing for the continuing development and integration of aircrew/airmen protection systems and subsystems for airmen operations, escape and descent, and survival and recovery such as, but not limited to, the following: directed energy protective equipment, flight helmets and visors, oxygen breathing equipment for aviators, survival radios and beacon radios support equipment, nuclear flash blindness protection, night vision devices, noise reduction devices, anti-g suites, flame resistant/retardant gear, aircraft seating, impact protection, and parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, evaluate and demonstrate the feasibility of new technologies, provide for the transition of new technologies to development programs/projects, conduct business case analyses, assess suitability of commercially available items, and support all current aircrew/airmen life support programs.

The Life Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for aircrew/airmen protection systems and subsystems for operations, escape and descent, and survival and recovery.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	14.216	12.649	13.628
(U) Current PBR/President's Budget	11.273	13.563	10.998
(U) Total Adjustments	-2.943		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.087	
Congressional Increases		1.000	
Reprogrammings	-2.623	0.001	
SBIR/STTR Transfer	-0.320		

**(U) Significant Program Changes:**

- FY 2007: \$2.5M Reprogrammed To Support Higher AF Priorities
- FY 2008: \$1.0M ACES II Ejection Seat Improvement (Congressional Add)
- FY 2009: \$2.5M Reprogrammed To Support Higher AF Priorities

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604706F Life Support Systems			PROJECT NUMBER AND TITLE 412A Life Support Systems		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
412A Life Support Systems	11.273	13.563	10.998	14.666	17.685	15.497	15.809	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program element provides for the development of life support equipment and subsystems for aircrews and airmen to satisfy operational command requirements for improved/enhanced airmen performance capabilities. Aircrew/airmen life support systems consist of human-centered programs that enable weapons systems to use more of their full mission envelopes, maximize combat capabilities, and protect airmen. This program element allows for recapitalization of aircrew/airmen life support equipment by providing for the continuing development and integration of aircrew/airmen protection systems and subsystems for airmen operations, escape and descent, and survival and recovery such as, but not limited to, the following: directed energy protective equipment, flight helmets and visors, oxygen breathing equipment for aviators, survival radios and beacon radios support equipment, nuclear flash blindness protection, night vision devices, noise reduction devices, anti-g suites, flame resistant/retardant gear, aircraft seating, impact protection, and parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, evaluate and demonstrate the feasibility of new technologies, provide for the transition of new technologies to development programs/projects, conduct business case analyses, assess suitability of commercially available items, and support all current aircrew/airmen life support programs.

The Life Support program is in RDT&E Budget Activity 5 - System Development and Demonstration (SDD) because it supports development, testing and evaluation of materials and equipment for aircrew/airmen protection systems and subsystems for operations, escape and descent, and survival and recovery.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) ACES II Ejection Seat Improvements (Congressional Add)	1.850	0.913	
(U) ACES II Ejection Seat Improvements	0.391	0.353	
(U) Aircrew Helmet Noise Reduction (AHNR) SDD	2.925	0.302	
(U) Aircrew Laser Eye Protection (ALEP) Block II SDD	2.287	4.808	2.471
(U) Helicopter Aircrew Restraint	0.980	0.305	
(U) Improved Rescue Beacon	1.078	0.070	
(U) Integrated Aircrew Ensemble (IAE) SDD	0.091	3.032	2.810
(U) Modular Aircrew Common Helmet (MACH)	0.015	1.895	3.687
(U) Quick-Don Oxygen Mask SDD	0.027	0.025	
(U) Program Management Support/Travel/Technical Engineering & Acquisition Support	1.629	1.860	2.030
(U) Total Cost	11.273	13.563	10.998

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF Night Vision Goggles WSC 842140. FY07 GWOT Supplemental (\$9.3M); FY08 Congressional Add: Quad-Eye NVG for ANG (\$1.6M); FY08 GWOT Supplemental (\$2.5M)	28.545	25.195	18.751	28.636	24.044	24.516	25.000		174.687
(U) Other Procurement, AF Items Less than \$5M (Safety and Rescue) WSC 842990.	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Other Procurement, AF Items Less than \$5M (Base Support Equip) WSC 845990: ACES II & ALEP. FY07 Congressional Adds: Aircrew Mission Extender Device (\$1.3M), Self-Deploying Infrared Streamer (\$4.0M), Radio Test Sets (\$4.0M), & Virtual Reality Parachute Simulator (\$1.0M); FY08 Congressional Adds: Joint Combined Aircrew System Tester for ANG (\$2.0M, Radio Test Sets for ANG (\$1.2M), & Rescue Streamer Distress Signal Kit for ANG (\$1.5M)	11.215	14.419	5.914	2.352	0.664	0.667	0.691		35.922
(U) <b>D. Acquisition Strategy</b> Acquisition Strategy Is Carried Out At The Project Level.									

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604706F Life Support Systems</b>					<b>412A Life Support Systems</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
ACES II Ejection Seat Improvements (Congressional Add)	CPFF	Universal Propulsion Co., AZ	9.266	1.850	Dec-07	0.913					12.029	40.000	
ACES II Ejection Seat Improvements	TBD	TBD	0.000	0.391		0.353					0.744		
Aircrew Helmet Noise Reduction (AHNR) SDD	FFP	Sound Innovations, Inc., NH/Interactive Safety Products, Inc, NC	0.000	2.925	Mar-07	0.302				0.000	3.227	2.537	
Aircrew Laser Eye Protection (ALEP) Block II SDD	FFP	Teledyne Imaging, CA	7.876	2.287	Dec-06	4.808		2.471		0.000	17.442	11.500	
Helicopter Aircrew Restraint	MIPR	US Navy	0.000	0.980		0.305				0.000	1.285	1.285	
Improved Rescue Beacon	FFP	Digital Angel , NY/Signal Engineering, CA	1.137	1.078		0.070				0.576	2.861	1.518	
Integrated Aircrew Ensemble (IAE) SDD	TBD	TBD	0.000	0.091		3.032		2.810		21.434	27.367		
Modular Aircrew Common Helmet (MACH)	TBD	TBD	1.738	0.015		1.895		3.687		1.650	8.985		
Quick-Don Oxygen Mask SDD			3.272	0.027		0.025				0.000	3.324	2.735	
Subtotal Product Development			23.289	9.644		11.703		8.968		23.660	77.264	59.575	
Remarks:													
(U) <u>Support</u>													
Program Management Support	77 AESG, Brooks City-Base, TX			0.053		0.018		0.290		Continuing	TBD		
Travel				0.180		0.075		0.075		Continuing	TBD		
Technical Engineering & Acquisition Support	A&AS	Terra Health, Brooks City Base, TX		1.396		1.767		1.665		Continuing	TBD		
Subtotal Support			0.000	1.629		1.860		2.030		Continuing	TBD	0.000	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													

R-1 Line Item No. 76

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Project 412A

Exhibit R-3 (PE 0604706F)



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>		<b>0604706F Life Support Systems</b>			<b>412A Life Support Systems</b>		
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	23.289	11.273	13.563	10.998	Continuing	TBD	59.575

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

Life Support Systems Schedule

0604706F Life Support Systems

412A Life Support Systems

**(U) Schedule Profile**

**ACES II EJECTION SEAT IMPROVEMENTS (Congressional Add)**

- Phase II Modular Seat Development
- Phase III Modular Seat Development

**AIRCREW HELMET NOISE REDUCTION (AHNR)**

- AHNR SDD

**AIRCREW LASER EYE PROTECTION (ALEP)**

- Block II CDR
- Block II LRIP
- Block I (JCAS) LRIP

**HELICOPTER AIRCREW RESTRAINT**

**IMPROVED RESCUE BEACON**

- SDD Contract Award Phase II

**INTEGRATED AIRCREW ENSEMBLE (IAE)**

- SDD

**JSAAGS-LOWER ANTI-G GARMENT (Congressional Add)**

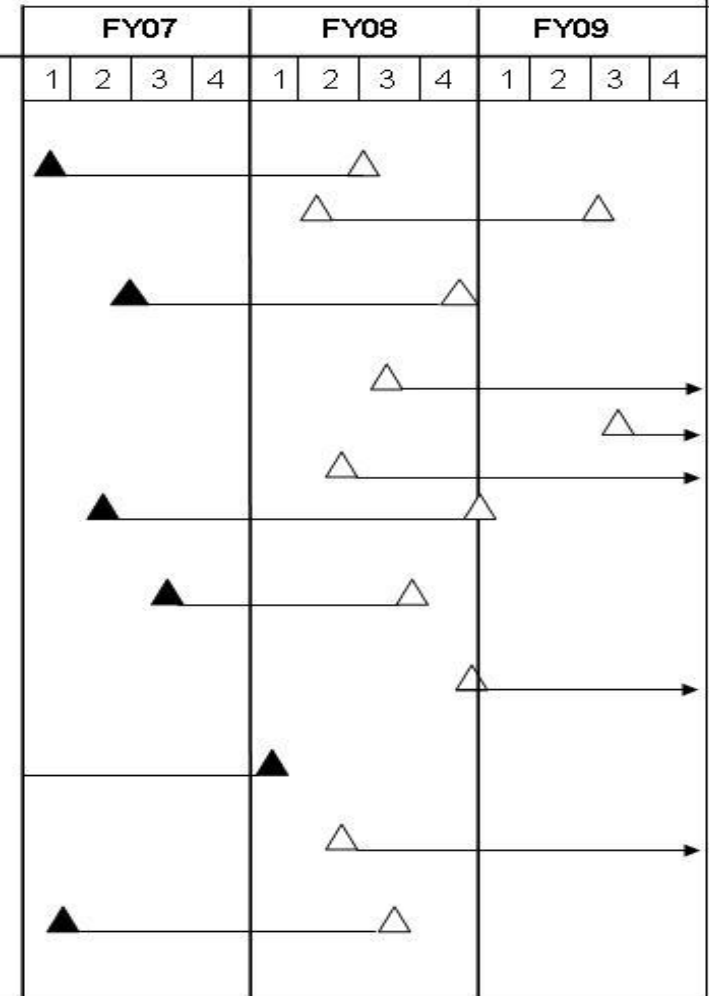
- Performance Testing

**MODULAR AIRCREW COMMON HELMET (MACH)**

- SDD

**QUICK DON OXYGEN MASK**

- SDD



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604706F Life Support Systems</b>	PROJECT NUMBER AND TITLE <b>412A Life Support Systems</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) ACES II Ejection Seat Improvements (Phase II Mod Seat Dev)	1Q		
(U) ACES II Ejection Seat Improvements (Phase III Mod Seat Dev)		2Q	
(U) AHNHR SDD	2Q		
(U) ALEP Block II CDR		3Q	
(U) ALEP Block II LRIP			3Q
(U) ALEP Block I (JCAS) LRIP		2Q	
(U) Helicopter Aircrew Restraint	2Q		
(U) Improved Rescue Beacon SDD Contract Award Phase II	3Q		
(U) Integrated Aircrew Ensemble (IAE) SDD Contract Award		4Q	
(U) JSAAGS Lower Anti-G Garment Performance Testing Complete (Congressional Add)		1Q	
(U) MACH SDD Contract Award		2Q	
(U) Quick-Don Oxygen Mask SDD	1Q		
NOTE: JSAAGS Congressional Adds Received In FY05 And FY06.			

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PE NUMBER: 0604735F

PE TITLE: Combat Training Ranges

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604735F Combat Training Ranges</b>
--	--

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD
2286 Combat Training Range Equipment	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD

FY2008 funding totals do not include \$10.000M FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5 Combat Training System (P5CTS) is a collaborative development between USAF and USN to provide air combat training systems for both services. The P5CTS will take an incremental acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Increments include a new Real-Time Operating System and Advanced Data-Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other P5CTS efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards and data link encryption. GREEN FLAG provides close air support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises. FY09 PB has added additional funding to the PE allowing synchronization of encrypted datalink component development with integration efforts.

This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) and other Threat Emitter Systems to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals. FY09 PB has added additional funding to the PE allowing double digit threat upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604735F Combat Training Ranges**

of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	16.700	17.657	17.583
(U) Current PBR/President's Budget	16.325	17.546	28.047
(U) Total Adjustments	-0.375	-0.111	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.112	
Congressional Increases			
Reprogrammings		0.001	
SBIR/STTR Transfer	-0.375		
(U) <u>Significant Program Changes:</u>			
FY09 - \$10.795M - Restore CAF Readiness			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604735F Combat Training Ranges</b>			PROJECT NUMBER AND TITLE <b>2286 Combat Training Range Equipment</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2286 Combat Training Range Equipment	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5 Combat Training System (P5CTS) is a collaborative development between USAF and USN to provide air combat training systems for both services. The P5CTS will take an incremental acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Increments include a new Real-Time Operating System and Advanced Data-Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other P5CTS efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards and data link encryption. GREEN FLAG provides close air support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises. FY09 PB has added additional funding to the PE allowing synchronization of encrypted datalink component development with integration efforts.

This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) and other Threat Emitter Systems to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals. FY09 PB has added additional funding to the PE allowing double digit threat upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604735F Combat Training Ranges</b>	PROJECT NUMBER AND TITLE <b>2286 Combat Training Range Equipment</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development, integration and testing of: P5 Combat Training Systems (P5CTS) including software/hardware upgrades, and Joint Tactical Radio System (JTRS) compliant data link; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, weapons simulations, and security improvements; Combat Training Range (CTR) programs basic operating support, system acquisition and engineering support; integration of GREEN FLAG capabilities (previously known as Air Warrior); and advanced range instrumentation standards and capabilities. FY09 APOM \$5.652M addition allows synchronization of encrypted datalink component development with integration efforts.	13.513	12.085	17.426
(U) Continue ACTS funding support for Range Threat Systems which includes the development, integration and testing of the Joint Threat Emitter (JTE) System, the Threat Reaction Analysis Indicator System (TRAINS), and program operating, acquisition, and engineering support.	2.812	5.461	10.621
(U) Total Cost	16.325	17.546	28.047

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Combat Training Ranges, 3080 BP83	36.639	77.726	22.364	20.518	20.805	21.212	21.629	Continuing	TBD
(U) Initial Spares, 3080 BP86	0.928	0.867	0.890	0.911	0.925	0.943	0.962	Continuing	TBD
(U) Total OPAF, PEC 0207429F	37.567	78.593	23.254	21.429	21.730	22.155	22.591	Continuing	TBD
(U) Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19	7.570	15.424	15.626	15.893	15.996	16.333	16.655	Continuing	TBD
(U) Initial Spares, 3010 BP16	1.168	1.472	1.280	1.663	1.684	1.717	1.752	Continuing	TBD
(U) Total APAF, PEC 0207429F	8.738	16.896	16.906	17.556	17.680	18.050	18.407	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604735F Combat Training Ranges</b>				<b>2286 Combat Training Range Equipment</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Sverdrup (P5CTS)	CPAF			1.361	Nov-06	1.600	Nov-07	1.817	Nov-09	Continuing	TBD	
Colsa/BTAS Corp (P5CTS)	CPAF			0.506	Oct-06	0.900	Nov-07	1.028	Nov-09	Continuing	TBD	
Cubic Defense Applications (P5CTS)	CPIF/FFP			3.463	Feb-07	3.878	Feb-08	7.612	Feb-09	Continuing	TBD	
Standard Research International (P5CTS)	FFP			0.100	Aug-07	0.160	Feb-08	0.170	Apr-09	Continuing	TBD	
Modern Technologies Corp (JTE )	CPAF			2.079	Apr-07	4.643	Mar-08	9.854	Mar-09	Continuing	TBD	
E W Systems (TRAINS)	FFP			0.352	Jun-07	0.360	Mar-08	0.362	Mar-09	Continuing	TBD	
Rockwell-Collins (P5CTS)	FFP			2.000	Feb-07	1.300	Feb-08	1.500	Feb-09	Continuing	TBD	
Army JTRS-HMS (P5CTS)	FFP			0.700	Feb-07	1.500	Feb-08	1.500	Feb-09	Continuing	TBD	
Navy (P5CTS)	FFP			0.000						Continuing	TBD	
National Security Agency (NSA)	FFP			0.245	Feb-07	0.250	Feb-08	0.250	Feb-09	Continuing	TBD	
Quint Networking Tech	FFP			0.100	Mar-07						0.100	
GREEN FLAG (Formerly Air Warrior)	T&M			2.337	Apr-07						2.337	
Boeing - F15 SPO OFP (P5CTS)	FFP			0.407	Apr-07	0.450	Apr-08	0.270	Apr-09	Continuing	TBD	
Lockheed - F16 SPO OFP (P5CTS)	FFP			0.100	Apr-07	0.120	Apr-08	0.360	Apr-09	Continuing	TBD	
Subtotal Product Development			0.000	13.750		15.161		24.723		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SAF/AQX	Various			0.800		0.800		0.800		Continuing	TBD	
OO/ALC/LH, Hill AFB, UT	Various			0.381		0.458		0.405		Continuing	TBD	
AAC/689 ARSS, Eglin AFB, FL	Various			1.294		1.027		1.119		Continuing	TBD	
Subtotal Support			0.000	2.475		2.285		2.324		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 Test Wing, Eglin AFB FL	Various			0.100		0.100		1.000		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.100		0.100		1.000		Continuing	TBD	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	16.325		17.546		28.047		Continuing	TBD	0.000

R-1 Line Item No. 77

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Project 2286

Exhibit R-3 (PE 0604735F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE  
2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule

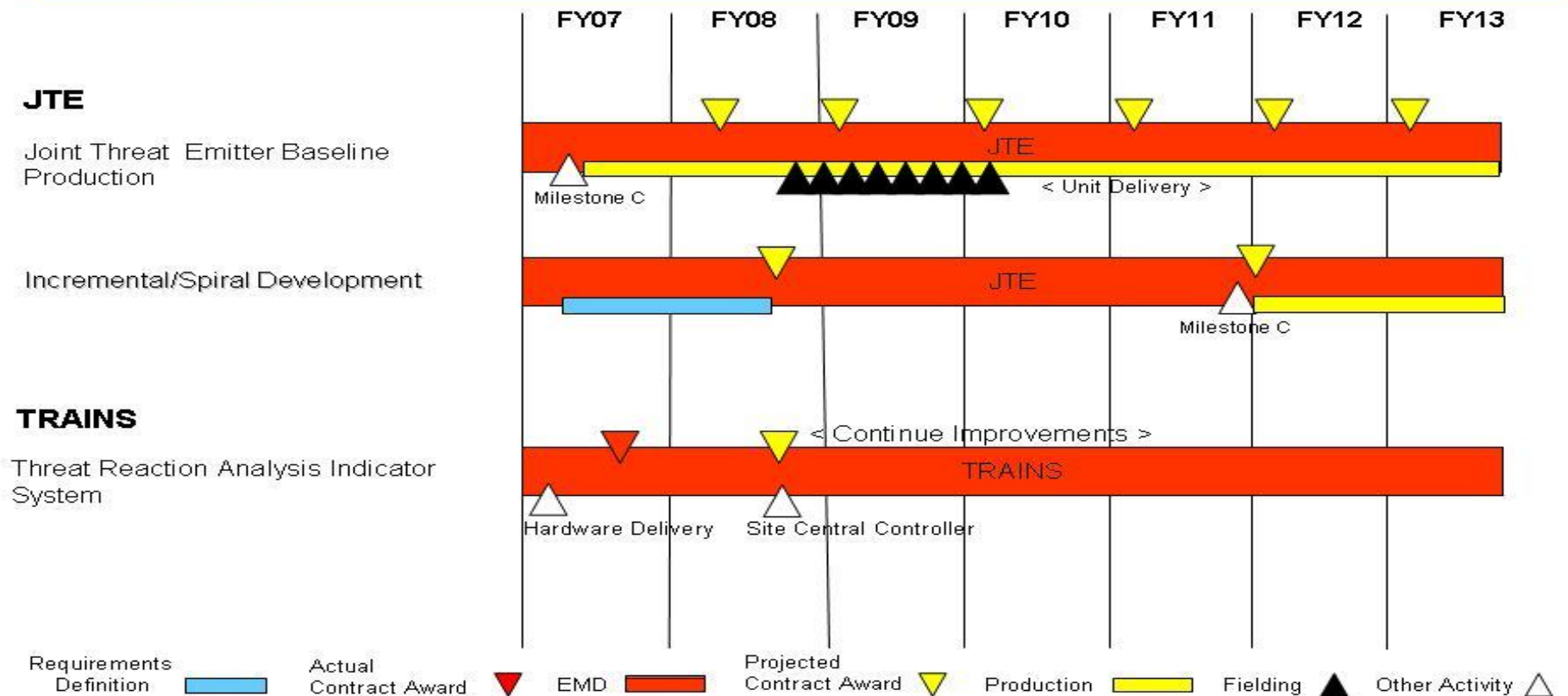


Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

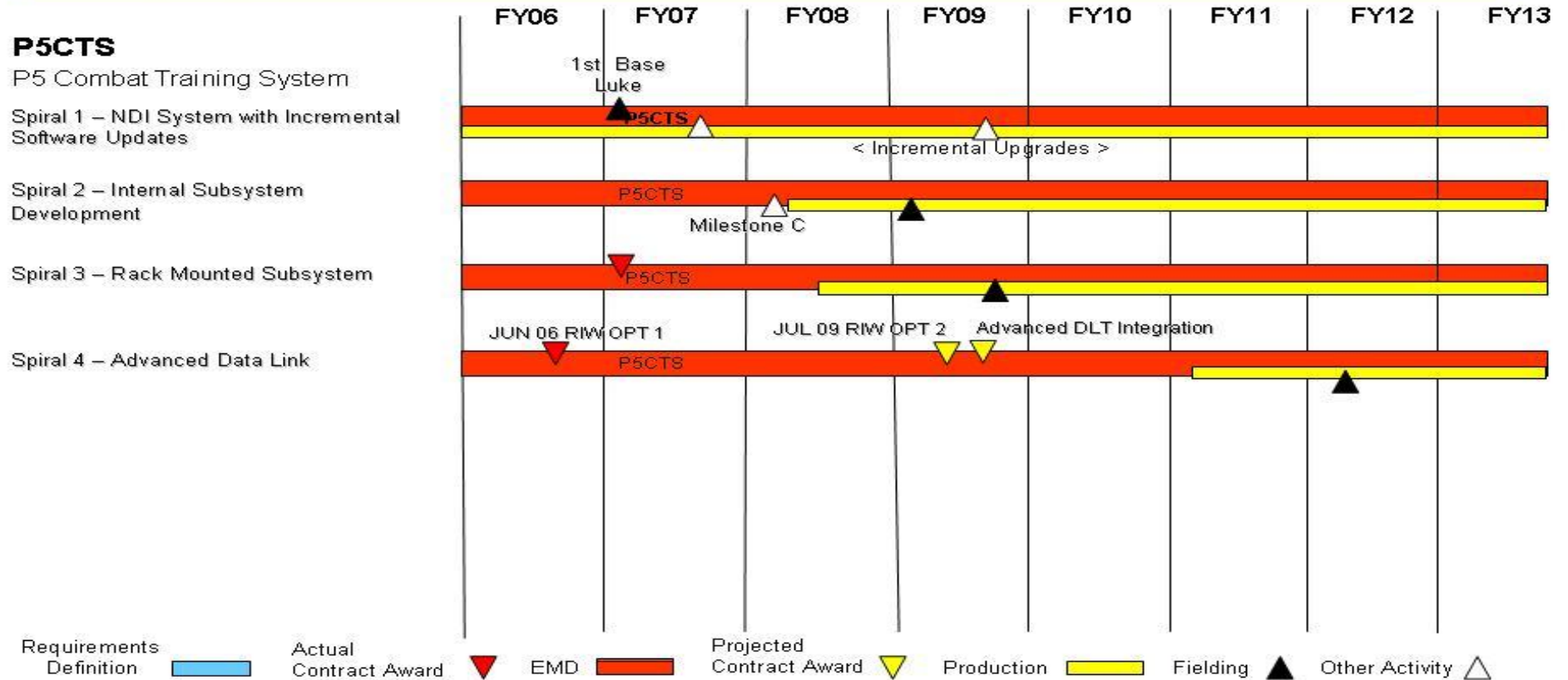
PE NUMBER AND TITLE  
0604735F Combat Training Ranges

PROJECT NUMBER AND TITLE  
2286 Combat Training Range Equipment



U.S. AIR FORCE

# CTR Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604735F Combat Training Ranges</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2286 Combat Training Range Equipment</b>
--	--	--

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) P5CTS Development			
(U) - Spiral I (Non-Developmental Item System w/Software Incremental Updates)	1-4Q	1-4Q	1-4Q
(U) - Spiral II (Internal Subsystem Development)	1-4Q	1-4Q	1-4Q
(U) - Spiral III (Rack Mounted Subsystem)	1-4Q	1-4Q	1-4Q
(U) - Spiral IV (Advanced Data Link)	1-4Q	1-4Q	1-4Q
(U) JTE Development			
(U) -- Spiral Development and Continue Improvements	3-4Q	1-4Q	1-4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)			
(U) -- Contract Award	3Q	3Q	
(U) Software Delivery			
(U) -- Continue Improvements	1-4Q	1-4Q	1-4Q

**UNCLASSIFIED**

PE NUMBER: 0604740F

PE TITLE: Integrated Command & Control Applications

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604740F Integrated Command &amp; Control Applications</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.507	26.593	0.177	0.182	0.205	0.209	0.213	Continuing	TBD
2523 Product Lines	0.150	0.160	0.177	0.182	0.205	0.209	0.213	Continuing	TBD
2524 Reuse and Component Support	26.357	26.433	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The goal of the Integrated Command & Control Applications (IC2A) program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented Command & Control (C2) capability by defining a reference architecture to enhance common application use and reuse.

Project 2523, Product Lines, minimizes development cost and time by defining a C2 architecture approach consistent with net-centric principles and guidance to ensure compliance and interoperability using standards based service oriented architecture components. The use of web services as a common product line on a C2 reference architecture improves software quality, interoperability and reliability while reducing fielding times and overall life cycle costs.

Project 2524, Reuse and Component Support (RCS), identifies, develops, tests and provides re-useable software components and products to the IC2A program and to other programmed Systems of Record. The RCS project is developing re-useable software components based current on Service Oriented Architectures and web services that will allow the AF to achieve a net-centric operations and warfare capability.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	23.664	0.189	0.179
(U) Current PBR/President's Budget	26.507	26.593	0.177
(U) Total Adjustments	2.843	26.404	
(U) Congressional Program Reductions		-0.028	
Congressional Rescissions		-0.168	
Congressional Increases		26.600	
Reprogrammings	3.500		
SBIR/STTR Transfer	-0.657		

**(U) Significant Program Changes:**

FY07: An increase between the previous and current President's Budget is due to the reprogramming of funds for C-NAF Commander's Dashboard to ensure effective execution.

FY08: Changes in President's Budget due to Congressional increases and technical adjustments from program elements 0207601F and 0303150F.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>					PE NUMBER AND TITLE <b>0604740F Integrated Command &amp; Control Applications</b>		PROJECT NUMBER AND TITLE <b>2523 Product Lines</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2523 Product Lines	0.150	0.160	0.177	0.182	0.205	0.209	0.213	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability. Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on net-centric principles, service oriented architecture and Core Enterprise Services to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Qualify components for product lines/program management support	0.150	0.160	0.177
(U) Total Cost	0.150	0.160	0.177

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

**(U) D. Acquisition Strategy**

All major contracts were awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604740F Integrated Command &amp; Control Applications</b>					<b>2523 Product Lines</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Support	ITSP	ESC Hanscom AFB, MA		0.150	Oct-06	0.160	Oct-07	0.177	Oct-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.150		0.160		0.177		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.150		0.160		0.177		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

**IC2A Schedule – Product Lines**

As of: 9 Jan 08

	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
<b>PROGRAM MANAGEMENT SUPPORT</b>								



Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command &  
Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Qualify components for product lines/program management support

1-4Q

1-4Q

1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>							PE NUMBER AND TITLE <b>0604740F Integrated Command &amp; Control Applications</b>		PROJECT NUMBER AND TITLE <b>2524 Reuse and Component Support</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2524 Reuse and Component Support	26.357	26.433	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**  
 Reuse and Component Support (RCS) identifies, develops, tests and provides reuseable software components and products to the IC2A program and to other programmed Systems of Record. The RCS project is developing reuseable software components based on Service Oriented Architectures and Web Services that will allow the AF to achieve a netcentric operations and warfare capability.

The President's budget for FY08 has no requirements for this project.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D)

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Distributed Mission Interoperability Toolkit (DMIT)	2.228	3.944	0.000
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	1.453	2.958	0.000
(U) Data Fusion and Integration of the Net-centric Force Protection Enterprise Services (DFFP)	1.356	0.000	0.000
(U) Airborne Web Services (AWS) Spiral 3	1.356	0.792	0.000
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	0.970	2.366	0.000
(U) Asset/eWing	3.873	3.944	0.000
(U) Command and Control Service Level Management (C2SLM)	6.293	8.000	0.000
(U) Defense Energy Awareness and Management Center (DEAMC)	1.550	0.000	0.000
(U) Program Engineering Interoperability Framework (PEIF)	1.550	1.578	0.000
(U) Medical Data Storage and Retrieval System (MEDSTARS)	2.228	1.651	0.000
(U) C-NAF Commander's Dashboard	3.500		
(U) Research Visualization Facility (RVF)		1.200	
(U) Total Cost	26.357	26.433	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

(U) **D. Acquisition Strategy**  
 All major contracts for Reuse and Component Support development will be awarded after full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604740F Integrated Command &amp; Control Applications</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2524 Reuse and Component Support</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Distributed Mission Interoperability Toolkit (DMIT)	C/FFP	Gestalt, Pennsylvania		2.228	Feb-07	3.550	Mar-08			Continuing	TBD	TBD
Enterprise Services for Reach Back Capabilities (ESRBC)	C/FFP	Gestalt, Pennsylvania		1.453	Feb-07	2.662	Mar-08			Continuing	TBD	TBD
Integration of Force Protection Enterprise Services (DFFP)	C/FFP	Fenwick Tech Inc. West Virginia		1.208	Mar-07					Continuing	TBD	TBD
JSTARS/Airborne Web Services (AWS) Spiral 3	C/FFP	SAIC West Virginia		1.208	Feb-07	0.786	Feb-08			Continuing	TBD	TBD
Global Awareness Presentation System for USSTRATCOM	C/FFP	ProLogic, West Virginia		0.852	Mar-07	2.177	Feb-08			Continuing	TBD	TBD
Asset/eWing	C/FFP	Fenwick, West Virginia		3.446	Aug-07	3.550	Mar-08			Continuing	TBD	TBD
Command and Control Service Level Management (C2SLM)	C/FFP	Gestalt, PA/NAVAIR, FL		5.287	Mar-07	7.200	Mar-08			Continuing	TBD	TBD
Defense Energy Awareness and Management Center (DEAMC)	C/FFP	Gestalt, Pennsylvania		1.395	Apr-07					Continuing	TBD	TBD
Program Engineering Interoperability Framework (PEIF)	C/FFP	Parametric Technology Corp, Mass		1.394	Aug-07	1.451	Feb-08			Continuing	TBD	TBD
MEDSTARS	C/FFP	ProLogic, West Virginia		2.009	Feb-07	1.451	Feb-08			Continuing	TBD	TBD
C-NAF Commander's Dashboard	C/FFP	Gestalt, Pennsylvania		3.500	Dec-07					Continuing	TBD	
Research Visualization Facility (RVF)	C/FFP	University of Nevada Las Vegas, Nevada				1.104	May-08			Continuing	TBD	
Subtotal Product Development			0.000	23.980		23.931		0.000		Continuing	TBD	TBD
Remarks:	Congressional budget line for ASSET/eWing was split between Airborne Web Services (AWS) and Integration of Force Protection Enterprise (Data Fusion and Net Centric Force Protection).											
<u>(U) Support</u>												
Contractor Support	T&M	ESC Hanscom AFB, MA		2.377	Mar-07	2.502	Mar-08			Continuing	TBD	TBD
Subtotal Support			0.000	2.377		2.502		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												0.000

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Exhibit R-3 (PE 0604740F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis						DATE <b>February 2008</b>		
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>			<b>0604740F Integrated Command &amp; Control Applications</b>			<b>2524 Reuse and Component Support</b>		
Subtotal Test & Evaluation	0.000		0.000		0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>								
Program Management Support						0.000	0.000	TBD
Subtotal Management	0.000		0.000		0.000	0.000	0.000	TBD
Remarks:								
(U) <u>Not applicable.</u>								
(U) Total Cost	0.000		26.357		26.433	0.000	Continuing	TBD
Remarks:								

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

a/o JAN 08

**IC2A Schedule**

	FY07	FY08	FY09	FY10	FY11	FY12	FY13
<b>AWS</b>	▲ ▲	▲ ▲					
<b>DMIT</b>	▲ ▲	▲ ▲					
<b>ESRBC</b>	▲ ▲	▲ ▲					
<b>GAPS</b>	▲ ▲	▲ ▲					
<b>DFFP</b>	▲ ▲						
<b>ASSET/eWing</b>	▲ ▲	▲ ▲					
<b>C2SLM</b>		▲					
<b>DEAMC</b>	▲ ▲						
<b>PEIF</b>		▲ ▲					
<b>MEDSTARS</b>	▲ ▲	▲ ▲					
<b>C-NAF Cmdr's Dashboard</b>		▲					
<b>Research VIZ Facility</b>		▲ ▲					

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604740F Integrated Command &amp; Control Applications</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2524 Reuse and Component Support</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) JSTARS/AWS Spiral 3	2-4Q	2-4Q	
(U) DMIT	2-4Q	2-4Q	
(U) Enterprise Services for Reach Back Capabilities (ESRBC)	2-4Q	2-4Q	
(U) Global Awareness Presentation System (GAPS) for USSTRATCOM	2-4Q	2-4Q	
(U) Integration of Force Protection Enterprise Services (DFFP)	2-4Q		
(U) ASSET/eWing	2-4Q	2-4Q	
(U) C2SLM	4Q	4Q	
(U) Defense Energy Awareness and Mgmt Center (DEAMC)	2-4Q		
(U) Program Engineering Interoperability Framework (PEIF)	2-4Q	2-4Q	
(U) MEDSTARS	2-4Q	2-4Q	
(U) C-NAF Commander's Dashboard	4Q	1Q	
(U) Research Visualization Facility (RVF)		2-4Q	

**UNCLASSIFIED**

PE NUMBER: 0604750F  
 PE TITLE: Intelligence Equipment

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604750F Intelligence Equipment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.907	5.037	1.488	1.521	1.543	1.573	1.604	Continuing	TBD
2053 National Air Intel Center	4.907	5.037	1.488	1.521	1.543	1.573	1.604	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Intelligence Equipment (IE) Program Element (PE) performs the engineering development of software, and/or automated information operations techniques to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical intelligence information. IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policymaking. IE accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces. IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution.

IE is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. Each of the development projects within the IE program portfolio transition technologies to the operational communities through the incremental release of upgraded versions over a period of years as the development projects progress towards the final configuration. IE may reallocate existing resources to support out-of-cycle new/updated wasfighter requirements.

This PE is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technologies into existing systems and models to keep existing systems current.

Requirements for this PE are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AF ISR Agency). Development of new/improved capabilities to meet the requirements is managed by AFRL/RIEB.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.907	1.469	1.500
(U) Current PBR/President's Budget	4.907	5.037	1.488
(U) Total Adjustments	0.000	3.568	
(U) Congressional Program Reductions		0.032	
Congressional Rescissions			
Congressional Increases		3.600	
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

In FY08 Congress added \$3.6M for Electronic Warfare, Modeling, Simulation and wireless Testing Center

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604750F Intelligence Equipment</b>			PROJECT NUMBER AND TITLE <b>2053 National Air Intel Center</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2053 National Air Intel Center	4.907	5.037	1.488	1.521	1.543	1.573	1.604	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Intelligence Equipment (IE) Program Element (PE) performs the engineering development of software, and/or automated information operations techniques to streamline the processing, integration, exploitation, display, and dissemination of strategic and tactical intelligence information.

IE provides continuing development and upgrades of threat analysis capabilities to produce integrated, predictive air and space intelligence to enable military operations, force modernization decisions, and policymaking. IE accelerates and increases the accuracy of threat estimates and system descriptions to deployed operational forces. IE also provides clients with accurate, predictive, relevant, and timely intelligence that will support client processes, operational planning, and mission execution.

IE is the only AF program developing new or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF operational and developmental functions. Each of the development projects within the IE program portfolio transition technologies to the operational communities through the incremental release of upgraded versions over a period of years as the development projects progress towards the final configuration. IE may reallocate existing resources to support out-of-cycle new/updated wasfighter requirements.

This PE is Budget Activity 5, System Demonstration and Development (SDD), because the program develops and inserts new technologies into existing systems and models to keep existing systems current.

Requirements for this PE are gathered and prioritized by the Air Force Intelligence, Surveillance, and Reconnaissance Agency (AF ISR Agency). Development of new/improved capabilities to meet the requirements is managed by AFRL/RIEB.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue / Complete Terrain Map Comparison Tools for Hard and Deeply Buried Target-Detection (HDBT-D) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.430	0.000	0.000
(U) Continued / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test	0.393	0.000	0.000
(U) Continued / Complete Upgrade of TEL-SCOPE Tool with Expanded Operational Capability (EOC)	0.290	0.290	0.290
(U) Continued / Complete Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.430	0.000	0.000
(U) Continued / Complete Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Includes parts of FY06/07 Congressional Adds for HDBT-D)	0.430	0.000	0.000
(U) Initiate / Complete Electronic Warfare Modelling & Simulation (FY08 Congressional Add for Idaho National Laboratory)	2.192	3.568	0.000
(U) Initiated / Continue / Complete Integrated Air Defense System (IADS) -- TEL-SCOPE / Air Defense Net (ADNet) Machine-to-Machine (M2M) Integration	0.290	0.256	0.000



**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604750F Intelligence Equipment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2053 National Air Intel Center</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Initiate / Continue Radio Frequency (RF) Detection & Analysis Capabilities	0.452	0.340	0.340
(U) Initiate / Continue Electronic Warfare (EW) Flagging	0.000	0.483	0.563
(U) Initiate / Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)	0.000	0.100	0.295
(U) Total Cost	4.907	5.037	1.488

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

**(U) D. Acquisition Strategy**

Requirements for new / upgraded intelligence analysis tools are gathered and prioritized by the Air Force Intelligence, Surveillance and Reconnaissance Agency (AF ISR Agency, formerly the Air Intelligence Agency). Development of capabilities to meet those requirements is managed by the AF Research Laboratory (Rome Research Site). Prototype products (usually software), once evaluated by the users, are fielded in incremental capability spirals.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>					<b>PE NUMBER AND TITLE</b>					<b>PROJECT NUMBER AND TITLE</b>		
<b>05 System Development and Demonstration (SDD)</b>					<b>0604750F Intelligence Equipment</b>					<b>2053 National Air Intel Center</b>		

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Terrain Map Comparison Tools for HDBT / UGF Detection (HDBT / UGF - D) (Including parts of FY06 / 07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.817	0.430	Mar-07	0.000		0.000		0.000	1.247	1.247
MASINT Exploitation Technology Applications Facility (METAf) for HDBT / UGF Algorithm Development and Test	C/CPFF	Alion Science and Technology, Albuquerque, NM and Rome, NY	0.951	0.393	Nov-06	0.000		0.000		0.000	1.344	1.344
TEL-SCOPE Expanded Operational Capability (EOC)	C/CPFF & C/FFP	Prediction Systems, Inc., Spring Lake, NJ & Northrop Grumman Mission Systems, Fairborn, OH	0.435	0.290	Dec-06	0.290	Dec-07	0.290	Dec-08	0.000	1.305	1.305
Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Including parts of FY06 / 07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.930	0.430	Mar-07	0.000		0.000		0.000	1.360	1.360
Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Including parts of FY06 / FY07 Congressional Adds for HDBT-D)	C/CPFF	CACI / MTL Systems Inc., Dayton, OH	0.931	0.430	Mar-07	0.000		0.000		0.000	1.361	1.361
Electronic Warfare Modelling & Simulation (FY07 Congressional Add for Idaho National Laboratory)	MIPR	Idaho National Laboratory, Idaho Falls, ID	0.000	2.192	Mar-07	3.568	Mar-08	0.000		0.000	5.760	TBD
Integrated Air Defense System (IADS) Model / ADNet TEL-SCOPE M2M Integration	C/CPFF & C/FFP	Prediction Systems Inc, Spring Lake, NJ & BAE Systems, Burlington, MA & Northrop Grumman Mission Systems, Fairborn, OH	0.270	0.290	Nov-06	0.256	Nov-07	0.000		0.000	0.816	0.816

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Project 2053

Exhibit R-3 (PE 0604750F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0604750F Intelligence Equipment</b>					<b>2053 National Air Intel Center</b>				
Radio Frequency Detection & Analysis Capabilities	MIPR & C/FFP	Idaho National Laboratory, Idaho Falls, ID & Naval Post Graduate School, Monterey, CA & RemCom Inc., State College, PA	0.000	0.452	Jun-07	0.340	Nov-07	0.340	Nov-08	0.182	1.314	TBD
Electronic Warfare Flagging	C/TBD	TBD	0.000	0.000		0.483	Jan-08	0.563	Nov-08	2.766	3.812	TBD
Project Theo (Automated Text Retrieval, Analysis & Exploitation Capability)	C/TBD	TBD	0.000	0.000		0.100	Jan-08	0.295	Nov-08	1.323	1.718	TBD
Subtotal Product Development			4.334	4.907		5.037		1.488		4.271	20.037	TBD
Remarks:												
(U) Total Cost			4.334	4.907		5.037		1.488		4.271	20.037	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

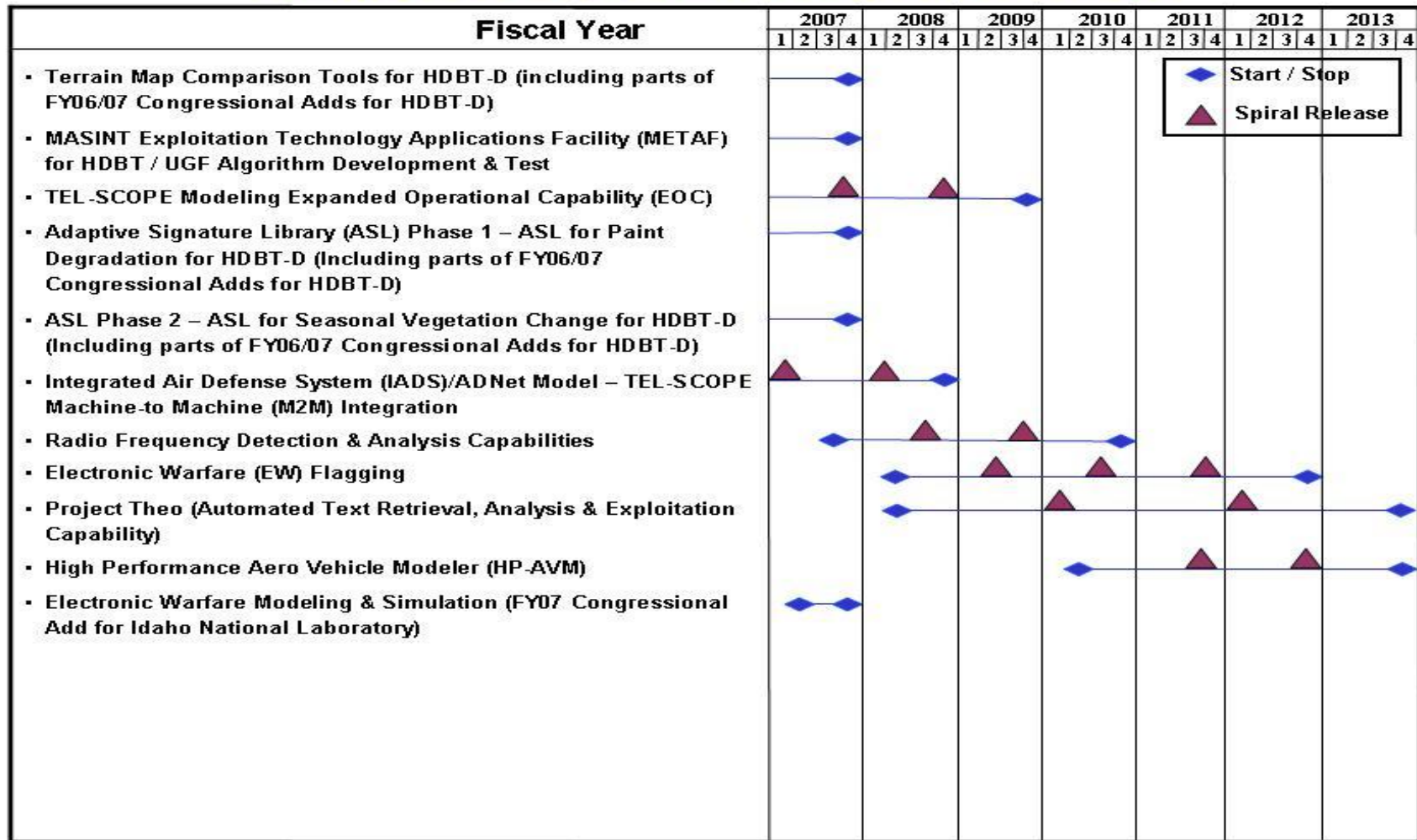
PE NUMBER AND TITLE

0604750F Intelligence Equipment

PROJECT NUMBER AND TITLE

2053 National Air Intel Center

## Intelligence Equipment Program Schedule



**UNCLASSIFIED**

Exhibit R-4a, RDT&E Schedule Detail		DATE <b>February 2008</b>		
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604750F Intelligence Equipment</b>	PROJECT NUMBER AND TITLE <b>2053 National Air Intel Center</b>		
		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>				
(U) Continued / Complete Terrain Map Comparison Tools for HDBT-D (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)		1-4Q		
(U) Continued / Complete MASINT Exploitation Technology Applications Facility (METAF) for HDBT / UGF Algorithm Development and Test		1-4Q		
(U) Continued / Complete TEL-SCOPE Expanded Operational Capability (EOC)		1-4Q	1-4Q	1-4Q
(U) Continued / Complete Phase 1 of Adaptive Signature Library (ASL) for HDBT-D (ASL for Paint Degradation) (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)		1-4Q		
(U) Continued / Complete Phase 2 of ASL for HDBT-D (ASL for Seasonal Vegetation Changes) (Includes parts of FY06 / 07 Congressional Adds for HDBT-D)		1-4Q		
(U) Initiate / Complete Electronic Warfare Modelling & Simulation (FY07 Congressional Add for Idaho National Laboratory)		2-4Q	2-4Q	
(U) Initiated / Continue / Complete Integrated Air Defense System (IADS) Model--TEL-SCOPE / ADNET M2M Integration		1-4Q	1-4Q	
(U) Initiate / Continue Radio Frequency (RF) Detection & Analysis Capabilities		3-4Q	1-4Q	1-4Q
(U) Initiate / Continue Electronic Warfare (EW) Flagging			2-4Q	1-4Q
(U) Initiate / Continue Project Theo (Automated Text Retrieval, Analysis, and Exploitation Capability)			2-4Q	1-4Q

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PE NUMBER: 0604762F  
 PE TITLE: Common Low Observable Verification Sys

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604762F Common Low Observable Verification Sys</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.361	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641
4683 Common Low Observable Verification System	4.361	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641

**(U) A. Mission Description and Budget Item Justification**

The Common Low Observable Verification System (CLOVerS) is a deployable flight line maintenance inspection tool capable of evaluating radar cross-section (RCS) defects on low observable aircraft. The system performs zone and whole body aircraft measurements to detect, locate, and assess RCS defects and potential defects. Following repair of the defect, CLOVerS measures the area surrounding the defect to verify that the maintenance action corrected the defect. CLOVerS can provide a common RCS assessment system to support operations and maintenance of F-117, B-2 and F-22 aircraft. CLOVerS will provide RCS assessment support at both main operating base and forward operating locations. Key capabilities required include the ability to detect and locate RCS defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint.

The CLOVerS program began experiencing delays in system development during FY05 when contractor testing revealed issues in the design of the motion control software and the vertical/ horizontal mast structure. In FY06, the Air Force decided the increased costs to complete development and produce the required number of units were prohibitive. As a result, the program office re scoped the current RDT&E effort to capture the hardware and software developed under the CLOVerS program that are transferable to other LO diagnostic tools.

This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	4.483		
(U) Current PBR/President's Budget	4.361		
(U) Total Adjustments	-0.122		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.122		

**(U) Significant Program Changes:**

The Air Force terminated all production funding including FY07 funding in the FY08 POM and transferred those production funds to meet higher prior USAF

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604762F Common Low Observable Verification Sys

requirements. The RDTE program will complete current development efforts and transfer technologies to other low observable platforms.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0604762F Common Low Observable Verification Sys</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4683 Common Low Observable Verification System</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4683 Common Low Observable Verification System	4.361	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.641
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Common Low Observable Verification System (CLOVerS) is a deployable flight line maintenance inspection tool capable of evaluating radar cross-section (RCS) defects on low observable aircraft. The system performs zone and whole body aircraft measurements to detect, locate, and assess RCS defects and potential defects. Following repair of the defect, CLOVerS measures the area surrounding the defect to verify that the maintenance action corrected the defect. CLOVerS can provide a common RCS assessment system to support operations and maintenance of F-117, B-2 and F-22 aircraft. CLOVerS will provide RCS assessment support at both main operating base and forward operating locations. Key capabilities required include the ability to detect and locate RCS defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint.

The CLOVerS program began experiencing delays in system development during FY05 when contractor testing revealed issues in the design of the motion control software and the vertical/ horizontal mast structure. In FY06, the Air Force decided the increased costs to complete development and produce the required number of units were prohibitive. As a result, the program office re scoped the current RDT&E effort to capture the hardware and software developed under the CLOVerS program that are transferable to other LO diagnostic tools.

This program is in budget activity 5 - System Development and Demonstration (SDD) because this program develops the Common Low Observable Verification System (CLOVerS).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Complete Cart 4/5 development and continue ancillary equipment development.	4.261		
(U) Field Testing			
(U) Program Office Support	0.100		
(U) Total Cost	4.361	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Bp-16 Spares	0.798								

**(U) D. Acquisition Strategy**

The contract was awarded May 99 using full and open competition as a Cost Plus Award Fee. Contract was modified in Jul 02 to convert to Cost Plus Fixed Fee and to stretch the period of performance.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604762F Common Low Observable Verification Sys</b>					<b>4683 Common Low Observable Verification System</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Develop CLOVerS EMD Unit	CPFF	Boeing Co., St Louis		4.261						0.000	4.261	53.301
Subtotal Product Development			0.000	4.261		0.000		0.000		0.000	4.261	53.301
Remarks:												
(U) <u>Support</u> Electromagnetic Licensing and Misc Support	Various	Joint Spectrum Center, 88 CG, AFRL									0.000	3.636
Independent Logistics Assessment	Fixed	LOGTEC, Fairborn, OH									0.000	0.171
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	3.807
Remarks:												
(U) <u>Program Office Support</u> PMA	Various	Various		0.100							0.100	2.653
Subtotal Program Office Support			0.000	0.100		0.000		0.000		0.000	0.100	2.653
Remarks:												
(U) Total Cost			0.000	4.361		0.000		0.000		0.000	4.361	59.761

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

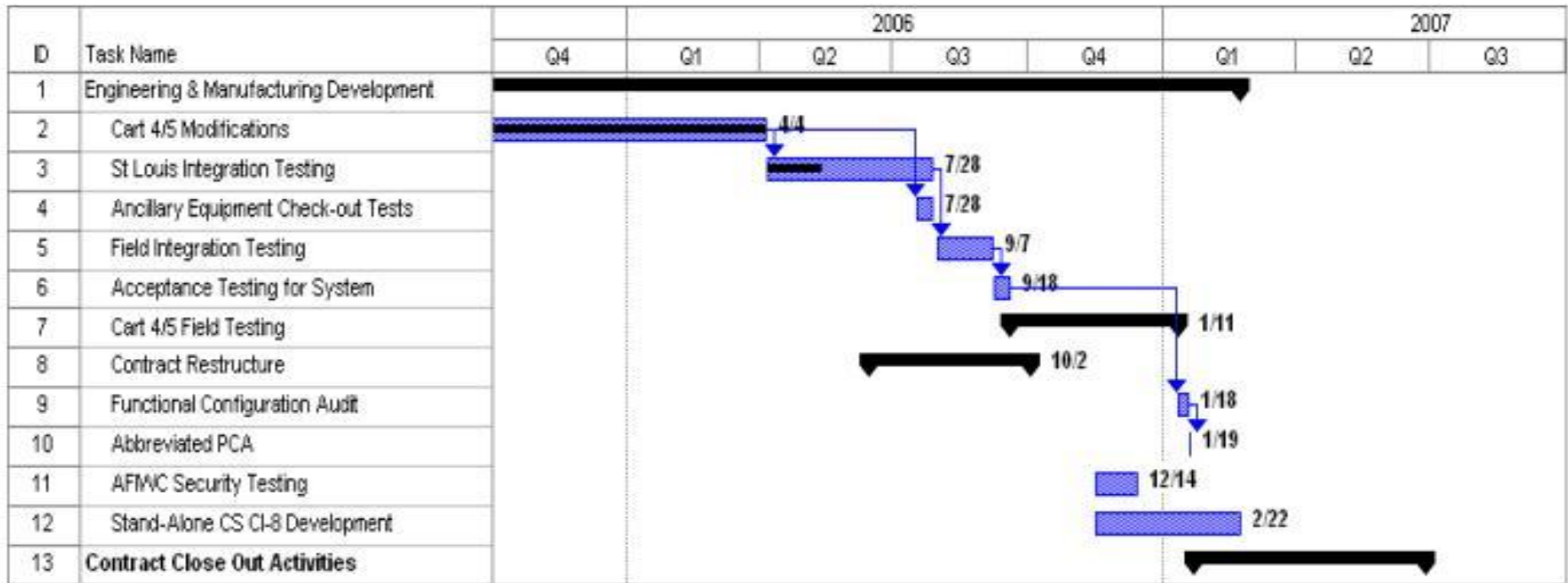
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604762F Common Low Observable  
Verification Sys

PROJECT NUMBER AND TITLE  
4683 Common Low Observable  
Verification System



# CLOVerS Schedule



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604762F Common Low Observable Verification Sys</b>	PROJECT NUMBER AND TITLE <b>4683 Common Low Observable Verification System</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Contract Close-out	3Q		

**UNCLASSIFIED**

PE NUMBER: 0604800F  
 PE TITLE: Joint Strike Fighter EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0604800F Joint Strike Fighter EMD</b>
--	--

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893
3831 Joint Strike Fighter	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893

**(U) A. Mission Description and Budget Item Justification**

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 13 RDT&E articles reflect flight test articles (including one asset in FY06, 6 in FY08, and 12 in FY09); 6 ground test articles are also budgeted in SDD which includes total program quantities for Navy and AF.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2,132.924	1,780.874	1,541.202
(U) Current PBR/President's Budget	2,074.021	1,991.537	1,524.016
(U) Total Adjustments	-58.903		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-2.632		
SBIR/STTR Transfer	-56.271		

**(U) Significant Program Changes:**

Note: Congressional add in FY08 for F-136 Alternate Engine, Production Affordability Initiatives and Information Assurance, and Small Business Technology Insertion.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0604800F Joint Strike Fighter EMD</b>			<b>3831 Joint Strike Fighter</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 13 RDT&E articles reflect flight test articles (including one asset in FY06, 6 in FY08, and 12 in FY09); 6 ground test articles are also budgeted in SDD which includes total program quantities for Navy and AF.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Development and Demonstration SDD execution of the Air System, with Lockheed Martin including International Commonality Effort (ICE) which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.	3,409.493	2,677.102	2,118.409
(U) Continue SDD execution of the F135 Propulsion System, with Pratt & Whitney using (ICE) which includes engine testing, autonomic logistics, integration and performing technology maturation efforts.	754.246	715.000	439.000
(U) Continue the Fighter Engineering Team (General Electric/Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated program elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration. Out-year funds beginning with FY07 were eliminated during the PB 07 budget cycle; however, Congressional Add actions restored \$340M to program in FY07 and \$480M in FY08.	341.290	480.000	0.000
(U) Continue SDD Systems Engineering (SE) including systems operations requirements analysis, program integration, requirements integration, and interoperability support. Government Development Test and Evaluation (DT&E) continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents (PIDs). Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.	378.733	461.176	692.599
(U) Total Cost	4,883.762	4,333.278	3,250.008

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

FY 2007

FY 2008

FY 2009

Note: Total cost includes USN and International partner contributions in addition to USAF funding. Exhibit R-2 data reflects USAF funding only.

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) USN RDT&E	2109.426	1862.541	1502.947	1000.185	1018.629	716.176	644.583		8,854.487
(U) USN RDT&E - JRC		5.505	29.801	28.489	35.305	20.535	12.961		132.596
(U) Int'l Partner Funding	700.315	479.200	223.045	171.450	144.030	16.900	9.300		1,744.240
(U) USN PROCUREMENT	124.498	1223.834	1860.898	3334.394	3201.247	5384.432	5262.819	64,286.790	84,678.912
(U) USAF PROCUREMENT	647.771	1449.136	1896.384	2437.298	3514.821	4872.043	5178.132	151,743.399	20,146.585
(U) USN Other Procurement		0.855	2.981	6.142	6.225	6.127	5.732	12.238	40.300
(U) USN Initial Spares and Repair Parts	0.000	0.000	35.128	230.912	174.837	255.853	350.513	4,050.389	1,051.243
(U) USAF Initial Spares and Repair Parts	76.067	37.039	86.576	122.608	228.791	358.581	376.115	11,239.842	12,525.619
(U) USN MILCON	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) USAF MILCON 0207142F	0.000	74.300	22.100	95.743	164.795	33.267	75.952		466.157

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

Note: The USAF PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,056; and International Partner contributions of \$253.921 for a total of \$4,229,896.

Procurement and Spares Cost to Complete is based on SAR-06 cost model and will be updated again when SAR-07 numbers are released in Apr-08.

(U) **D. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts through FY08 when program funding ends.

The updated JSF Acquisition Strategy and program schedule were approved following the May 05 DAB. APR 06 DAB authorized full funding for LRIP I procurement.

DoN Advance Procurement funding was awarded during FY07 in support of the DoN's FY 08 aircraft procurement. USAF regular procurement funding for LRIP I JSF aircraft was placed on contract in FY07; USAF Advanced Procurement funding was awarded during FY06. USAF Advanced Procurement funding for LRIP II was awarded during FY07.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0604800F Joint Strike Fighter EMD</b>					<b>3831 Joint Strike Fighter</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Ft. Worth, TX	14,212.404	3,407.144	Oct-06	2,677.102	Oct-07	2,118.409	Oct-08	4,809.758	27,224.817	25,904.288
Lockheed Martin	SS/BOA	Ft. Worth, TX	5.630	0.000							5.630	5.630
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	15.824	2.349							18.173	18.213
Pratt & Whitney	SS/CPAF	Hartford, CT	4,100.154	754.221	Oct-06	715.000	Oct-07	439.000	Oct-08	385.000	6,393.376	5,901.589
Pratt & Whitney	SS/BOA/ID IQ	Hartford, CT	50.669	0.025							50.694	50.718
General Electric	SS/CPAF	Cincinnati, OH	382.753	0.000							382.753	382.753
General Electric	SS/BOA	Cincinnati, OH	5.548	0.800							6.348	6.348
General Electric	SS/IDIQ/Tr ansition/Pha se III	Cincinnati, OH	109.850	0.000							109.850	109.850
General Electric	SS/CPAF	Cincinnati, OH	443.728	340.490	Oct-06	480.000	Oct-07				1,264.218	2,489.889
Systems Engineering		Various	121.126	56.676	Oct-06	42.711	Oct-07	34.551	Oct-08	150.247	405.311	
Subtotal Product Development			19,447.686	4,561.705		3,914.813		2,591.960		5,345.005	35,861.170	TBD
Remarks:												
(U) <u>Support</u>												
AFBTC/Eglin	Various	Various	32.693	13.622	Oct-06	9.620	Oct-07	18.056	Oct-08	28.692	102.682	
ASC/AFRL	Various	Wright Patterson AFB	21.970	6.733	Oct-06	4.802	Oct-07	8.180	Oct-08	15.540	57.226	
Bolling AFB	Various	Bolling AFB, DC	0.375	4.190	Oct-06	4.141	Oct-07	1.107	Oct-08	2.074	11.888	
DMEA	Various	Wright Patterson AFB	0.673	5.049	Oct-06	12.226	Oct-07	0.000	Oct-08	0.000	17.947	
ESC	Various	Hanscom AFB, MA	5.455	0.510	Oct-06	2.746	Oct-07	1.725	Oct-08	0.696	11.132	
AEDC/Fuel	Various	Various	12.431	53.220	Oct-06	76.034	Oct-07	123.954	Oct-08	106.944	372.584	
Jacksonville	Various	Jacksonville, FL	0.916	1.681	Oct-06	1.736	Oct-07	3.062	Oct-08	5.820	13.214	
Miscellaneous	Various	Various	82.732	18.358	Dec-06	29.916	Oct-07	54.513	Oct-08	90.290	275.809	
NAWC China Lake	Various	Various	40.944	16.875	Dec-06	17.592	Dec-07	37.578	Dec-08	71.046	184.036	
Other	Various	Various	80.745	0.000		0.000		0.000		0.000	80.745	
NAWC TSD	Various	Various	1.373	2.311	Dec-06	0.000	Dec-07	5.034	Dec-08	9.646	18.364	
NAWC Patuxent River	Various	Patuxent River, VA	138.389	54.602	Dec-06	54.278	Dec-07	106.860	Dec-08	192.834	546.962	
NSWC	Various	Various	0.845	1.402	Dec-06	0.970	Dec-07	2.156	Dec-08	4.080	9.453	
SPAWAR	Various	Various	2.059	2.905	Dec-06	4.183	Dec-07	5.333	Dec-08	10.123	24.603	
Subtotal Support			421.600	181.459		218.243		367.558		537.786	1,726.645	0.000
Remarks:												

R-1 Line Item No. 81

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Project 3831

Exhibit R-3 (PE 0604800F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604800F Joint Strike Fighter EMD</b>				<b>3831 Joint Strike Fighter</b>				
NAWC Patuxent	Various	NAWC Patuxent	70.102	24.022	Oct-06	57.000	Oct-07	97.000	Oct-08	384.217	632.341	
Edwards AFB	Various	Edwards AFB	74.682	31.752	Oct-06	49.550	Oct-07	88.100	Oct-08	403.250	647.335	
Other (including Classified PIDs)	Various	Various	26.733	9.541	Oct-06	4.965	Oct-07	29.165	Oct-08	139.260	209.664	
NAWC China Lake	Various	NAWC China Lake	23.941	4.498	Oct-06	8.730	Oct-07	8.779	Oct-08	32.815	78.764	
WEPS/Eglin	Various	Eglin AFB	15.928	17.049	Oct-06	20.055	Oct-07	0.415	Oct-08	7.300	60.748	
JITC	Various	Various	0.150	0.240	Oct-06	0.300	Oct-07	1.497	Oct-08	13.383	15.570	
OT - AFOTEC/AFFTC	Various	Various	3.468	7.485	Oct-06	4.500	Oct-07	4.200	Oct-08	120.800	140.453	
OT - JITC/OPTEV	Various	Various	0.727	0.819	Oct-06	3.900	Oct-07	3.600	Oct-08	121.200	130.246	
Subtotal Test & Evaluation			215.732	95.407		149.000		232.756		1,222.225	1,915.121	0.000
Remarks:												
(U) <u>Management</u>												
Stanley	SS/CPFF	Arlington, VA	57.897	13.731	Oct-06	16.382	Oct-07	16.228	Oct-08	53.715	157.953	
Mantech	SS/CPFF	Arlington, VA	14.800	5.700	Dec-06	6.942	Dec-07	7.000	Dec-08	32.000	66.442	
Anteon/Sverdrup	C/CPAF	Arlington, VA	20.006	10.889	Dec-06	12.070	Dec-07	13.550	Dec-08	44.851	101.367	
Wyle/AI-ES	SS/CPFF	Arlington, VA	22.193	10.328	Dec-06	11.488	Dec-07	10.308	Dec-08	46.648	100.965	
Program Management Support	Various	Arlington, VA	13.464	4.543	Oct-06	4.340	Oct-07	10.649	Oct-08	44.832	77.829	
Subtotal Management			128.361	45.191		51.222		57.734		222.047	504.556	0.000
Remarks:												
(U) Total Cost			20,213.378	4,883.762		4,333.278		3,250.008		7,327.063	40,007.492	TBD
Remarks: Prior Years reflect \$8,687,837 USAF/\$8,714,470 USN/2,811,071 International/Total \$20,213,378												
FY 2007 reflects \$2,074,021 USAF/\$2,109,426 USN/\$700,315 International/Total \$4,883,762												
FY 2008 reflects \$1,991,537 USAF/\$1,862,541 USN/\$479,200 International/Total \$4,333,278												
FY 2009 reflects \$1,524,016 USAF/\$1,502,947 USN/\$223,045 International/Total \$3,350,008												

NOTE: Totals may not add correctly due to rounding.

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

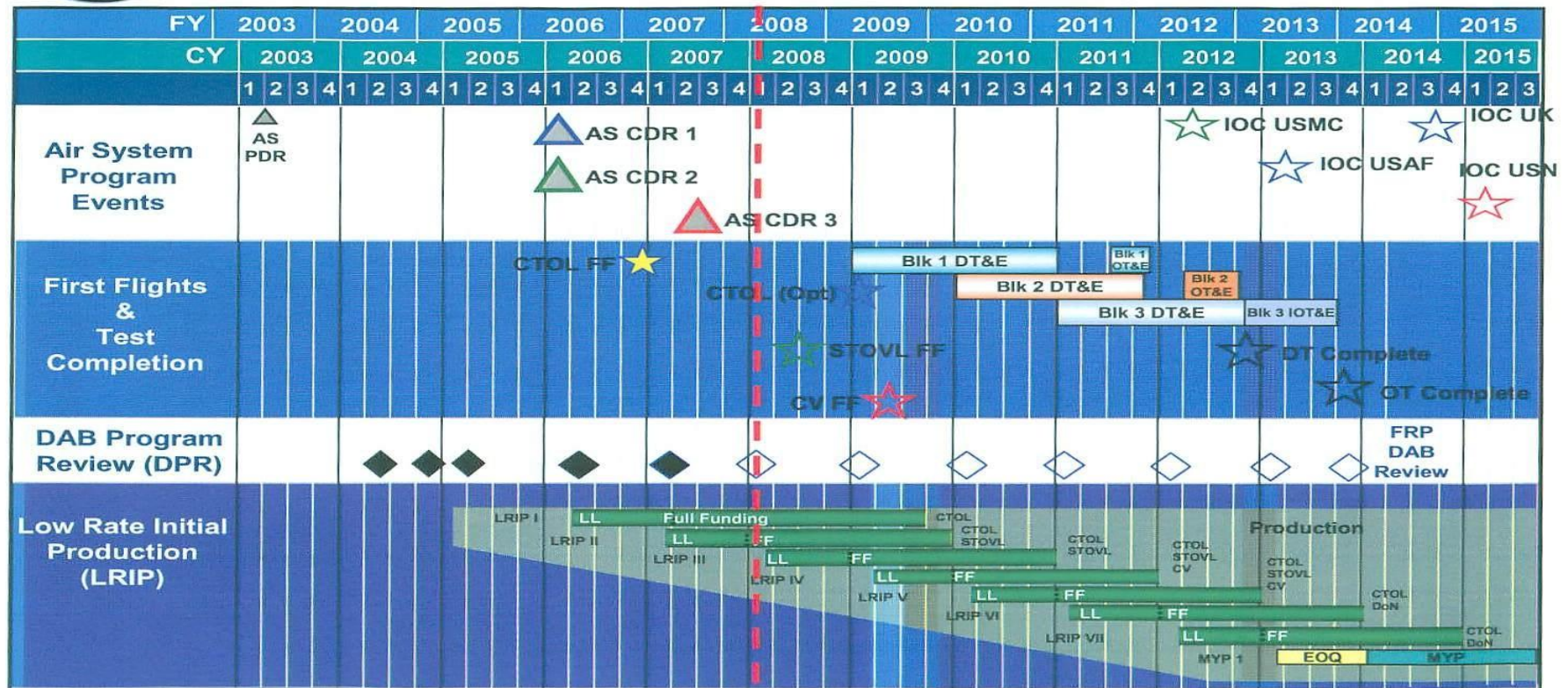
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE  
3831 Joint Strike Fighter



# JSF Top-Level SDD Program Schedule



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604800F Joint Strike Fighter EMD</b>	PROJECT NUMBER AND TITLE <b>3831 Joint Strike Fighter</b>
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(U) <b>Schedule Profile</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) DAB Program Review (DPR)	2Q	2Q	2Q
(U) Critical Design Reviews (CDR 1&2 FY06, CDR 3 FY07)	3Q		
(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight	1Q		
(U) F-35B Short Take Off and Vertical Landing (STOVL) First Flight		3Q	
(U) F-35A CTOL (Optimized Design) First Flight			1Q
(U) F-35C Carrier Variant (CV) First Flight			3Q

**UNCLASSIFIED**

PE NUMBER: 0604853F  
 PE TITLE: Evolved Expendable Launch Vehicle - EMD

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.083	0.000	33.719	0.000	0.000	0.000	0.000	0.000	1,445.269
0004 Evolved Expendable Launch Vehicle	19.083	0.000	33.719	0.000	0.000	0.000	0.000	0.000	1,445.269

**(U) A. Mission Description and Budget Item Justification**

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25%.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: assured access (RL-10 producibility, etc.); a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; RS-68 main engine upgrade, complete extended mission kit qualification for the AFSPC-2 mission, special studies, and other related support activities.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	19.738	0.000	0.000
(U) Current PBR/President's Budget	19.083	0.000	33.719
(U) Total Adjustments	-0.655		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.655		

**(U) Significant Program Changes:**

FY09 includes additional \$33.7M for GPS Metric Tracking, RS-68 main engine upgrade, and extended mission kit qualification for the AFSPC-2 mission.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>			PROJECT NUMBER AND TITLE <b>0004 Evolved Expendable Launch Vehicle</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
0004 Evolved Expendable Launch Vehicle	19.083	0.000	33.719	0.000	0.000	0.000	0.000	0.000	1,445.269
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Evolved Expendable Launch Vehicle (EELV) program is a space launch system developed with industry to provide two families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25%.

EELV is a launch service, not a weapon system, which is primarily funded with production funds. The program has developmental items including: assured access (RL-10 producibility, etc.); a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight; RS-68 main engine upgrade, complete extended mission kit qualification for the AFSPC-2 mission, special studies, and other related support activities.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue GPS Metric Tracking Booster Capability Integration	7.803		0.050
(U) RS-68 Upgrade			0.050
(U) Extended Mission Kit Qualification			33.619
(U) SPO Support	1.280		
(U) Assured Access initiatives	10.000		
(U) Total Cost	19.083	0.000	33.719

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN									
(U) MPAF (BA 05, PE 0305953F, P-28)*	852.055	1091.844	1205.278	1402.516	1101.790	1567.582	1266.911	14,513.142	25,172.579

\* The Cost To Complete value is an estimate based on 95 AF launches in the current manifest, FY 2002-2020.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0604853F Evolved Expendable Launch Vehicle - EMD</b>	PROJECT NUMBER AND TITLE <b>0004 Evolved Expendable Launch Vehicle</b>

**(U) D. Acquisition Strategy**

The EELV concept of families of launch vehicles emphasizes commonality of hardware and infrastructure to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - The Boeing Company (TBC) and Lockheed Martin (LM) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. In 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LM for the development effort. The contractors have contributed additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor has invested in excess of \$1.5B. At the same time as the award of the development effort, Initial Launch Services (ILS) contracts were awarded to Boeing for 19 missions and to Lockheed Martin for 9 missions.

All of the ILS (Buy 1/awarded) launch services are firm-fixed price contracts. Due to the decrease in the commercial market, the projected costs of the unawarded EELV launches have increased. The new acquisition strategy, implemented in FY06, separates the launch service price from the infrastructure costs. Follow-on (Buy 3) Launch Service procurements will include launch service costs on a fixed-price contract. EELV Launch Capability infrastructure costs (includes launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc.) are funded on an annual basis. The 2005 Space System Acquisition Strategy (SSAS) for EELV documents this modified approach to provide assured access to space with two viable launch vehicle families.

The acquisition approach supports the 2004 National Space Transportation Policy, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over legacy systems. The EELV system will launch the majority of the government portion of the NLF through 2020 and the government will continue to work to partner with industry to continuously improve products and processes to enhance reliability and reduce both the contractors' and government's total costs.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0604853F Evolved Expendable Launch Vehicle - EMD</b>				<b>0004 Evolved Expendable Launch Vehicle</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Prime Contractor Boeing	OTA/ILS		696.983	8.902	Nov-06			0.075	Oct-08		705.960	
Prime Contractor Lockheed Martin	OTA/ILS		569.853	8.902	Nov-06			33.644	Oct-08		612.399	
Subtotal Product Development			1,266.836	17.803		0.000		33.719		0.000	1,318.359	0.000
Remarks:												
(U) <u>Support</u>												
SPO/CTF Range Mission Spt	Various		42.337	1.280							43.617	
FFRDC	SS/CPAF		67.214								67.214	
Other Cntr Spt	Various		15.144								15.144	
Subtotal Support			124.695	1.280		0.000		0.000		0.000	125.975	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,391.531	19.083		0.000		33.719		0.000	1,444.334	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

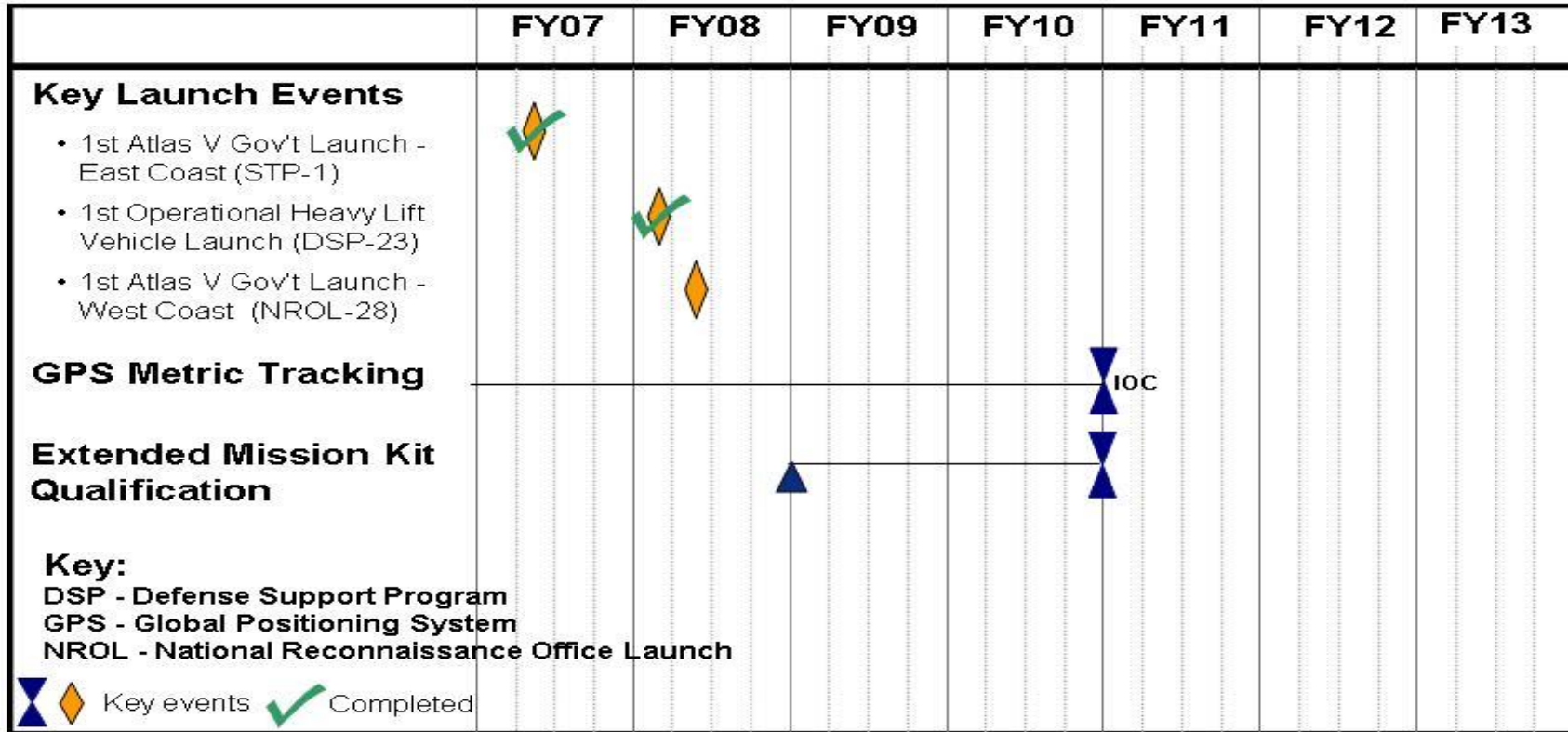
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0604853F Evolved Expendable  
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE  
0004 Evolved Expendable Launch  
Vehicle

EELV Program - Key Events



UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0604853F Evolved Expendable  
Launch Vehicle - EMD**

PROJECT NUMBER AND TITLE

**0004 Evolved Expendable Launch  
Vehicle**

(U) **Schedule Profile**

- (U) GPS Metric Tracking Project Planning & Requirements Integration
- (U) 1st Government East Coast Launch of Atlas V (STP-1)
- (U) 1st Government Operational HLV Launch (DSP-23)
- (U) 1st West Coast Launch of Atlas V (NROL-28)
- (U) Atlas V Extended Mission Kit Qualification

FY 2007

1-4Q

2Q

FY 2008

1-4Q

1Q

2Q

FY 2009

1-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0605011F  
 PE TITLE: RDT&E For Aging Aircraft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	36.144	20.491	13.828	20.169	20.753	21.640	22.240	Continuing	TBD
4685 Aging Aircraft	36.144	20.491	13.828	20.169	20.753	21.640	22.240	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. Note: In FY 2008, Congress added \$1.9 million for the Aging Landing Gear Life Extension (ALGLE) Program and \$1.5 million for Enhanced Smart Triple Ejector Rack. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.490	17.021	26.691
(U) Current PBR/President's Budget	36.144	20.491	13.828
(U) Total Adjustments	9.654	3.470	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.130	
Congressional Increases		3.600	
Reprogrammings	10.324		
SBIR/STTR Transfer	-0.670		

**(U) Significant Program Changes:**

Reductions due to higher AF priorities and transition of Extended 1553 Databus (E1553), Universal Armament Interface (UAI), and Smart Triple Ejection Rack (STER) efforts to Aeronautical Systems Squadrons (AESS). In FY 2009, decreased due to higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0605011F RDT&amp;E For Aging Aircraft</b>			<b>PROJECT NUMBER AND TITLE</b> <b>4685 Aging Aircraft</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4685 Aging Aircraft	36.144	20.491	13.828	20.169	20.753	21.640	22.240	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

- (U) **A. Mission Description and Budget Item Justification**  
 The program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. Note: In FY 2008, Congress added \$1.9 million for the Aging Landing Gear Life Extension (ALGLE) Program and \$1.5 million for Enhanced Smart Triple Ejector Rack. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.
- (U) **B. Accomplishments/Planned Program (\$ in Millions)**
- |  |                |                |                |
|--|----------------|----------------|----------------|
|  | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
| (U) MAJOR THRUST: Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and Air Logistics Center engineers and managers to ensure continued air worthiness, control sustainment cost growth, and improve aircraft availability. | 2.451          | 0.988          | 1.100          |
- (U) In FY 2007: Identified common requirements and developed implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focused on maintaining aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Further improved fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhanced structural analysis and developed advanced software code for structural assessments, damage rate calculations, and predictions. Developed non-destructive inspection capabilities, damage quantification, structural degradation, and data management for composites. Provided repair methodologies, material processes, and design and repair selection software. Enhanced fatigue and corrosion prevention and control techniques.
- (U) In FY 2008: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost.
- (U) In FY 2009: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Investigate the use of legacy aircraft airframes for next-generation weapon systems such as directed energy weapons.
- (U)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Establishes enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Institutionalize Viable Combat Avionics (VCA), the use of affordable tools and techniques, including change management roadmaps, to manage avionics upgrades while keeping pace with technology and prevailing threat conditions in a dynamic environment. Tools range from a Best Value Methodology for evaluation of competitive source selections to a web-based Integrated Change Roadmap process that enables acquisition organizations to baseline the fielded platforms and merge the upgrades into the program's life cycle planning. Planned investments will establish enabling cross-cutting solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat superiority. NOTE: Reductions due to higher AF priorities and transition of Extended 1553 Databus (E1553), Universal Armament Interface (UAI), and Smart Triple Ejection Rack (STER) efforts to Aeronautical Systems Squadrons (AESS).	24.943	14.939	11.628
(U) In FY 2007: Established enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Validated MIL-STD 1553B Notice 5. Provided additional 1553 data bus capabilities, functionality, and enhanced performance and incorporated them into updates/revisions of MIL-STD 1553. Maintained the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Identified opportunities to accelerate capability deployment to the warfighter. Planned efforts linked functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provided development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure web site application. Provided UAI support to 22 platform and stores program offices during implementation. Provided for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further developed modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.			
(U) In FY 2008: Continue to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continue validation of MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&amp;E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure web site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.			
(U) In FY 2009: Continue to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Investigate the use of legacy aircraft avionics for next-generation weapon systems such as directed energy weapons.			
(U) MAJOR THRUST: Extends service life, controls rapidly rising sustainment costs, and retains operational capability of the aging aircraft fleet through aircraft subsystems improvement. Cross-cutting opportunities which will reduce total ownership costs are identified using business case analyses. Note: In FY 2007, \$6.0 million was added as part of the Omnibus Reproramming to support the qualification of crosscutting synthetic fuel technologies for operational use in legacy aircraft and future weapon systems as a means of reducing sustainment costs, while maintaining operational capability. The funds will also address component testing of supporting field and depot sustainment infrastructure.	7.654	0.988	1.100
(U) In FY 2007: Extended service life, controlled rapidly rising sustainment costs, and retained operational capability of the aging aircraft fleet through aircraft subsystems improvement. Developed and demonstrated wiring diagnostic equipment and data collection effort. Evaluated initial aircraft wire characterization of conductive path material, insulation, and arc fault protection systems.			
(U) In FY 2008: Continue to extend service life, control rapidly rising sustainment costs, and retain operational capability of the aging aircraft fleet through aircraft subsystems improvement.			
(U) In FY 2009: Continue to extend service life, control rapidly rising sustainment costs, and retain operational capability of the aging aircraft fleet through aircraft subsystems improvement. Investigate the use of legacy aircraft subsystems for next-generation weapon systems such as directed energy weapons.			
(U) CONGRESSIONAL ADD: Aging Landing Gear Life Extension.	1.096	1.987	0.000

R-1 Line Item No. 83

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Project 4685

Exhibit R-2a (PE 0605011F)

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0605011F RDT&amp;E For Aging Aircraft</b>	PROJECT NUMBER AND TITLE <b>4685 Aging Aircraft</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) In FY 2007: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).			
(U) In FY 2008: Conduct Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).			
(U) In FY 2009: Not Applicable.			
(U)			
(U) CONGRESSIONAL ADD: Enhanced Smart Triple Ejector Rack	0.000	1.589	0.000
(U) In FY 2007: Not Applicable.			
(U) In FY 2008: Conduct Congressionally-directed effort for Enhanced Smart Triple Ejector Rack.			
(U) In FY 2009: Not Applicable.			
(U)			
(U) Total Cost	36.144	20.491	13.828

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Related Activities:

(U) **D. Acquisition Strategy**  
 Funding may be executed internally within the 77th Aeronautical Systems Wing via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design and Engineering Support Program (DESP) contract or full and open competition, to accomplish the project.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0605011F RDT&amp;E For Aging Aircraft</b>				<b>4685 Aging Aircraft</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
S&K Technologies, Inc.	IDIQ										0.000	
Edgewater	IDIQ			16.654		10.000					26.654	
Anteon	Cost Plus										0.000	
Raytheon/Northrop	CPFF			8.000		5.021					13.021	
Grumman/Boeing/Lockheed											0.000	
Raytheon	CPFF			5.000							5.000	
United States Air Force Academy	N/A			1.300		1.894					3.194	
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ										0.000	
General Atomics	T&M										0.000	
Dynamics Research Corporation	T&M										0.000	
Dynamics Research Corporation	CPFF										0.000	
Raytheon	CPFF										0.000	
Alion Science & Tech	FFP										0.000	
Numerous	Various			5.190		3.576		13.828			22.594	
Subtotal Product Development			0.000	36.144		20.491		13.828		0.000	70.463	0.000
Remarks:												
(U) <u>Support</u>												
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	36.144		20.491		13.828		0.000	70.463	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE  
4685 Aging Aircraft

# Aging Aircraft Schedule Summary

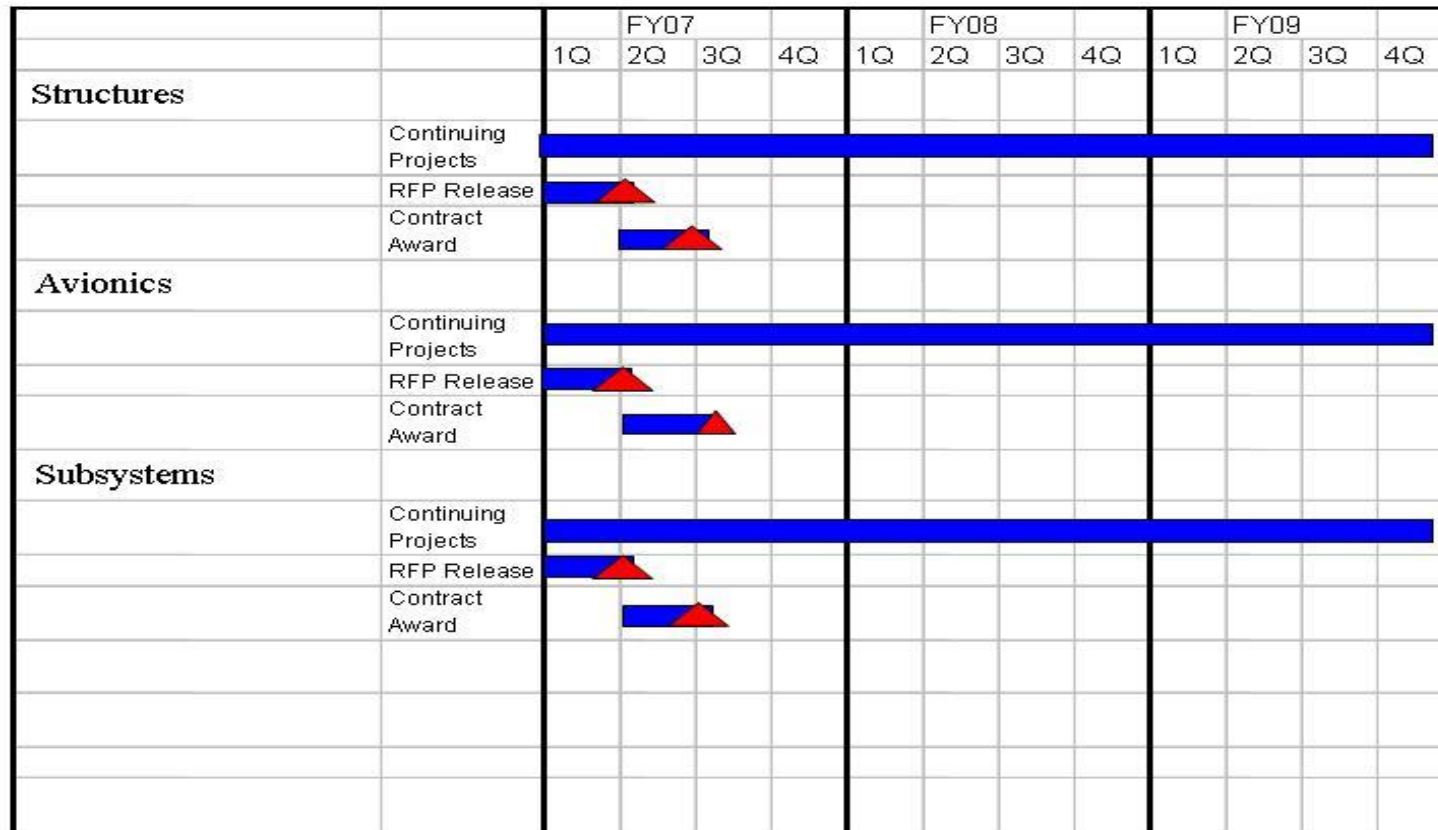


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE

4685 Aging Aircraft

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q

**UNCLASSIFIED**

PE NUMBER: 0605221F

PE TITLE: KC-X, Next Generation Aerial Refueling Aircraft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0605221F KC-X, Next Generation Aerial Refueling Aircraft</b>
--	---

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	831.759	450.152	63.823	0.000	0.000	Continuing	TBD
5271 KC-X RDT&E	0.000	0.000	831.759	450.152	63.823	0.000	0.000	Continuing	TBD

FY05 Approps bill establishes \$100M Transfer Replacement Transfer Fund (\$10.2M used by AF in FY05) -- \$89.8M funding remaining as of submission of FY08PB. FY08 Approps bill cuts \$50M in RDT&E; moves \$150M of \$264.5M FY08 RDT&E to Transfer Fund -- \$239.8M in Transfer Fund as of FY09PB. These transfer funds will be used to fund KC-X acquisition after contract award. FY08 and prior RDT&E funding is in PE 401221F.

**(U) A. Mission Description and Budget Item Justification**

FY09 and beyond RDT&E funds have been transferred from PE 401221F / BPAC 674927 KC-135 Replacement Tanker to PE 605221F / BPAC 655271 KC-X, Next Generation Aerial Refueling Aircraft.

The Air Force considered data in the Analysis of Alternatives (AoA) for KC-135 Recapitalization, industry responses to a Request for Information and two draft Request for Proposals, and is pursuing a strategy of full and open competition to select a commercial derivative replacement tanker aircraft. The KC-X is in source selection.

The Air Force needs to replace its aging KC-135 tankers (average age 47 years). This initial increment, known as KC-X, will replace roughly one-third of the current capability. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and reemployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability for performing missions in chemical and biological environments; and will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities and necessary battle space awareness to mitigate threats.

The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft that will be retrofitted back to production configuration.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605221F KC-X, Next Generation Aerial Refueling Aircraft

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	1,046.700
(U) Current PBR/President's Budget	0.000	0.000	831.759
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY09 and beyond RDT&E funds have been transferred from PE 401221F / BPAC 674927 KC-135 Replacement Tanker to PE 605221F / BPAC 655271 KC-X, Next Generation Aerial Refueling Aircraft. FY09 funds reduced for other AF bills.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0605221F KC-X, Next Generation Aerial Refueling Aircraft</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5271 KC-X RDT&amp;E</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5271 KC-X RDT&E	0.000	0.000	831.759	450.152	63.823	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY05 Approps bill establishes \$100M Transfer Replacement Transfer Fund (\$10.2M used by AF in FY05) -- \$89.8M funding remaining as of submission of FY08PB. FY08 Approps bill cuts \$50M in RDT&E; moves \$150M of \$264.5M FY08 RDT&E to Transfer Fund -- \$239.8M in Transfer Fund as of FY09PB. These transfer funds will be used to fund KC-X acquisition after contract award. FY08 and prior RDT&E funding is in PE 401221F.

**(U) A. Mission Description and Budget Item Justification**

FY09 and beyond RDT&E funds have been transferred from PE 401221F / BPAC 674927 KC-135 Replacement Tanker to PE 605221F / BPAC 655271 KC-X, Next Generation Aerial Refueling Aircraft.

The Air Force considered data in the Analysis of Alternatives (AoA) for KC-135 Recapitalization, industry responses to a Request for Information and two draft Request for Proposals, and is pursuing a strategy of full and open competition to select a commercial derivative replacement tanker aircraft. The KC-X is in source selection.

The Air Force needs to replace its aging KC-135 tankers (average age 47 years). This initial increment, known as KC-X, will replace roughly one-third of the current capability. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and reemployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability for performing missions in chemical and biological environments; and will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities and necessary battle space awareness to mitigate threats.

The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft that will be retrofitted back to production configuration.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Non-recurring engineering, RDT&E tanker aircraft and support			806.469
(U) Test			10.590
(U) Studies			5.500
(U) Mission Support			9.200
(U) Omnibus, Other Sources			
(U) Total Cost	0.000	0.000	831.759

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0605221F KC-X, Next Generation  
Aerial Refueling Aircraft**

PROJECT NUMBER AND TITLE

**5271 KC-X RDT&E**

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, BP10			61.660	1962.086	2780.974	3066.917	2970.468		
(U) Aircraft Procurement, BP11					20.504	50.161	40.211		
(U) MILCON				92.898	92.782	43.715			
(U) O&M			1.057	2.493	67.567	99.335	190.533		

FY09 and beyond RDT&E funds have been transferred from PE 401221F / BPAC 674927 KC-135 Replacement Tanker to PE 605221F / BPAC 655271 KC-X, Next Generation Aerial Refueling Aircraft.

**(U) D. Acquisition Strategy**

The KC-X program is pursuing an acquisition strategy of a full and open competition to select a commercial derivative replacement tanker aircraft. The program is currently in source selection.

As the initial phase of a comprehensive aerial refueling re-capitalization strategy, the KC-X program will replace approximately one third of the war-fighting capability provided by the current aerial refueling fleet. The KC-X program will procure approximately 179 aircraft. SDD contract award is anticipated in 2nd Qtr FY08.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0605221F KC-X, Next Generation Aerial Refueling Aircraft</b>				<b>5271 KC-X RDT&amp;E</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Non-recurring, RDT&E tanker aircraft and support	TBD	Aerospace manufacturer TBD						806.469		Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		806.469		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Studies and Analysis		Proposed ASC/EN/XR, AFVB, Edwards, AFMSS, RAND, Eglin, trainers, support contractors						10.590		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		10.590		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test and Planning	TBD	AFFTC, AFOTEC, Edwards AFB, Survivac, Live Fire						5.500		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		5.500		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> 653d Aeronautical Systems Squadron	n/a	653 AESS, Wright Patterson AFB						9.200		Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		9.200		Continuing	TBD	0.000
Remarks:												
(U) <u>AF WH, Omnibus, Other Sources</u> Air Force withhold, Omnibus, Other Sources	n/a									Continuing	TBD	
Subtotal AF WH, Omnibus, Other Sources			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		831.759		Continuing	TBD	0.000

R-1 Line Item No. 84

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Project 5271

Exhibit R-3 (PE 0605221F)

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

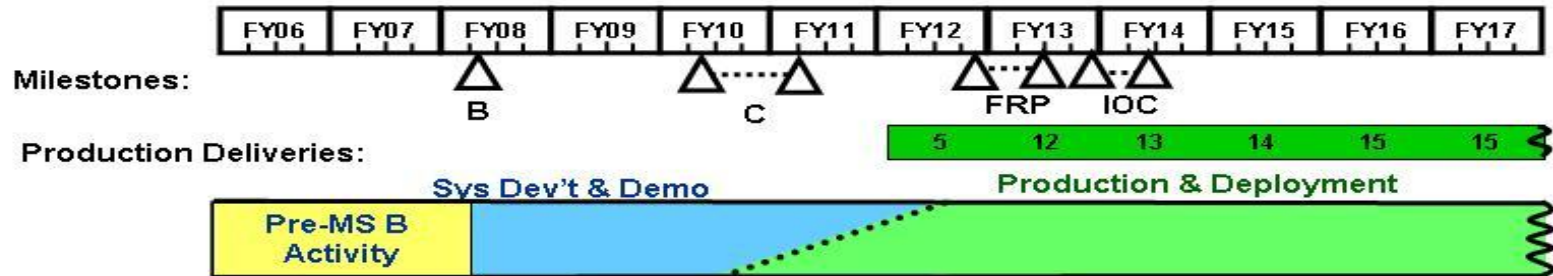
PE NUMBER AND TITLE  
0605221F KC-X, Next Generation  
Aerial Refueling Aircraft

PROJECT NUMBER AND TITLE  
5271 KC-X RDT&E



FOR OFFICIAL USE ONLY

# Notional Schedule KC-135 Replacement Program



As of:

*Integrity - Service - Excellence*

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0605221F KC-X, Next Generation  
Aerial Refueling Aircraft**

PROJECT NUMBER AND TITLE

**5271 KC-X RDT&E**

**(U) Schedule Profile**

(U) Non-recurring engineering, RDT&E tanker aircraft and support

(U) Test

(U) Studies

(U) Mission Support

FY 2007

FY 2008

FY 2009

2-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

1-4Q

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PE NUMBER: 0605277F  
 PE TITLE: CSAR-X

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0605277F CSAR-X</b>
--	--

Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	305.062	364.818	379.234	413.090	378.855	Continuing	TBD
5213 CSAR-X	0.000	0.000	305.062	364.818	379.234	413.090	378.855	Continuing	TBD

In FY 2007, CSAR-X, RDT&E efforts were transferred from PE 0207224F, Combat Rescue and Recovery, CSAR-X, to more accurately reflect funding within the CSAR-X program.

The FY 2008 PB, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

Procurement funding for CSAR-X remains in PE 0207224F and is reported in P-Docs.

**(U) A. Mission Description and Budget Item Justification**

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, to include passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: RDT&E funding includes, but is not limited to, the development of three Block 0 Test Vehicles, non-recurring engineering, software development, integration, testing and certification of the CSAR-X mission components required by the Capability Development Document (CDD), as well as simulator development for both aircrew and maintenance trainers.

Previous year funding for CSAR-X is located PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605277F CSAR-X

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000		305.062
(U) Total Adjustments	0.000		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

- Previous year funding for CSAR-X is located PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

- The CSAR-X program successfully completed a Block 0 Milestone B. Budget reflects Milestone B Block 0 requirements as well as Block 10 requirements beginning in FY10 after a successful Milestone A.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0605277F CSAR-X</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5213 CSAR-X</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5213 CSAR-X	0.000	0.000	305.062	364.818	379.234	413.090	378.855	Continuing	TBD
Quantity of RDT&E Articles	0	0	2	1	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The primary mission of the Combat Search and Rescue Replacement Vehicle (CSAR-X) is to recover downed aircrew and isolated personnel from hostile or denied territory. Rescue forces may also conduct other missions inherent in their capabilities to conduct Personnel Recovery (PR), such as non-conventional assisted recovery, non-combatant evacuation operations, civil search and rescue, international aid, emergency medical evacuation, disaster/humanitarian relief, and insertion/extraction of combat forces.

The CSAR-X will provide USAF combat forces with a vertical take-off and landing aircraft that is deployable and capable of main base and austere location operations for worldwide Combat Search and Rescue (CSAR) and Joint PR missions. On-board weapons and defensive capabilities will permit the CSAR-X to operate in an increased threat environment. An in-flight refueling system will provide an airborne alert capability and extend its combat mission range. The aircraft will be self-supporting to the maximum extent practical. The CSAR-X will be capable of operating in all environmental regions of the globe, day or night, during adverse weather conditions, to include passing through Nuclear, Biological, and Chemical (NBC) environments.

Budget Justification: RDT&E funding includes, but is not limited to, the development of three Block 0 Test Vehicles, non-recurring engineering, software development, integration, testing and certification of the CSAR-X mission components required by the Capability Development Document (CDD), as well as simulator development for both aircrew and maintenance trainers.

Previous year funding for CSAR-X is located PE 0604261, Personnel Recovery Systems. The FY 2009 PB separated the CSAR-X and HC/MC-130 Recap projects under PE 0604261, Personnel Recovery Systems, into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SPO support to include, but not limited to the development of test and evaluation master plan, preparation of Block 10 Milestone (MS) A and Block 0 MS C documentation, and execution of SDD contract.			5.943
(U) Studies and Analysis			3.209
(U) Government Test and Evaluation			13.753
(U) Development Support			8.561
(U) Software			17.635
(U) Simulator Development			48.002
(U) Block 0 System Development and Demonstration (SDD) to include, but not limited to non-recurring engineering, test vehicle hardware, and data.			207.959
(U) Block 10 SDD to include, but not limited to non-recurring engineering, test vehicle hardware, software, simulator development, and data.			

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0605277F CSAR-X</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5213 CSAR-X</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>									
(U) Total Cost									
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF (including Advanced Procurement), PE 0207224F			15.000	207.751	672.172	637.814	824.340	Continuing	TBD
(U) RDT&E, AF PE 0604261	103.337	94.352						0.000	197.689

(U) **D. Acquisition Strategy**

The CSAR-X program will pursue an incremental development strategy composed of Block 0 and Block 10 increments, each with separate milestone decision points. Block 0 will include development and fielding of a new Combat Search and Rescue (CSAR) weapon system. Block 0 will correct HH-60G force-size shortfalls while improving current CSAR capabilities of range, payload, armament, and defensive systems. Block 10 will provide for the insertion of additional systems and improved technologies into the CSAR-X to meet all thresholds stated in the CDD.

Block 0 production deliveries are planned to begin in FY12. At the conclusion of Block 10 Operational Testing, the program will begin Block 10 aircraft production and the retrofitting of Block 0 aircraft to a Block 10 configuration. The program will procure and field 141 CSAR-X helicopters along with support equipment, spares, aircrew and maintenance trainers, and associated Type 1 training.

Block 10 development is planned to begin in FY10 after a successful Milestone A decision. Block 10 will develop two Test Vehicles to the Block 10 configuration allowing for design, integration, and testing of the Block 10 capabilities.

The program is currently in source selection and development schedules are offeror dependent.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0605277F CSAR-X</b>				<b>5213 CSAR-X</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Studies and Analysis	Various	Various						3.209		Continuing	TBD	
Block 0 SDD	CPIF/AF	TBD						89.328		Continuing	TBD	
Test Vehicle Hardware	CPIF/AF	TBD						74.536		Continuing	TBD	
Software	CPIF/AF	TBD						17.635		Continuing	TBD	
Simulator Development	CPIF/AF	TBD						48.002		Continuing	TBD	
Block 10 SDD	CPIF/AF	TBD								Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		232.710		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Development Support	CPIF/AF	TBD	0.000					8.561		Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		8.561		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Government Test and Evaluation		46 TW; Eglin AFB, FL						13.753		Continuing	TBD	
Contractor Test and Evaluation	CPIF/AF	TBD						44.095		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		57.848		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
SPO Support								5.943		Continuing	TBD	
Subtotal Management			0.000	0.000		0.000		5.943		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		305.062		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0605277F CSAR-X

PROJECT NUMBER AND TITLE  
5213 CSAR-X

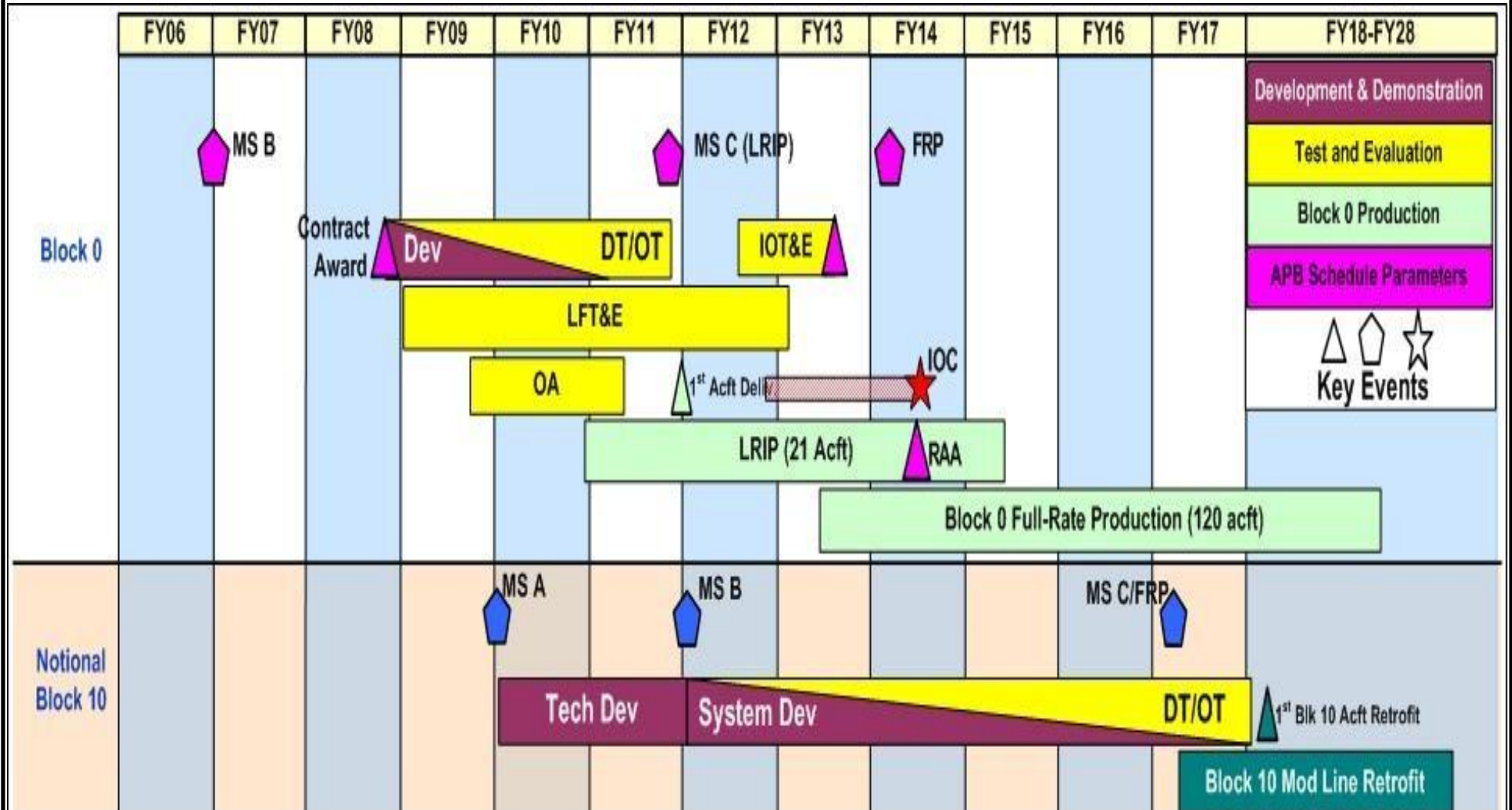




Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605277F CSAR-X

PROJECT NUMBER AND TITLE

5213 CSAR-X

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Block 0 Milestone (MS) B

1Q

(U) Conduct CSAR-X Source Selection (Amendment 5)

1-3Q

(U) Block 0 Contract Award (Including Amendment 5)

4Q

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PE NUMBER: 0605278F  
 PE TITLE: HC/MC-130 Recap

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0605278F HC/MC-130 Recap</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	11.692	10.054	4.015	2.504	2.500	Continuing	TBD
5249 HC/MC-130 Recap	0.000	0.000	11.692	10.054	4.015	2.504	2.500	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Development Document (CDD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CDD in Nov 2007.

The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. HC/MC-130 Recap was a FY 2008 New Start.

Procurement funding for HC/MC-130 Recap is included in Air Combat Command PE 0207224F and Air Force Special Operations Command PE 0207230F, as reported in P-Docs.

The FY 2009 PB requests RDT&E for systems engineering, integration and test of mature, fielded capabilities (eg., electro-optical-infrared imaging, Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS) and Enhanced Service Life (ESL) Wing, Combat Systems Officer crew station, and other modifications) with medium-transport aircraft for the HC/MC-130 Recap aircraft.

The FY 2009 PB also requests funds in PE 1160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	11.692
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

HC-130 Recap was a new start in FY 2008; funds were included in PE 0604261F

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0605278F HC/MC-130 Recap</b>			PROJECT NUMBER AND TITLE <b>5249 HC/MC-130 Recap</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5249 HC/MC-130 Recap	0.000	0.000	11.692	10.054	4.015	2.504	2.500	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P aircraft which are experiencing airworthiness, maintainability and operational limitations. The HC/MC-130 Recap Capabilities Development Document (CDD) defines a common baseline configuration for the weapon system and a FY 2012 Initial Operational Capability. The JROC validated the CDD in Nov 2007.

The FY 2008 President's Budget, PE 0604261F, Personnel Recovery Systems included funds for CSAR-X and HC/MC-130 Recap projects. The FY 2009 PB separates the two projects into distinct PEs (0605277F and 0605278F, respectively) to provide more budget clarity. HC/MC-130 Recap was a FY 2008 New Start.

Procurement funding for HC/MC-130 Recap is included in Air Combat Command PE 0207224F and Air Force Special Operations Command PE 0207230F, as reported in P-Docs.

The FY 2009 PB requests RDT&E for systems engineering, integration and test of mature, fielded capabilities (eg., electro-optical-infrared imaging, Universal Aerial Refueling Receptacle Slipway Installation (UARRSI), Enhanced Cargo Handling System (ECHS) and Enhanced Service Life (ESL) Wing, Combat Systems Officer crew station, and other modifications) with medium-transport aircraft for the HC/MC-130 Recap aircraft.

The FY 2009 PB also requests funds in PE 1160429BB for USSOCOM to develop and procure SOF-peculiar modifications to the common-configured aircraft procured by the USAF.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Acquisition Planning, Milestone Preparation, RFP development and Source Selection Activities			2.250
(U) Systems Engineering and Integration			4.740
(U) Test and Evaluation Planning, Conduct and Support			4.702
(U) Total Cost	0.000	0.000	11.692

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) HC Recap RDT&E PE 0604261F (Proj 5249)	0.000	9.937	0.000	0.000	0.000	0.000	0.000	0.000	9.937
(U) HC/MC-130 Recap APAF (Including Advance Procurement)	0.000	75.221	587.677	734.688	671.980	608.478	588.465	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605278F HC/MC-130 Recap

PROJECT NUMBER AND TITLE

5249 HC/MC-130 Recap

(U) D. Acquisition Strategy

AF plans to procure modified KC-130Js in FY 2009 and FY 2010 to meet the Warfighter's immediate requirement and conduct a business case analysis to determine the acquisition strategy to procure the remaining aircraft.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0605278F HC/MC-130 Recap</b>					<b>5249 HC/MC-130 Recap</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Systems Engineering and Integration	TBD	TBD		0.000				4.740	Nov-08	15.000	19.740	TBD
Subtotal Product Development			0.000	0.000		0.000		4.740		15.000	19.740	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test and Evaluation Conduct	TBD	TBD		0.000				2.300	Nov-08	2.000	4.300	TBD
Test and Evaluation Support	TBD	TBD		0.000				2.402	Nov-08	2.000	4.402	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		4.702		4.000	8.702	TBD
Remarks:												
(U) <u>Management</u>												
SPO Support	TBD	TBD						2.250			2.250	
Subtotal Management			0.000	0.000		0.000		2.250		0.000	2.250	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		11.692		19.000	30.692	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

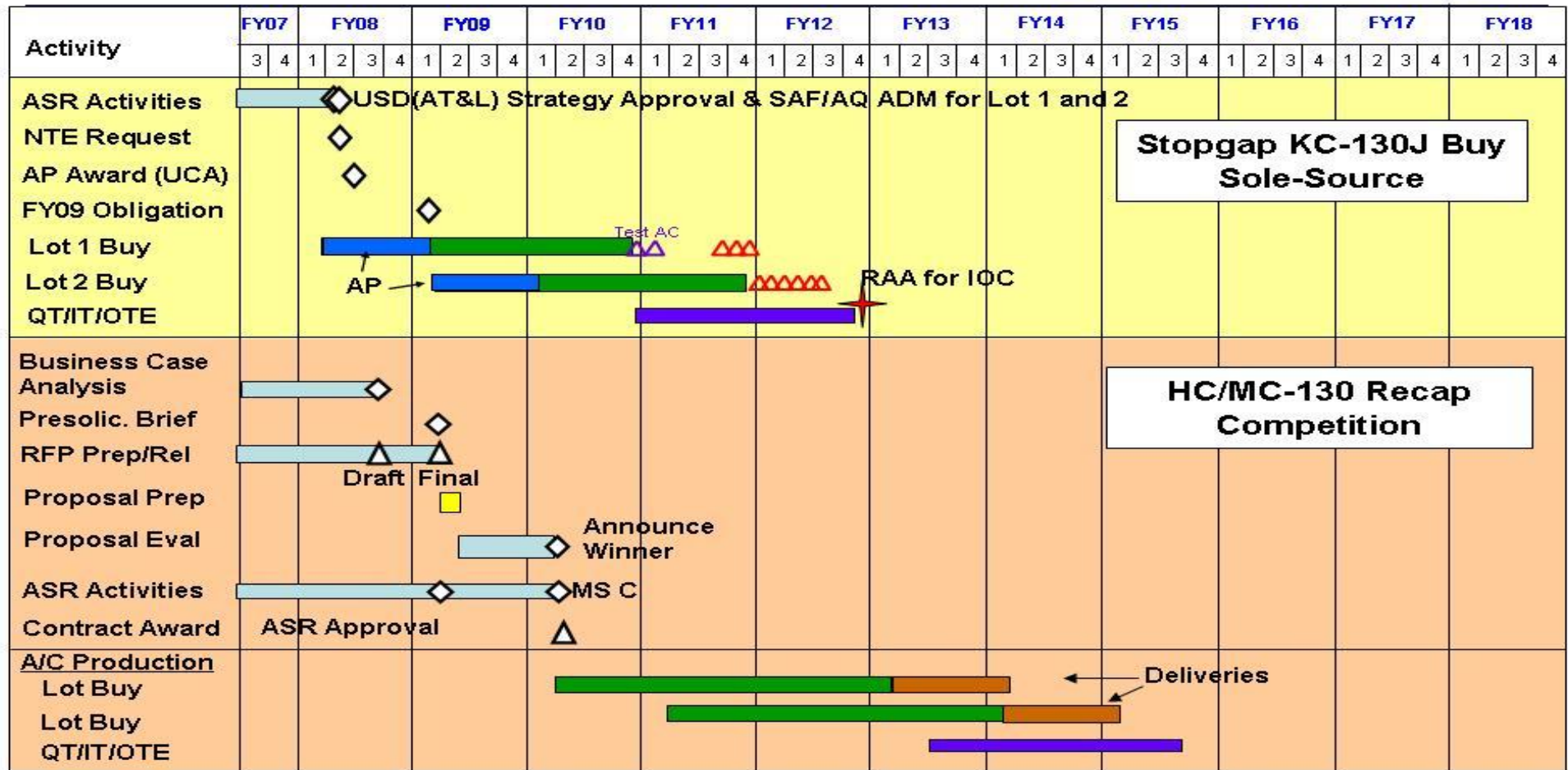
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0605278F HC/MC-130 Recap

PROJECT NUMBER AND TITLE  
5249 HC/MC-130 Recap

For Official Use Only

# HC/MC-130 Recapitalization Program Schedule



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Project 5249

Exhibit R-4 (PE 0605278F)

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0605278F HC/MC-130 Recap**

PROJECT NUMBER AND TITLE

**5249 HC/MC-130 Recap**

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Conduct Market Research	1-3Q		
(U) Develop Acquisition Strategy	1-4Q		
(U) JROC Validation of CDD		1Q	
(U) Acquisition Strategy Approval		2Q	
(U) Advance Procurement Contract Award (Lot 1)		2Q	
(U) Production Contract Award (Lot 1)			1Q
(U) Advance Procurement Contract Award (Lot 2)			1Q



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	156.169	194.652	186.213	151.735	164.954	175.223	191.891	Continuing	TBD
5050 TDL System Integration	156.169	49.534	50.135	57.883	62.127	64.235	65.163	Continuing	TBD
5262 Family of Gateways	0.000	145.118	136.078	93.852	102.827	110.988	126.728	0.000	0.000

As of FY07, funding for the Single Integrated Air Picture program (SIAP) moved from PE 0207434F and PE 0207443F to PE 0207451F. In FY08, Project 655262 was established to consolidate gateway efforts within the Link 16 Support & Sustainment program element. FY07 and prior funding for gateways is in Project 655050, Tactical Data Link (TDL) System Integration.

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDLs) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST), Advanced Tactical Data Link (ATDL), and Radar Common Data Link (R-CDL).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among ground and C2 platforms. Utilization of TDLs in a joint environment requires the integration of terminals [e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS)] into host platforms, and designing interoperability of data link networks across all deployed joint and allied platforms. The 653rd Electronic Systems Group (653rd ELSG) performs several cross-platform activities to ensure proper integration of TDL capabilities and interoperability of TDL networks. TDL efforts include incorporating changes and additions to the Link 16 message standard (MIL-STD-6016C), incorporating Link 16 enhancements and Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively. The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This program participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, and/or space-based C4ISR networks to produce operational effects not possible within individual networks. The AF continues to enhance the interoperability and capabilities of fielded gateways such as the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality, Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). The Objective Gateway (OG) program is developing a family of advanced gateway capabilities to enable a transition from legacy gateways with niche requirements and narrow user-sets. OG will be modular and scalable, with Internet Protocol (IP)-based networking capabilities that service theater-wide operational and tactical users.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207434F Link 16 Support and Sustainment**

The OG program will be fielded in two increments. Increment 1 will provide early OG capability based on technology demonstration and risk reduction efforts completed to date. Increment 2 will develop, test, integrate, and field the full OG capability. Common Link Integration Processing (CLIP) is an Air Force/Navy program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne maritime, and fixed-site systems.

This program is in budget activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	173.216	199.363	207.268
(U) Current PBR/President's Budget	156.169	194.652	186.213
(U) Total Adjustments	-17.047		
(U) Congressional Program Reductions		-3.478	
Congressional Rescissions		-1.233	
Congressional Increases			
Reprogrammings	-17.047		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

- In FY08/09, funding was added to expand the Objective Gateway program to field an early, Increment 1, capability.
- In FY08, \$3M Congressional reduction to Objective Gateway Core Contract Award
- In FY09, funding was reduced due to higher Air Force priorities.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>05 System Development and Demonstration (SDD)</b>				<b>0207434F Link 16 Support and Sustainment</b>			<b>5050 TDL System Integration</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5050 TDL System Integration	156.169	49.534	50.135	57.883	62.127	64.235	65.163	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

As of FY07, funding for the Single Integrated Air Picture program (SIAP) moved from PE 0207434F and PE 0207443F to PE 0207451F.

Beginning in FY08, all TDL funding for gateway programs moved from Project 655050 to new Project 655262, Family of Gateways.

(U) **A. Mission Description and Budget Item Justification**

TDLs are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and mission assignments. TDLs provide interoperable data exchange, local and global connectivity, and situational awareness to the tactical user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons and sensor platforms. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), Tactical Targeting Network Technology (TTNT), Flexible Access Secure Transfer (FAST), Advanced Tactical Data Link (ATDL), and Radar Common Data Link (R-CDL).

The number of Air Force platforms hosting TDLs is expanding from C2 aircraft (E-3, E-8, etc.) to the fighter, bomber, ISR, tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Network Centric Transformation activities performed by the 653rd Electronic Systems Group (653rd ELSG) include, but are not limited to: enabling and supporting the transformation to network-centric operations, Common Link Integration Processor (CLIP) software development (moved to new Project 655262 beginning in FY08), Network Enabled Weapons (previously Weapons Data Link), analysis and integration efforts encompassing hardware, software, operational Link 16 enhancements, and training and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of service-wide network management procedures and operations, system wide enhancements and test.

In addition, this project funds the development and integration of the Joint Interface Control Officer (JICO) - Support System (JSS). JSS is an AF-led joint program to develop a TDL management toolkit to enable JICOs to plan multi-TDL architectures, manage data exchange requirements, execute and monitor a multi-TDL network, and respond to correct network deficiencies.

Prior to FY08, this project also funded development of TDL gateways such as the Objective Gateway, the Joint Air Defense System Integrator (JADSI), the family of Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, Enhanced Tactical Data Link and Data Display [previously called Link 16 Alaska (LAK)], and Beyond Line of Sight (BLOS) capabilities such as the Roll-on BLOS Enhancement (ROBE). Funding for all the gateway programs above moved to Project 655262 beginning in FY08.

JINTACCS is a Joint Staff-directed program providing Air Force activities responsible for ensuring the interoperability of AF TDLs [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207434F Link 16 Support and Sustainment**

PROJECT NUMBER AND TITLE

**5050 TDL System Integration**

interoperability assessments and interoperability certification testing. The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., Air Tasking Order and Air Control Order). This budget activity also includes TDL roadmap configuration management, Interoperable System Management and Requirements Transformation (iSMART) implementation. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, and development of special projects.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) TDN MANAGEMENT AND INITIAL FIELDING:	39.569	12.788	11.402
<ul style="list-style-type: none"> <li>- Joint Interface Control Officer Support System (JSS): Complete production representative development and system testing (DT&amp;E, OT&amp;E) required for FY08 Milestone C decision.</li> <li>- TDL Integration, Fielding and Support: Provides initial fielding support for units/platforms fielding a data link capability. This support consists of organic and contractor teams that provide Tactics, Techniques &amp; Procedures (TTP) training, equipment and operations expertise needed to set-up initial TDL operations and field installations. Develops TDL architectures for implementation at AF and Joint locations worldwide resulting in a 20%-100% increase in TDL mission capability. Supports AF and Joint TDL experiments.</li> </ul>			
(U) NETWORK CENTRIC TRANSFORMATION:	46.528	15.301	25.276
<ul style="list-style-type: none"> <li>- Network Centric Transformation activities including, but not limited to: enabling and supporting the transformation to network centric operations, Network Enabled Weapons (previously Weapons Data Link), Network Centric Capability Assessment, Link 16 network centric enhancements, Tactical Targeting Network Technology (TTNT), and Common Link Integration Processing (CLIP) software development. Beginning in FY08, CLIP funding moved to Project 655262.</li> <li>- Maintain developmental equipment; test support; fielding/non-recurring training; network support; crypto support; spectrum support; gateway support; data link tool support; and support operational working groups.</li> </ul>			
(U) GATEWAYS:	43.681		
<ul style="list-style-type: none"> <li>- Efforts associated with data link network management and network capability improvements, including, but not limited to: Link 16 and other TDL gateways and interfaces; existing gateways such as JRE, JTEP, TMPG, JADSI; and Objective Gateway development. Beginning in FY08, all gateway funding moved to Project 655262.</li> </ul>			
(U) ROLL-ON BEYOND-LINE-OF-SIGHT ENHANCEMENT (ROBE):	0.449		
<ul style="list-style-type: none"> <li>- Spiral 2 effort applied to the 40 ROBE-Spiral 1 equipped KC-135s (Group A and Group B kits). This effort will add capabilities such as, but not limited to: a Situational Awareness Data Link (SADL) gateway, Built in Test (BIT), Remote Control, and additional Satellite Communications (SATCOM) capability. Funding ends for ROBE in FY07.</li> </ul>			
(U) TDN INTEROPERABILITY TEST AND CONFIGURATION MANAGEMENT:	17.181	18.122	8.637

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Project 5050

Exhibit R-2a (PE 0207434F)

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5050 TDL System Integration</b>

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
- JINTACCS Tactical Data Link management, architecture development and certification testing.			
- Implementation and interoperability scheduling with the A-10, F-15, F-16, B-52, B-1, B-2, and other weapon systems			
- Software updates and interoperability testing with the F-15C, E-3, E-8, Control and Reporting Center/Control and Reporting Element (CRC/CRE), interoperable Systems Management and Requirements Transformation (iSMART), and other weapon systems.			
- Tactical Data Link roadmap requirements, configuration management, and Air Force Participating Test Unit activities (AFPTU).			
<b>(U) TACTICAL DATA LINK ACQUISITION MANAGEMENT: Includes the 640th Electronic Systems Squadron (640th ELSS) on-line collaboration tool [Integrated Digital Environment (IDE)], coalition interoperability management, contractor support and MITRE support.</b>	7.161	3.323	4.820
<b>(U) CONGRESSIONAL ADDS: Pocket J - a deployable Link 16 capability for temporary, austere, or remote locations. Beginning in FY08, Pocket J funding moved to Project 655262.</b>	1.600		
<b>(U) Total Cost</b>	156.169	49.534	50.135

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
<b>(U) AF RDT&amp;E (3600)</b>									
<b>(U) 0207445F (Fighter TDL)</b>	88.094	38.944	62.788	90.709	0.000	0.000	0.000	Continuing	TBD
<b>(U) 0207446F (Bomber TDL)</b>	87.613	36.875	11.702	0.000	0.000	0.000	0.000	Continuing	TBD
<b>(U) 0207448F (C2ISR TDL)</b>	4.126	1.795	1.727	1.695	1.627	1.659	1.693		14.322
<b>(U) 0401839F (Airlift TDL)</b>	6.785	0.000	0.000	0.000	0.000	0.000	0.000		6.785
<b>(U) Other APPN</b>									
<b>(U) Aircraft Procurement, AF (3010)</b>									
<b>(U) 0207434F (Link 16 Sup &amp; Sus)</b>	0.735	0.001	0.008	35.674	88.253	92.337	64.443	Continuing	TBD
<b>(U) 0207445F (Fighter TDL)</b>	51.047	35.434	5.804	9.790	0.778	0.776	0.000		103.629
<b>(U) 0207446F (Bomber TDL)</b>	11.775	4.488	0.000	0.000	0.000	0.000	0.000		16.263
<b>(U) 0401839F (Airlift TDL)</b>	2.000	12.394	12.612	26.284	26.616	27.138	27.679	Continuing	TBD
<b>(U) O&amp;M, AF (3400)</b>									
<b>(U) 0207434F (Link 16 Sup &amp; Sus)</b>	16.156	12.998	22.364	12.947	14.825	17.383	18.784	Continuing	TBD
<b>(U) 0207445F (Fighter TDL)</b>	0.000	0.276	0.286	0.284	0.281	0.285	0.291		

R-1 Line Item No. 87

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Project 5050

Exhibit R-2a (PE 0207434F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207434F Link 16 Support and Sustainment</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5050 TDL System Integration</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) 0401839F (Airlift TDL)	4.301	5.468	6.537	11.351	17.311	17.673	18.037	Continuing	TBD
(U) Other Procurement, AF (3080)									
(U) 0207434F (Link 16 Sup & Sus)	36.886	25.756	16.126	39.612	41.093	22.144	7.110	Continuing	TBD

(U) **D. Acquisition Strategy**

The 653rd Electronic Systems Group (ELSG), formerly the Tactical Data Links System Program Office, provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.



Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

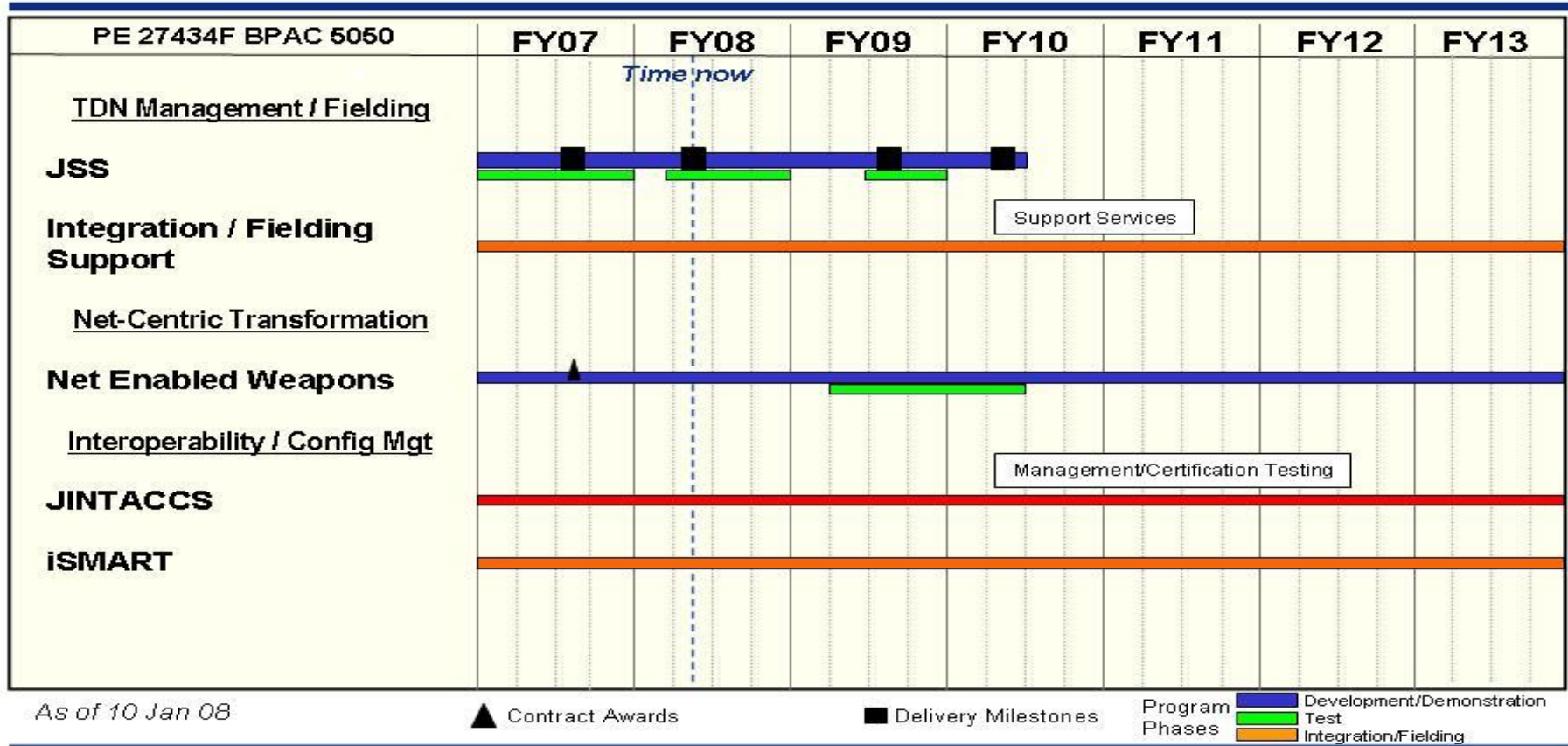
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5050 TDL System Integration



# Tactical Data Links / Link 16 TDL Systems Integration Schedules



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5050 TDL System Integration

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>			
(U) JSS Development	1-4Q	1-4Q	1-4Q
(U) JSS Test & Certification	1-4Q	2-4Q	3-4Q
(U) TDL Integration & Fielding Support	1-4Q	1-4Q	1-4Q
(U) Network Enabled Weapons Contract Award	3Q		
(U) Network Enabled Weapons Development	1-4Q	1-4Q	1-4Q
(U) Network Enabled Weapons Test & Certification			2-4Q
(U) JINTACCS	1-4Q	1-4Q	1-4Q
(U) iSMART	1-4Q	1-4Q	1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

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February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)			0207434F Link 16 Support and Sustainment				5262 Family of Gateways		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5262 Family of Gateways	0.000	145.118	136.078	93.852	102.827	110.988	126.728	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

This project was established in FY08 to consolidate gateway efforts within the Link 16 Support & Sustainment program element. The Air Force has identified these gateway efforts as the Family of Gateways program. FY07 and prior funding for gateways is in Project 655050, TDL System Integration.

(U) **A. Mission Description and Budget Item Justification**

Gateway systems enable combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks to produce operational effects not possible within individual networks. Gateway functions include: 1) enabling interoperability among otherwise incompatible systems by translating between data formats, protocols, and communication mediums, 2) extending the range of Line-of-Sight constrained systems through relay functions or by routing through Beyond-Line-of-Sight links, 3) consolidating data from multiple networks into high capacity links for transmission to key C2ISR nodes, 4) routing information to and from communications disadvantaged users, 5) correlating data from multiple sources to increase utility and improve accuracy, and 6) providing application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/management. A primary benefit is that gateways provide cost-effective modernization and achieve network-centric warfighting effects without modification of individual platforms.

Existing gateways include the Joint Air Defense System Integrator (JADSI), Joint Range Extension (JRE) functionality [which includes the JRE Transparent Multi-Platform Gateway (TMPG) Equipment Package (JTEP)], Pocket J, and Roll-On Beyond-line-of-sight Enhancement (ROBE). These legacy gateways, which are fielded in multiple Joint and Service C2 centers and platforms, primarily provide tactical data link range extension and interoperability. The AF continues to enhance the interoperability and capabilities of fielded gateways through processing capability upgrades, operating system updates, display/graphical user interface upgrades, incorporation of additional messaging standards and protocols, and completion of gateway architecture fielding.

The Objective Gateway (OG) program will deliver a set of advanced gateway capabilities to increase voice and data communications connectivity and information interoperability across many users and platforms in the tactical edge (including homeland defense). OG will bring these users and platforms into the net-centric Global Information Grid (GIG) via a secure, high-capacity network of collaborating OG nodes. Projected OG users and platforms include fighter and bomber aircraft, airborne and ground C2 nodes, mobile and dismounted forces, first responders and command centers, and other users in the GIG. Communications systems include legacy tactical data links, advanced (IP-based) tactical data links, military and civilian voice radios, satellite communications, cellular radios, and terrestrial networks. OG nodes are anticipated to be fielded on five types of platforms, or variants: Tactical Airborne, Strategic Airborne, Ground, Maritime, and Training. OG will be fielded in two increments. Increment 1 will provide initial OG capabilities to meet warfighters' demands based on the Battlefield Airborne Communications Node (BACN) airborne gateway and the Rapid Attack Information Dissemination Execution Relay (RAIDER) ground modular gateway technology demonstration and risk reduction efforts completed to date. FY08-09 activities for Increment 1 include development and test of production representative airborne and ground gateway hardware and software configurations, and development of required technical and support documentation. Increment 2 will develop, test, and integrate the OG Core. This is the common OG software which will be used in combination with various communications terminals and other systems to produce individual OG nodes, whose configurations and capabilities are tailorable to meet different platform Size, Weight, and Power (SWaP) and mission requirements. OG Core functions will include

Exhibit R-2a, RDT&E Project Justification

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February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE

5262 Family of Gateways

Tactical Data Network (TDN) message translation, correlation, and forwarding, which will be provided, in part, by the initial fielding of the Common Link Integration Processing (CLIP) capability. FY08-09 activities for Increment 2 include OG Core technical risk reduction, prototyping, assessment of CLIP-like capability requirements, and development of an OG Core Reference System Architecture -- the framework that will provide for performance, extensibility, modifiability, scalability, and portability of the OG Core's modular system components.

Common Link Integration Processing (CLIP) is a program to develop a common, reusable, configurable, and extensible tactical data link message processing solution for airborne, maritime, and fixed-site systems, with initial fielding on B-1 & B-52. Program leadership is scheduled to transfer from the Navy to the AF by FY09. The AF and Navy made equitable contributions to CLIP RDT&E funding through FY07. The AF is funding CLIP RDT&E beginning in FY08. CLIP is a software-only, weapon system-independent middleware application that provides gateway services among diverse message sets and waveforms. CLIP effectively isolates the host platform system software from changes in data link message format and processing. Because message processing is no longer embedded in mission software, message standard updates can be incorporated without costly mission software changes. The result is enhanced interoperability and significantly reduced integration and life-cycle sustainment costs.

This program is in Budget Activity 5 (System Development and Demonstration (SDD)) because it supports mature system development, integration and demonstrations, initial fielding support activities, operational support activities, and support of special projects

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) CLIP development and testing		28.828	28.302
(U) Objective Gateway development and test, including BACN and RAIDER demonstrations and incremental Objective Gateway development		95.041	84.207
(U) Development, integration, and testing of JADSI capability enhancements		4.175	4.346
(U) Development, integration, and testing of JRE/JTEP capability enhancements		3.065	3.534
(U) Development, integration, and testing of SADL/TMPG capability enhancements		2.224	2.381
(U) Development, integration, and testing of Pocket J capability enhancements		0.773	0.801
(U) Family of Gateways test and evaluation support		4.738	4.753
(U) Tactical Data Link Acquisition Management: Includes the 640th Electronic Systems Squadron (640th ELSS) on-line collaboration tool [Integrated Digital Environment (IDE)], contractor support and MITRE support.		6.274	7.754
(U) Total Cost	0.000	145.118	136.078

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E (3600)									
(U) 0207445F (Fighter TDL)	88.094	38.944	62.788	90.709	0.000	0.000	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	87.613	36.875	11.702	0.000	0.000	0.000	0.000	Continuing	TBD

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207434F Link 16 Support and Sustainment</b>	PROJECT NUMBER AND TITLE <b>5262 Family of Gateways</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) 0207448F (C2ISR TDL)	4.126	1.795	1.727	1.695	1.627	1.659	1.693	Continuing	TBD
(U) 0401839F (Airlift TDL)	6.785	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other APPN									
(U) Procurement (3010)									
(U) 0207434F (Link 16 Sup & Sus)	0.735	0.001	0.008	35.674	88.253	92.337	64.443	Continuing	TBD
(U) 0207445F (Fighter TDL)	51.047	35.434	5.804	9.790	0.778	0.776	0.000	Continuing	TBD
(U) 0207446F (Bomber TDL)	11.775	4.488	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 0401839F (Airlift TDL)	2.000	12.394	12.612	26.284	26.616	27.138	27.679	Continuing	TBD
(U) Other Procurement (3080)									
(U) 0207434F (Link 16 Sup & Sus)	36.886	25.756	16.126	39.612	41.093	22.144	7.110	Continuing	TBD
(U) O&M (3400)									
(U) 0207434F (Link 16 Sup & Sus)	16.156	12.998	22.364	12.947	14.825	17.383	18.784	Continuing	TBD
(U) 0207445F (Fighter TDL)	0.000	0.276	0.286	0.284	0.281	0.285	0.291	Continuing	TBD
(U) 0401839F (Airlift TDL)	4.301	5.468	6.537	11.351	17.311	17.673	18.037	Continuing	TBD

**(U) D. Acquisition Strategy**

The 653rd Electronic Systems Group (ELSG), formerly the Tactical Data Links System Program Office, provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0207434F Link 16 Support and Sustainment</b>				<b>5262 Family of Gateways</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
CLIP	MIPR	SPAWAR, San Diego, CA				28.828	Jan-08	28.302	Jan-09	Continuing	TBD	TBD
Objective Gateway Development (including BACN and RAIDER demonstration efforts)	VARIOUS	Various				95.041	Dec-07	84.207	Dec-08	Continuing	TBD	TBD
JADSI enhancements	T&M/FFP	Ultra Electronics, Austin, TX				4.175	Jan-08	4.346	Dec-08	Continuing	TBD	TBD
JRE/JTEP enhancements	T&M/FFP	Centech, Arlington, VA				3.065	Dec-07	3.534	Dec-08	Continuing	TBD	TBD
SADL/TMPG enhancements	T&M/FFP	Raytheon, Fullerton, CA				2.224	Dec-07	2.381	Dec-08	Continuing	TBD	TBD
Pocket J enhancements	TBD	ProLogic, WV				0.773	Jan-08	0.801	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		134.106		123.571		Continuing	TBD	TBD
Remarks:		FY07 and prior funding is in Project 655050.										
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
46th Test Squadron	Project Order/MIPR	Eglin AFB, FL				4.738	Nov-07	4.753	Nov-08	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		4.738		4.753		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Program Office and Contractor Support	C/FFP					6.274	Nov-07	7.754	Nov-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		6.274		7.754		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		145.118		136.078		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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February 2008

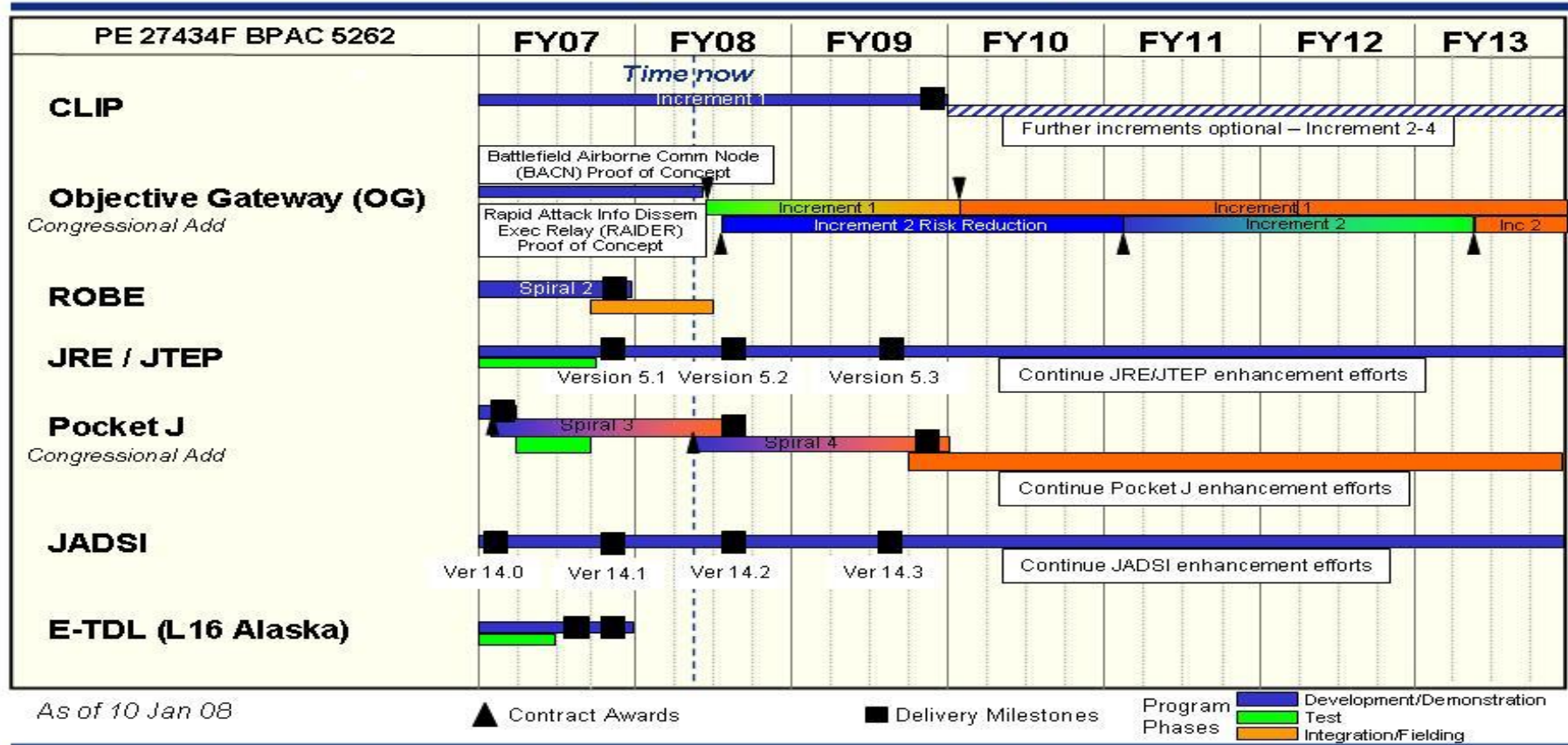
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207434F Link 16 Support and Sustainment

PROJECT NUMBER AND TITLE  
5262 Family of Gateways



# Tactical Data Links / Link 16 Family of Gateways Schedules



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207434F Link 16 Support and Sustainment</b>	PROJECT NUMBER AND TITLE <b>5262 Family of Gateways</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) JADSI Development	1-4Q	1-4Q	1-4Q
(U) JADSI Product Delivery	4Q	3Q	3Q
(U) CLIP Development	1-4Q	1-4Q	1-4Q
(U) CLIP Product Delivery			4Q
(U) JRE/JTEP Development	1-4Q	1-4Q	1-4Q
(U) JRE/JTEP Product Delivery	4Q	3Q	3Q
(U) Pocket J Contract Award	1Q	2Q	
(U) Pocket J Development	1-4Q	1-4Q	1-4Q
(U) Pocket J Product Delivery	1Q	3Q	4Q
(U) ROBE Development	1-4Q		
(U) ROBE Enhancements		1-2Q	
(U) Objective Gateway (OG) Risk Reduction	1-4Q	1-2Q	
(U) OG Increment 1 Development & Test Contract Award		2Q	
(U) OG Increment 2 Risk Reduction Contract Award		3Q	
(U) OG Increment 2 Risk Reduction		3-4Q	1-4Q

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PE NUMBER: 0207450F  
 PE TITLE: E-10 Squadrons

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	351.924	39.032	42.215	0.000	0.000	0.000	0.000	Continuing	TBD
5131 Airframe	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	478.675
5132 Sensors	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD

(U) The E-10 program was terminated in FY08. The Global Hawk (GH) MP-RTIP sensor development continues through FY09 in the sensors project line.

**(U) A. Mission Description and Budget Item Justification**

FY2008 funding totals do not include \$178.390M FY2008 GWOT requirements still pending Congressional consideration.

The Global Hawk portion of the MP-RTIP program remains fully funded and will continue to provide a radar for a robust Global Hawk intelligence, surveillance, and reconnaissance (ISR) capability. The MP-RTIP equipped Global Hawk defines the Global Hawk Block 40 configuration which provides persistent ISR, including GMTI, SAR imaging, and limited AMTI capabilities. Global Hawk Block 40 will not provide a cruise missile defense capability. MP-RTIP will continue to support NATO Alliance Ground Surveillance (AGS) radar conceptual design and early decision analysis activities to support the United States' involvement in the NATO AGS program. This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). MP-RTIP entered SDD in FY04.

The E-10A program was in Pre-SDD, or Technology Development, and the testbed aircraft would have supported MP-RTIP WAS flight test for the MP-RTIP SDD program. The E-10A was intended to be a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide-band communications systems. The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) WAS radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic Battle Management, Command & Control (BMC2) with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions.

## Exhibit R-2, RDT&amp;E Budget Item Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	366.012	39.703	42.568
(U) Current PBR/President's Budget	351.924	39.032	42.215
(U) Total Adjustments	-14.088	-0.671	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	-2.184	-0.313	
Congressional Increases			
Reprogrammings	-1.416		
SBIR/STTR Transfer	-10.488	-0.358	
(U) <u>Significant Program Changes:</u>			
- E-10A technology demonstration program terminated in May 07			
- E-10A WAS portion of MP-RTIP terminated May 07			
- E-10 767-400ER aircraft terminated Oct 07			
- Limited risk reduction of BMC2 Mission Execution, BMC2 Kill Chain, and Radar Hardware verification directed to continue			
- FY08 PB included funding to complete the GH MP-RTIP Development Units (DU).			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5131 Airframe</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5131 Airframe	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	478.675
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) The E-10 program was terminated in FY08.

**(U) A. Mission Description and Budget Item Justification**

This project was established to design, develop, and integrate modifications to a wide-body aircraft to host multiple sensor configurations with integrated Battle Management Command & Control (BMC2). The E-10A would have been a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) Wide Area Surveillance (WAS) radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic BMC2 with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions.

Funds in this project have been used to: (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the MP-RTIP WAS "large-sized" variant of the MP-RTIP radar system, (2) design and develop the testbed modifications, (3) support Weapon System Integration activities to include development of key BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities including leveraging BMC2 development for other enterprise applications, and (5) conduct risk reduction activities in the areas of BMC2 Mission Execution and BMC2 Kill Chain.

This program was categorized as Budget Activity (BA) 5 to reflect a program in Technology Development (Pre-System Development and Demonstration (Pre-SDD)), with the testbed aircraft supporting flight test for the MP-RTIP WAS Radar SDD program.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Weapon System Integration (WSI) efforts (including BMC2 efforts)--beginning with a demonstration aircraft and necessary BMC2 to prove the Key Performance Parameters (KPPs) and basic radar requirements associated with the WAS/MP-RTIP sensor until termination decision.	82.732	0.000	0.000
(U) Incremental funding of a 767-400ER testbed.	25.000	0.000	0.000
(U) Purchase MP-RTIP Lab/Test Hardware (Development Unit) materials.	0.000	0.000	0.000
(U) Systems engineering and design activities until termination decision.	14.080	0.000	0.000
(U) Test & Evaluation Efforts (examples include Joint Test Force (JTF), Air Force Operational Test and Evaluation Center (AFOTEC), Operator-In-The-Loop (OITL), Joint Interoperability Test Center (JITC)) including support of BMC2 Kill Chain and Mission Execution risk reduction activities.	0.361	0.000	0.000
(U) Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction	46.800	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

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February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F E-10 Squadrons</b>	PROJECT NUMBER AND TITLE <b>5131 Airframe</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(including BMC2 efforts), technology insertion/development, and spiral development efforts supporting continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and cruise missile defense architecture, joint decisive operations and the AEF Task Force CONOPS. Continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and MP-RTIP WAS Radar Hardware Verification.			
(U) Program office operations effort.	0.656	0.368	0.000
(U) Total Cost	169.629	0.368	0.000

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207450F Project 5132 (MP-RTIP Sensors)	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD

(U) Remark: The program office terminated the E-10A portion of the MP-RTIP WAS radar development based on direction received in May 07. This direction also included authorization to continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution and BMC2 Kill Chain. The program office terminated the 767-400ER aircraft, originally envisioned as the E-10A tested, based on direction received in Oct 07.

(U) **D. Acquisition Strategy**  
On 30 May 2006, OSD(AT&L) approved the acquisition strategy focusing on technology development/risk reduction, with emphasis on demonstrating a Cruise Missile Defense capability coupled with interleaved Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) capabilities. This would have allowed entry into a low-risk SDD phase for the E-10A Weapon System. The program office terminated the E-10A TDP received in May 07. This direction also included authorization to continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution and BMC2 Kill Chain. The program office terminated the 767-400ER aircraft, originally envisioned as the E-10A testbed, based on direction received in Oct 07.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5131 Airframe</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Weapon System Integration (WSI) and Battle Management Command & Control (BMC2)	SS/CPAF	Northrop Grumman Corporation; Melbourne, FL	541.413	82.732	Oct-06	0.000		0.000		0.000	624.145	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	64.981	25.000	Oct-06	0.000		0.000		0.000	89.981	TBD
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA	71.850	0.000		0.000		0.000		0.000	71.850	TBD
Systems Engineering Future Studies/Spiral Development	Various SS/CPFF	Various Northrop Grumman Corporation; Melbourne, FL	25.013	0.000	Oct-06	0.000		0.000		0.000	25.013	TBD
			37.377	46.800	Jun-07	0.000		0.000		0.000	84.177	TBD
Subtotal Product Development			740.634	154.532		0.000		0.000		0.000	895.166	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
AFOTEC	AF Form 616	Various	0.308	0.000		0.000		0.000		0.000	0.308	TBD
Joint Test Force (JTF) Operator-In-The-Loop (OITL)	Various MIPR	Various Hanscom AFB, MA	2.439	0.361	Oct-06	0.000		0.000		0.000	2.800	TBD
			0.217	0.000		0.000		0.000		0.000	0.217	TBD
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA	0.058	0.000		0.000		0.000		0.000	0.058	TBD
Subtotal Test & Evaluation			3.022	0.361		0.000		0.000		0.000	3.383	TBD
Remarks:												
<u>(U) Management</u>												
Program Office Support	Various	Various	3.255	0.656	Oct-06	0.368	Oct-07	0.000		0.000	4.279	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA	36.740	14.080	Oct-06	0.000		0.000		0.000	50.820	TBD
Subtotal Management			39.995	14.736		0.368		0.000		0.000	55.099	TBD
Remarks:												
<u>(U) Total Cost</u>			783.651	169.629		0.368		0.000		0.000	953.648	TBD

Remarks: FY2003 and FY2004 reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe).  
The Air Force terminated the 767-400ER aircraft, originally envisioned to serve as the E-10A flying testbed, in Oct 07, thereby avoiding the final payment (\$34.6M, FY07).

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

# E-10A Program Pre-SDD – Technology Development

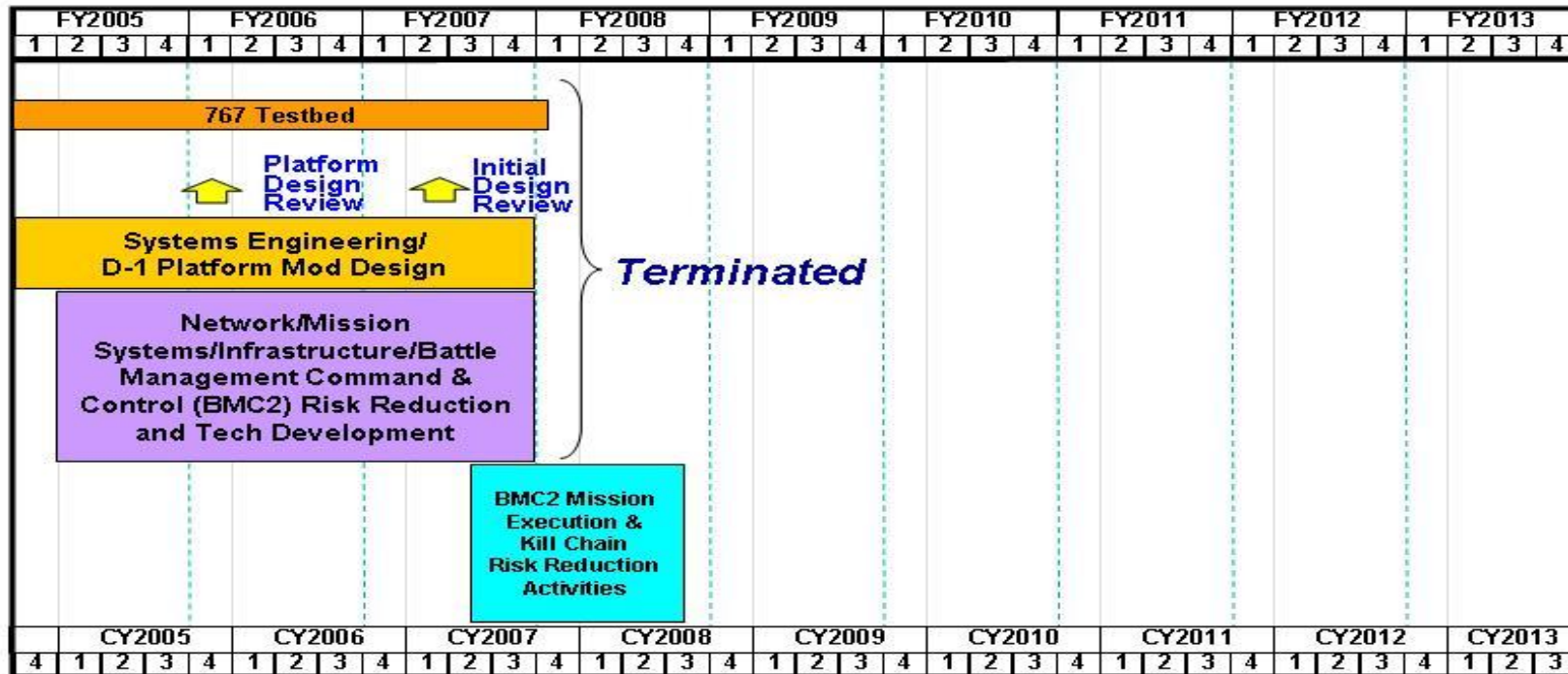


Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE

5131 Airframe

(U) Schedule Profile

(U) System Engineering/D-1 Platform Modification Design

(U) Network/Mission Systems/Infrastructure/BMC2 Risk Reduction and Technology Development

(U) System Initial Design Review (IDR)

FY 2007

1-4Q

1-4Q

2Q

FY 2008

1-3Q

FY 2009

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5132 Sensors</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5132 Sensors	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) Remarks:**

- The program office terminated the E-10A portion of the MP-RTIP WAS radar development based on direction received in May 07. FY08 and FY09 PB include funding to complete the Global Hawk MP-RTIP Development Units (DU).
- FYDP RDT&E Article Deliveries:  
 FY 2006: Global Hawk (GH) Development Unit (DU #1) RTIP radar for integration  
 FY 2007: GH DU #2 radar for integration to Proteus and support of RQ-4B development/operational test (DT/OT) in FY2009.  
 FY 2007: GH DU #3 radar emulator to support RQ-4B platform system integration.

**(U) A. Mission Description and Budget Item Justification**

This project was established to develop a family of modular, scalable next generation sensors for multiple platforms to support network centric operations with integrated intelligence, surveillance, and reconnaissance capability.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) is a family of modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radars. The Wide Area Surveillance (WAS), or larger sensor, would have been the sensor capability of the E-10A Increment 1 weapon system to provide cruise missile defense and improved ground moving target indicator (GMTI)/synthetic aperture radar (SAR) imaging. The MP-RTIP Global Hawk variant is the smaller sensor providing the sensor capability for Global Hawk Block 40. The program office terminated the E-10A WAS portion of the MP-RTIP radar development based on direction received in May 07. This direction also included authorization to continue limited risk reduction activities in the area of MP-RTIP WAS Radar Hardware Verification.

Funds in this project will be used for the development, fabrication, and test of MP-RTIP sensor capabilities. The project also continues to support NATO Alliance Ground Surveillance (AGS) conceptual design and early design development activities.

This project is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued E-10A WAS MP-RTIP design and development for integration on the E-10A platform until termination directon was received. Continue limited MP-RTIP WAS risk reduction supporting future platform applications. Continue Global Hawk MP-RTIP design and development for integration onto the Global Hawk target platform. FY08 PB includes funding to complete the Global Hawk MP-RTIP Developmental Units (DU).	177.490	35.915	40.494
(U) Continue Future Studies/Spiral Development insertion-- includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts (such as Maritime Mode development) supporting continuous improvements and implementation of Command & Control, Intelligence,	0.000	0.000	0.252



**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207450F E-10 Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5132 Sensors</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.			
(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification & Validation [IV&V])	4.346	2.147	1.074
(U) Continue program office operations	0.459	0.602	0.395
(U) Total Cost	182.295	38.664	42.215

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207450F Project 5131 (E-10A Airframe)	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	169.997
(U) PE0305220F Project 5144 (Global Hawk MP-RTIP Sensor)	7.684	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.684

**(U) D. Acquisition Strategy**  
 The MP-RTIP program supports the evolutionary acquisition of Global Hawk by providing sensors for the Global Hawk Block 40. Post E-10A Wide Area Surveillance (WAS) sensor termination, the MP-RTIP program plans to provide 3 GH RDT&E sensors. The Global Hawk program will fund GH MP-RTIP production sensors for the operational Global Hawk Block 40 platforms. The MP-RTIP program also supports risk reduction of MP-RTIP versions for other platforms.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0207450F E-10 Squadrons</b>					<b>5132 Sensors</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop-Gru mman Corporation; El Segundo, CA	770.911	173.171	Oct-06	31.428	Nov-07	37.238	Oct-08	0.000	1,012.748	TBD
Future Studies/Spiral Development	Various	Various	8.924	0.000		0.000		0.252	Oct-08	0.000	9.176	TBD
Subtotal Product Development			779.835	173.171		31.428		37.490		0.000	1,021.924	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test & Evaluation	Various	Various	8.551	4.346	Dec-06	2.147	Dec-07	1.074	Dec-08	0.000	16.118	TBD
Subtotal Test & Evaluation			8.551	4.346		2.147		1.074		0.000	16.118	TBD
Remarks:												
(U) <u>Management</u> Program Office Support	Various	Various	2.578	0.459	Oct-06	0.602	Oct-07	0.395	Oct-08	0.000	4.034	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Hanscom AFB, MA	9.175	4.319	Oct-06	4.487	Oct-07	3.256	Oct-08	0.000	21.237	TBD
Subtotal Management			11.753	4.778		5.089		3.651		0.000	25.271	TBD
Remarks:												
(U) Total Cost			800.139	182.295		38.664		42.215		0.000	1,063.313	TBD
Remark: FY 2002 and prior reflected in PE 0207581F, Joint STARS FY 2003 and FY 2004 reflected in PE 0207449F C2 Constellation, Project 5065 (Sensors)												

Exhibit R-4, RDT&E Schedule Profile

DATE

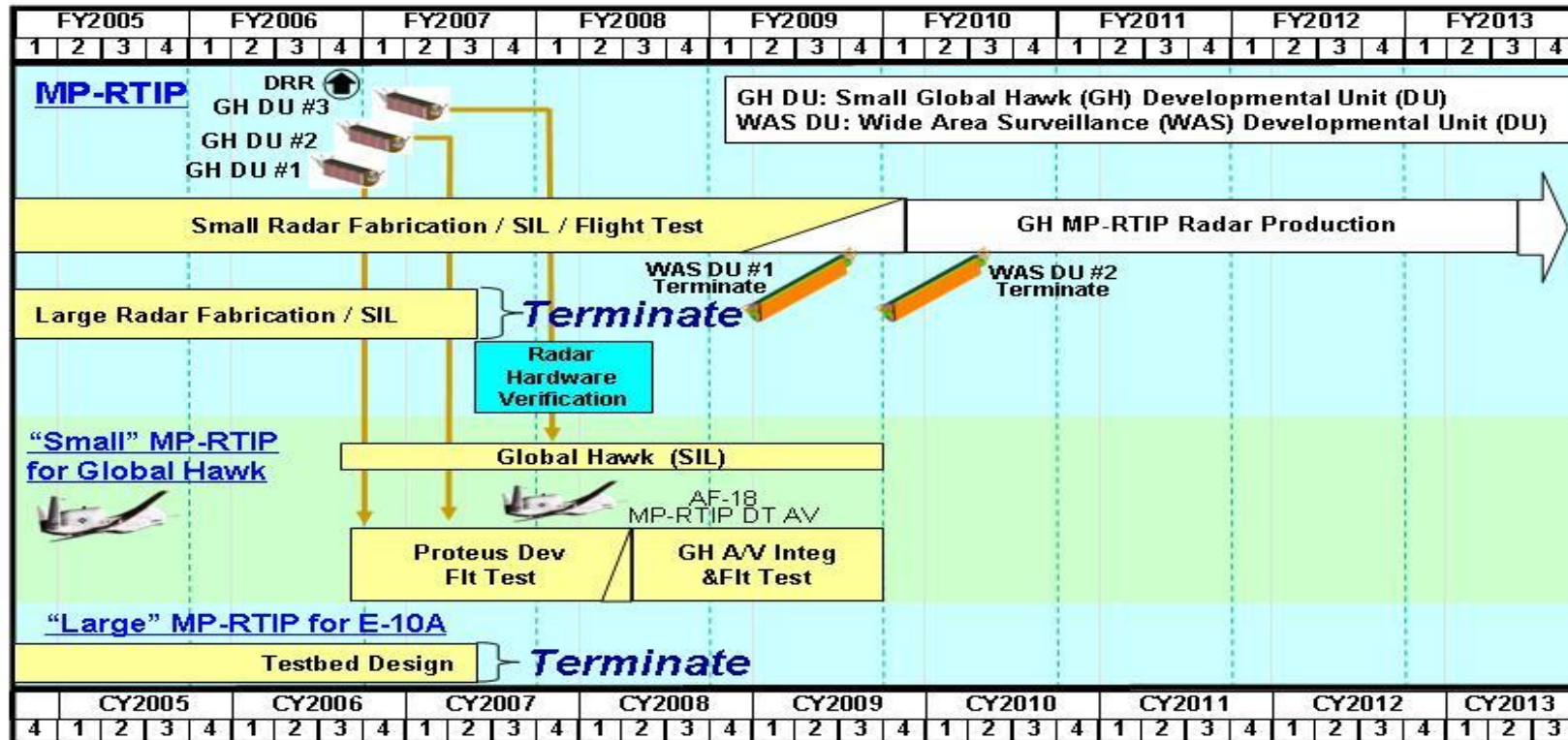
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE  
5132 Sensors

# MP-RTIP System Development and Demonstration (SDD)



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207450F E-10 Squadrons</b>	PROJECT NUMBER AND TITLE <b>5132 Sensors</b>
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(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SMALL RADAR (GLOBAL HAWK) DEVELOPMENT	1-4Q	1-4Q	1-4Q
(U) GH DU #2 BUILD	1-2Q		
(U) GH DU #3 BUILD	1-4Q		
(U) GH DU # 1 FLIGHT TEST (ON PROTEUS SURROGATE)	1-2Q		
(U) GH DU#1 TO SIL	2-4Q	1-4Q	1-4Q
(U) GH DU # 2 FLIGHT TEST (ON PROTEUS SURROGATE)	2-4Q	1-4Q	
(U) GH DU#3 TO SIL		1-4Q	1-4Q
(U) GH DU#2 INTEGRATION & TEST (ON GH AIR VEHICLE)*			1-4Q
(U) LARGE RADAR (WAS) DEVELOPMENT**	1-3Q		
(U) WAS DU # 1 BUILD**	1-3Q		
(U) WAS RADAR HARDWARE VERIFICATION AND RISK REDUCTION	3-4Q	1-3Q	

\* Note: Schedule depends on Global Hawk program

\*\*Note: Large radar (WAS) development terminated in FY 2007, partial WAS DU will be delivered to Government.

**UNCLASSIFIED**

PE NUMBER: 0207451F  
 PE TITLE: Single Integrated Air Picture (SIAP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207451F Single Integrated Air Picture (SIAP)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.874	4.857	66.909	65.648	34.336	27.491	23.224	0.000	0.000
5232 Air Force Single Integrated Air Picture	37.874	4.857	3.067	3.076	3.068	5.056	5.048	0.000	0.000
5275 Joint SIAP Engineering and Development	0.000	0.000	63.842	62.572	31.268	22.435	18.176	0.000	0.000

In FY07 all Single Integrated Air Picture (SIAP) funds from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds. In FY09 the joint SIAP engineering and development funding will transfer from the Army PE 0603327A to the Air Force. This transfer is the result of the Air Force being designated as Acquisition Executive for the Joint SIAP program.

**(U) A. Mission Description and Budget Item Justification**

The Single Integrated Air Picture (SIAP) is the product of fused data from multiple sensors - a "System of Systems" (SoS) that provides unambiguous, actionable tracks of all airborne objects in a surveillance volume. All airborne objects of interest must be detected, tracked, and reported. Every object must have one and only one track and set of identified characteristics. Weapon systems from each service must see and act on the same track data consistently. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration of critical methodologies/capabilities for the services airborne network to include AF command and control weapons systems.

SIAP consists of the development and implementation of a software Model Driven Architecture (MDA) known as the Integrated Architecture Behavioral Model (IABM). The MDA approach will provide enhanced interoperability by implementing Joint Battle Management Command and Control (JBMC2) functionality in weapon systems, thus enabling more accurate situational awareness and reduced fratricide.

The Air Force is applying expertise in various AF program offices to assist with defining the SIAP Platform Independent Model (PIM) and the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, and the integration methodology for AF weapon systems and the airborne network. Project 5232 funds AF-specific, SIAP-related engineering efforts including Air Force staff that works directly with the Joint SIAP Program Office to help define and develop the functional content of the SIAP PIM. Beginning in FY08 funding in project 5232 will be used to support the Joint SIAP Program Office to reduce risk until the Air Force AWACS and BCS-F programs are ready to integrate the PSM functionality.

Project 5275 funds the joint system engineering to enable the System of Systems and coordinate the activities of the participating services. This effort will develop and deliver the Integrated Architecture Behavior Model (IABM) that dictates a common architectural standard.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	40.124	4.976	5.067
(U) Current PBR/President's Budget	37.874	4.857	66.909
(U) Total Adjustments	-2.250	-0.119	
(U) Congressional Program Reductions		-0.088	
Congressional Rescissions	-0.151	-0.031	
Congressional Increases			
Reprogrammings	-0.976		
SBIR/STTR Transfer	-1.123		

(U) **Significant Program Changes:**

In FY07 all Single Integrated Air Picture (SIAP) funds from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds. The FY08 funding supports the work necessary to support the development and test of the joint product. In FY08, funding was adjusted to support higher Air Force requirements. The joint SIAP engineering and development funding will transfer from the Army PE 0603327A to the Air Force in FY09 resulting in the increase in PE total.

Exhibit R-2a, RDT&E Project Justification

DATE  
February 2008

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207451F Single Integrated Air Picture (SIAP)</b>			PROJECT NUMBER AND TITLE <b>5232 Air Force Single Integrated Air Picture</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5232 Air Force Single Integrated Air Picture	37.874	4.857	3.067	3.076	3.068	5.056	5.048	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY07 II Single Integrated Air Picture (funds) from PE 0207443F Project 5187 and PE 0207434F Project 5050 were transferred to consolidate Air Force SIAP funds.

(U) **A. Mission Description and Budget Item Justification**

The Single Integrated Air Picture (SIAP) is the product of fused data from multiple sensors - a "System of Systems" (SoS) that provides unambiguous, actionable tracks of all airborne objects in a surveillance volume. All airborne objects of interest must be detected, tracked, and reported. Every object must have one and only one track and set of identified characteristics. Weapon systems from each service must see and act on the same track data consistently. SIAP systems integration efforts include, but are not limited to: defining the SIAP Platform Independent Model (PIM) functionality, the required SIAP architecture, and the integration of critical methodologies/capabilities for the services airborne network to include AF command and control weapons systems.

SIAP consists of the development and implementation of a software Model Driven Architecture (MDA) known as the Integrated Architecture Behavioral Model (IABM). The MDA approach will provide enhanced interoperability by implementing Joint Battle Management Command and Control (JBMC2) functionality in weapon systems, thus enabling more accurate situational awareness and reduced fratricide.

The Air Force is applying expertise in various AF program offices to assist with defining the SIAP Platform Independent Model (PIM) and the SIAP Platform Specific Model (PSM) functionality, the required SIAP architecture, and the integration methodology for AF weapon systems and the airborne network. Project 5232 funds AF-specific, SIAP-related engineering efforts including Air Force staff that works directly with the Joint SIAP Program Office to help define and develop the functional content of the SIAP PIM. Beginning in FY08 funding in project 5232 will be used to support the Joint SIAP Program Office to reduce risk until the Air Force AWACS and BCS-F programs are ready to integrate the PSM functionality.

These activities are in Budget Activity 5 (System Development and Demonstration) because they support development, integration solutions, fielding, operational support activities, and special projects.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MDA PSM Development (AWACS 40/45)	6.000		
(U) MDA Integration and Implementation (BCS-F)	13.078		
(U) MDA Demonstration	4.000		
(U) Integration Resource Center (IABM Dev & Risk Reduction/MDA Tools Development)	4.101	1.402	1.500
(U) MDA Verification and Validation (IABM Development Risk Reduction)	4.012		
(U) Engineering Support	6.683	3.455	1.567
(U) Total Cost	37.874	4.857	3.067

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE

5232 Air Force Single Integrated Air Picture

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E 27434F	0.000	0.000	0.000	0.000	0.000			Continuing	TBD

(U) **D. Acquisition Strategy**

The Air Force SIAP program office (SPO) provides for common development and integration across multiple Air Force platforms and airborne networks via existing contract mechanisms.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0207451F Single Integrated Air Picture (SIAP)</b>				<b>5232 Air Force Single Integrated Air Picture</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Integration Resource Center (IABM Dev & Risk Reduction/MDA Tools Development)	CPFF	BAE Systems Inc, Arlington VA		4.101	Dec-06	1.402	Nov-07	1.500	Nov-08	Continuing	TBD	TBD
MDA PSM Development (AWACS 40/45)	CPIF	Boeing Co., Seattle WA		6.000	Dec-06					Continuing	TBD	TBD
MDA Integration and Implementation (BCS-F)	CPIF	Thales-Raytheon Systems, Fullerton CA		13.078	Dec-06					Continuing	TBD	TBD
Subtotal Product Development			0.000	23.179		1.402		1.500		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
ESC Engineering Support	CP/FFFP	Titan Corp, Odyssey Consulting Group, BTAS Inc, MITRE		6.683	Oct-06	3.455	Oct-07	1.567	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	6.683		3.455		1.567		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
MDA Demonstration	TBD	TBD		4.000	Jan-07					Continuing	TBD	TBD
MDA Verification and Validation (IABM Development and Risk Reduction)	TBD	TBD		4.012	Jan-07					Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	8.012		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	37.874		4.857		3.067		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

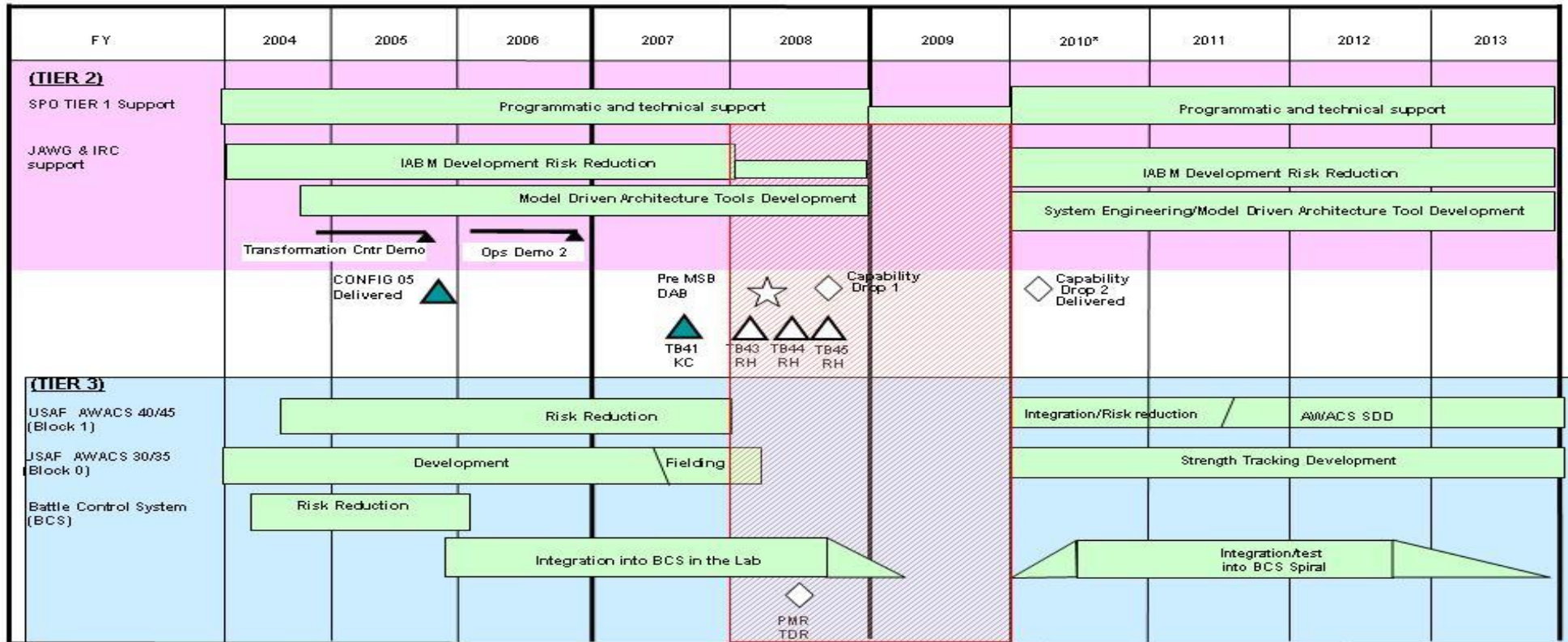
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE  
5232 Air Force Single Integrated Air Picture



# AF SIAP Schedule



\*Note – Tier 3 funding is in platforms

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207451F Single Integrated Air Picture (SIAP)

PROJECT NUMBER AND TITLE

5232 Air Force Single Integrated Air Picture

(U) Schedule Profile

(U) MDA Tools Development (Software Integration Tools)

(U) Demonstration

(U) AWACS Risk Reduction

(U) BCS IABM Integration

FY 2007

1-4Q

3Q

1-4Q

1-4Q

FY 2008

1-4Q

1-4Q

FY 2009

1Q

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207451F Single Integrated Air Picture (SIAP)</b>			PROJECT NUMBER AND TITLE <b>5275 Joint SIAP Engineering and Development</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5275 Joint SIAP Engineering and Development	0.000	0.000	63.842	62.572	31.268	22.435	18.176	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2009, Project 5275, Joint SIAP System Engineering and Development efforts were transferred from Army PE 0603327A - Air and Missile Defense Systems Engineering, Project S32, Joint SIAP System Engineering, into Air Force PE 0207451F in accordance with DoD designation of the Air Force as the SIAP Acquisition Executive. These funds support the research, development and testing of the Integrated Architecture Behavior Model (IABM), conduct Joint System-of-Systems Engineering for air and cruise missile defense, and operation of the SIAP Joint Program Office (SIAP JPO) and SIAP Joint Program Executive Office (SIAP JPEO).

**(U) A. Mission Description and Budget Item Justification**

The Single Integrated Air Picture (SIAP) is the product of fused data from multiple sensors - a "System of Systems" (SoS) that provides unambiguous, actionable tracks of all airborne objects in a surveillance volume. All airborne objects of interest must be detected, tracked, and reported. Every object must have one and only one track and set of identified characteristics. Weapon systems from each service must see and act on the same track data consistently. Current systems do not provide this capability.

The Single Integrated Air Picture program is a Joint Requirements Oversight Council (JROC) validated and OSD-directed collaborative enterprise comprising multiple engineering and acquisition programs in each of the Services, all linked by a joint engineering and development organization - the SIAP Joint Program Office (JPO). The SIAP JPO provides the joint SIAP system engineering to enable the System of Systems and coordinate the activities of the participating Services. The major product from the SIAP JPO is a computerized specification, the Integrated Architecture Behavior Model (IABM) that dictates a common architectural standard for systems that make up the Joint SIAP System of Systems. As a result, weapon systems incorporating the IABM will be interoperable, better able to understand the battlespace and able to employ weapons to the full extent of their design capabilities.

Delivery of the IABM supports the first Capability Drop (CD-1) which is the set of core requirements outlined in the Capability Development Document (CDD) generated by US Joint Forces Command and as validated by the Joint Requirements Oversight Council (JROC) in Sep 2007. CD-1 provides the technology and capability for the SIAP System of Systems to generate the SIAP. That capability includes improved efficiency in processing track data, network latency reduction, improved beyond line-of-sight ability, consistent track management and combat identification performance enhancements.

In FY 2009, SIAP JPO expands its System of System engineering, test and customer support role to meet JROC-validated requirements and USD (AT&L) direction. The program will have greater emphasis on IABM Implementation including operational and certification testing, legacy system integration and training. The focus will be on engineering and development that responds to service requirements for CD-1. A significant portion of funds and JPO effort will be for Customer Support and System of System testing to assist the Services in integrating the IABM into their combat, weapon, sensor, and tactical command and control systems. IABM development will continue to build upon the CD-1 baseline and will focus on incorporating advances in distributed sensor and resource management to further automate critical warfighting functions, including robust interface with ground systems. The Modeling and Simulation effort will continue support of System of System testing and assessment of candidates for the Rapid Capabilities Insertion Process (RCIP), an assessment process to make or buy already developed applications to augment SIAP capability for the System of Systems; then to adapt and integrate the application into the IABM.

Exhibit R-2a, RDT&E Project Justification

DATE  
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207451F Single Integrated Air Picture (SIAP)</b>	PROJECT NUMBER AND TITLE <b>5275 Joint SIAP Engineering and Development</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) IABM Production - Architecture, Specification and Behavior Model			11.598
(U) Rapid Capability Insertion Process (RCIP)			8.500
(U) System Engineering			7.850
(U) IABM Product Support			3.158
(U) SoS Customer Support (Technical Analysis and IABM Implementation)			4.320
(U) IABM Test and Evaluation - Developmental			4.180
(U) SIAP System of Systems Test and Evaluation - Operational			10.179
(U) Program Management Support			11.460
(U) Acquisition Infrastructure (RDT&E facilities and equipment)			2.597
(U) Total Cost	0.000	0.000	63.842

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0603327A, Project S34, AMD System of Systems Engineering and Integration			1.296	4.536	5.076	5.238			

(U) **D. Acquisition Strategy**  
 The 3 May 2006 USD (AT&L) Acquisition Decision Memorandum (ADM) directs a SIAP acquisition approach based upon development of an Open System integrated architecture with selection and integration of "Best of Breed" functions to achieve a SIAP capability. The acquisition planned represents a "Best of Breed" approach allowing assessment of alternatives at the functional computer program component level. This acquisition strategy is intended to achieve the overall Department Theater Air and Missile Defense (TAMD) modernization planning described by the Integrated Air and Missile Defense (IAMD) and Joint Battle Management Command and Control (JBMC2) Roadmaps.  
 The SIAP SoS capability will be developed through a SoS engineering approach that uses a Model Driven Architecture® (MDA®) computerized specification, the Integrated Architecture Behavior Model (IABM), to provide the common architectural standard for systems that make up the Joint SIAP System of Systems. The SIAP Joint Program Office (JPO), using a team of industry, government, Federally Funded Research and Development Centers (FFRDCs), and government laboratory personnel, will develop the IABM. Each service, through its respective program offices, develops platform-specific models of the IABM that are used to develop SIAP solutions for incorporation into specific sensor, weapon, combat, and tactical BMC2 systems.

Follow-on IABM development will continue to build upon the Capability Drop-1 baseline and will focus on incorporating advances in distributed sensor and resource management to further automate critical warfighting functions. The SIAP JPO will implement its Rapid Capability Insertion Process (RCIP) to enhance SIAP capability for the System of Systems with RCIP plans oriented toward acquiring capability to provide actionable data for engagement, including Global Information

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0207451F Single Integrated Air  
Picture (SIAP)**

PROJECT NUMBER AND TITLE

**5275 Joint SIAP Engineering and  
Development**

Grid (GIG) connectivity, active and passive combat identification, enhanced track processing and Integrated Fire Control.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207451F Single Integrated Air Picture (SIAP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5275 Joint SIAP Engineering and Development</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
System of Systems Engineering	C/CPFF	JHU/APL, Laurel, MD						4.238	Oct-08	Continuing	TBD	TBD
System of Systems Engineering	C/CPFF	SAIC, McLean, VA						2.127	Oct-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	C/CPFF	BAH, McLean, VA						2.971	Nov-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	C/CPFF	CSC, Lanham, MD						1.926	Oct-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	C/CPFF	Sparta, Laguna Hills, CA						2.149	Oct-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	C/CPFF	Raytheon, Laguna Beach, CA						1.099	Oct-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	C/CPFF	BAE, Huntsville, AL						2.778	Nov-08	Continuing	TBD	TBD
Architecture, Specification and Behavior Model	Various	Various						10.977		Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		28.265		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Product Support	Various	Various						3.158		Continuing	TBD	TBD
Customer Support	Various	Various						4.320		Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		7.478		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
IABM and SoS T&E	C/CPFF	SPA, Alexandria VA						1.734	Oct-08	Continuing	TBD	TBD
SoS T&E	MIPR	JITC, Ft Huachuca AZ						2.200	Oct-08	Continuing	TBD	TBD
IABM T&E	SS/FFP	RhinoCorps (8a), Albuquerque, NM						1.077	Dec-08	Continuing	TBD	TBD
SoS T&E	C/CPFF	JHU/APL, Laurel, MD						2.500	Oct-08	Continuing	TBD	TBD
IABM and SoS T&E	Various	Various						6.848		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		14.359		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												

R-1 Line Item No. 89

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Project 5275

Exhibit R-3 (PE 0207451F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

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BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>			<b>0207451F Single Integrated Air Picture (SIAP)</b>			<b>5275 Joint SIAP Engineering and Development</b>				
Program Management Support	C/CPFF	Westar, Huntsville, AL				1.437	Oct-08	Continuing	TBD	TBD
Management Services: Facility & Govt Staff	Various	Various				12.861		Continuing	TBD	TBD
Subtotal Management			0.000	0.000	0.000	14.298		Continuing	TBD	TBD
Remarks:										
(U) Total Cost			0.000	0.000	0.000	64.400		Continuing	TBD	TBD





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207451F Single Integrated Air Picture (SIAP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5275 Joint SIAP Engineering and Development</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Army AE Budget for SIAP JPO	1-4Q	1-4Q	
(U) Air Force AE Budget for SIAP JPO			1-4Q
(U) In Process Review Defense Acquisition Board		1Q	
(U) Defense Acquisition Executive Review		3Q	
(U) IABM Capability Drop 1 (CD-1) Development	1-4Q	1-4Q	1-3Q
(U) IABM CD-1 Delivery			3Q
(U) Rapid Capability Insertion Process (RCIP)			1-4Q
(U) IABM CD-1 Follow-on Development			1-4Q
(U) SIAP SOS Testing	3-4Q	1-4Q	1-4Q
(U) Joint Combined Hardware-in-the-loop Evaluation 5 CD-1 Testing			4Q
(U) Joint Interoperability Test Command CD-1 Testing			4Q
(U) Service CD-1 Implementation/Integration			4Q

**UNCLASSIFIED**

PE NUMBER: 0207701F  
 PE TITLE: Full Combat Mission Training

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	34.046	71.643	135.152	88.719	30.699	26.630	27.704	Continuing	TBD
4673 Distributed Mission Training (DMT)	26.882	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5012 Full Combat Mission Training	7.164	71.643	135.152	88.719	30.699	26.630	27.704	Continuing	TBD

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

**(U) A. Mission Description and Budget Item Justification**

Full Combat Mission Training supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. Networked Live-Virtual-Constructive components form the integrated DMO battlespace by linking geographically distributed high fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	32.243	87.096	99.380
(U) Current PBR/President's Budget	34.046	71.643	135.152
(U) Total Adjustments	1.803	-15.453	
(U) Congressional Program Reductions		-15.453	
Congressional Rescissions	-0.133		
Congressional Increases	2.900		
Reprogrammings	-0.964		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY08

- Decreased by Congressional programatic reduction (-\$15M for F-15/F-16 Simulator Integration Development)
- Decreased by Congressional General Reductions

FY09

- AF increase to comply with FY 07 NDAA limitation on use of service contracts. Language forced transfer of funds from Operations and Maintenance (O&M), AF to RDT&E, AF to acquire simulator training capability.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>			PROJECT NUMBER AND TITLE <b>4673 Distributed Mission Training (DMT)</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4673 Distributed Mission Training (DMT)	26.882	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

**(U) A. Mission Description and Budget Item Justification**

Air Force Distributed Mission Training (DMT). DMT provides the research and development to facilitate the integration of fielded and newly acquired, Air Force owned, aircraft training devices into Distributed Mission Operations (DMO) networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with Live-Virtual-Constructive components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems.. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues	6.464	0.000	0.000
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of Air Operation Center [AOC], A-10, B-1, B-2, B-52, Control and Reporting Center [CRC] F-22 F-35, E-8, EC-130, Joint Terminal Attack Controller [JTAC] and Joint Theater Air-Ground Simulation System [JTAGSS])	4.118	0.000	0.000
(U) Research and development to provide for the DMO integration of F-22 high-fidelity flight trainers.	16.300	0.000	0.000
(U) Total Cost	26.882	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A All "Other Program Funding" is reflected in BPAC 5012									

**(U) D. Acquisition Strategy**

Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business case considerations and the magnitude of the training system changes required to provide DMO capability. Fielded and newly acquired, Air Force owned Flight and Mission Training Systems will be modified to ensure compatibility with the DMO environment. Additional DMO capable trainers will be acquired for those systems where current quantities are inadequate to meet training requirements.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0207701F Full Combat Mission Training</b>				<b>4673 Distributed Mission Training (DMT)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
677 AESG AFMC		677AEFG AFMC, Wright Patterson AFB, OH		10.582						Continuing	TBD	
478 AESW AFMC		478 AESW AFMC AFMC, Wright Patterson AFB, OH		16.300						Continuing	TBD	
Subtotal Product Development			0.000	26.882		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	26.882		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE  
4673 Distributed Mission Training (DMT)

**Exhibit R-4: BPAC 4673 Distributed Mission Training (Distributed Mission Operations)**

Fiscal Year	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Study, research and develop solutions to multi-service standards, test asset implementation and platform specific multi-level security issues									▲	→														
Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of AOC, A-10, B-1, B-2, B-52, CRC, F-22, F-35, E-8, EC-130, JTAC and JTAGSS									▲	→														
Phase A F-22 DMO requirements definition/ systems									▲	→	→													
Phase B: F-22 DMO Development / Test/Retrofit																	△	→	→	→	→	→	▲	

- ▲ Studies/ Phase Initiated
- △ Phase Scheduled
- ▲ IOC

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE

4673 Distributed Mission Training (DMT)

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) Phase A: F-22 DMO requirements definition/systems

2Q

(U) Phase B: F-22 DMO Development /Test/Retrofit

4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>			PROJECT NUMBER AND TITLE <b>5012 Full Combat Mission Training</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
5012 Full Combat Mission Training	7.164	71.643	135.152	88.719	30.699	26.630	27.704	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

Beginning in FY 08 funding previously documented in BPAC 4673 is consolidated in BPAC 5012

**(U) A. Mission Description and Budget Item Justification**

Full Combat Mission Training (FCMT) supports Air Force Distributed Mission Operations (DMO). DMO is an operational readiness initiative enabling the USAF to exercise and train at the operational and strategic levels of war while facilitating unit-level training. FCMT provides research in areas benefiting the AF DMO environment as a whole. Provides development funding for DMO capable F-16 flight simulators to replace training capability currently provided by training simulation service contracts. Provides Mission Essential Competency studies and contract administration for new systems that support the initial CAF DMO capability. Provides research and development to facilitate integration of fielded and newly acquired, Air Force owned, aircraft training devices into DMO networks. Enhances the quality of training for the systems added to the network. Enables aircrews to network with Live-Virtual-Constructive components to form the integrated DMO battlespace. Links geographically distributed, high-fidelity combat and combat support training devices including Command and Control (C2) and Intelligence, Surveillance, and Reconnaissance (ISR) systems. Develops, demonstrates and inserts multi-level security capability. Allows the warfighters at home station to exercise and train at the operational and strategic levels of war as well as conduct networked unit-level training.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Development, demonstration and insertion of multi-level security capability	0.000	4.040	2.950
(U) Continue development, demonstration, studies and insertion of DMO related technologies and proficiency based continuation training strategies. Includes but is not limited to common databases, improved image generation fidelity, enhanced Brief/Debrief capabilities, Mission Essential Competencies and multi-level security	1.869	4.944	4.950
(U) Studies to assess and validate warfighter seasoning required/desired in continuation training and accreditation of portions of this experiencing process utilizing the Mission Essential Competencies (MECs) in the DMO environment	1.000	1.000	1.000
(U) Studies to Develop objective performance enhancement and measurement tools, for use in the DMO environment, which will be used for certification of a team and/or a team of teams' proficiency/currency	1.000	1.000	1.000
(U) Identify training and rehearsal gaps in DMO architecture based on current weapons system and operational tactics, training, procedures (TTPs), especially those essential to operational Kill Chain	1.000	1.000	1.000
(U) Research and development to provide for the DMO integration of fielded and newly introduced, Air Force high-fidelity flight and mission trainers. Includes but is not limited to studies and development to provide for integration of Air Operation Center [AOC], A-10, B-1, B-2, B-52, Control and Reporting Center [CRC] F-22, F-35, E-8, EC-130, Joint Terminal Attack Controller [JTAC] and Joint Theater Air-Ground Simulation System [JTAGSS]	0.000	36.547	25.841
(U) Research for and development of DMO capable flight simulators to replace training capability currently provided by	0.000	18.783	92.704



**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0207701F Full Combat Mission Training</b>	PROJECT NUMBER AND TITLE <b>5012 Full Combat Mission Training</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
training simulation service contracts. Includes but is not limited to the development of F-16 flight simulators			
(U) Program Office support	2.295	4.329	5.707
(U) Total Cost	7.164	71.643	135.152

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0207701, Full Combat Mission Training, Aircraft Procurement, AF	10.598	86.114	50.533	108.741	119.296	84.058	23.830	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, Other Procurement, AF	0.000	0.000	0.000	4.655	7.859	26.156	29.937	Continuing	TBD
(U) PE 0207701, Full Combat Mission Training, O & M, AF	197.340	175.415	146.734	163.384	167.231	172.602	208.142	Continuing	TBD

(U) **D. Acquisition Strategy**  
 Each platform joining the Distributed Mission Operations (DMO) environment selects its own acquisition strategy based on using command needs, business case analysis (BCA) and the magnitude of the training system changes required to provide DMO capability. The pioneer systems in DMO including F-15C, AWACS, F-16 Block 40/50 and F-15E all required new training systems. In addition, the Operations and Integration capability had to be created. The Training Simulation Service (TSS) acquisition strategy was used to meet a portion of these requirements. In the TSS approach, the contractor owns and provides the simulator equipment, maintains simulator concurrency with weapons system, and has incentives to keep the equipment up to date with simulator and network technologies. The NDAA for FY 07 specifically limited the acquisition of military flight simulators with service contracts. As a result, training capability currently provided on the F-16 MTC will be replaced with training provided with procured flight simulators. The FY08 NDAA language may allow continued use of service approach on systems where it was already in use. Currently fielded and projected Air Force owned Flight and Mission Training Systems without DMO capability will be modified to ensure compatibility with the DMO environment. Additional DMO capable trainers will be acquired for those systems where current quantities are inadequate to meet training requirements.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0207701F Full Combat Mission Training</b>				<b>5012 Full Combat Mission Training</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
677 AESG AFMC		677 AESG AFMC, Wright Patterson AFB, OH		1.869		22.514	Jan-08	120.075		Continuing	TBD	
478 AESW (F-22)		478 AESW AFMC, Wright Patterson AFB, OH		0.000		18.200				0.000	18.200	
507 MASSG (B-52)		507 MASSG, Hill AFB, UT		0.000		4.800	Jan-08	0.000		0.000	4.800	
677 AESG/TO (B-1 & B-2)		677 AESG/TQ AFMC, Wright Patterson AFB, OH		0.000		18.800	Jan-08	7.000		0.000	25.800	
Subtotal Product Development			0.000	1.869		64.314		127.075		Continuing	TBD	0.000
Remarks:	670 AESS funds reflected in BPAC 4673 through FY 07											
(U) <u>Support</u>												
- Air Force Research Lab Human Effectiveness Directorate		AFRL/HEA, Mesa, AZ		3.000		3.000		3.000		Continuing	TBD	
Subtotal Support			0.000	3.000		3.000		3.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Program Office Support		677 AESG AFMC, Wright Patterson AFB, OH		2.295		4.329		5.077		Continuing	TBD	
Subtotal Management			0.000	2.295		4.329		5.077		Continuing	TBD	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	7.164		71.643		135.152		Continuing	TBD	0.000

R-1 Line Item No. 90

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Exhibit R-3 (PE 0207701F)

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

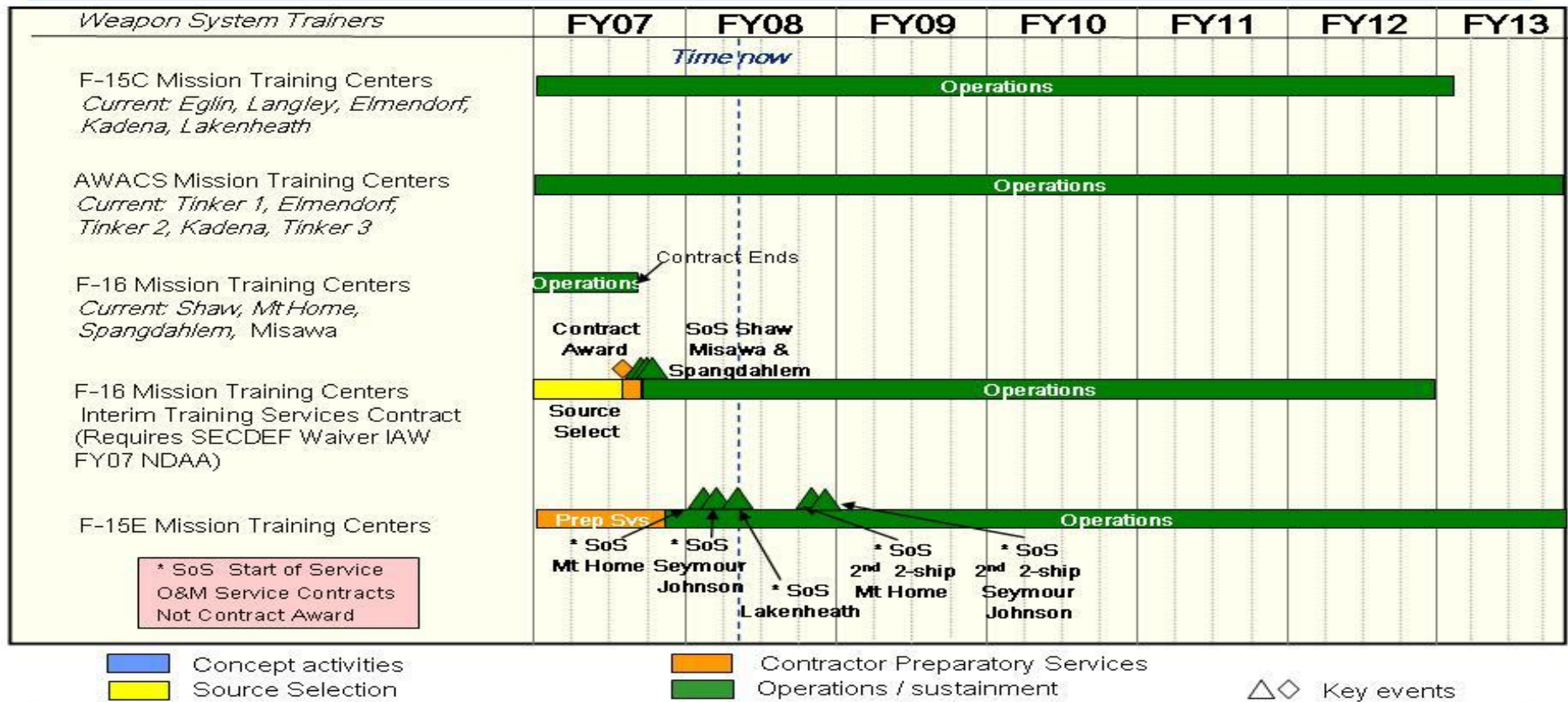
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE  
5012 Full Combat Mission Training



# DMO CAF Schedule Training Service Contracts



**FY08 Staffer Brief**

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

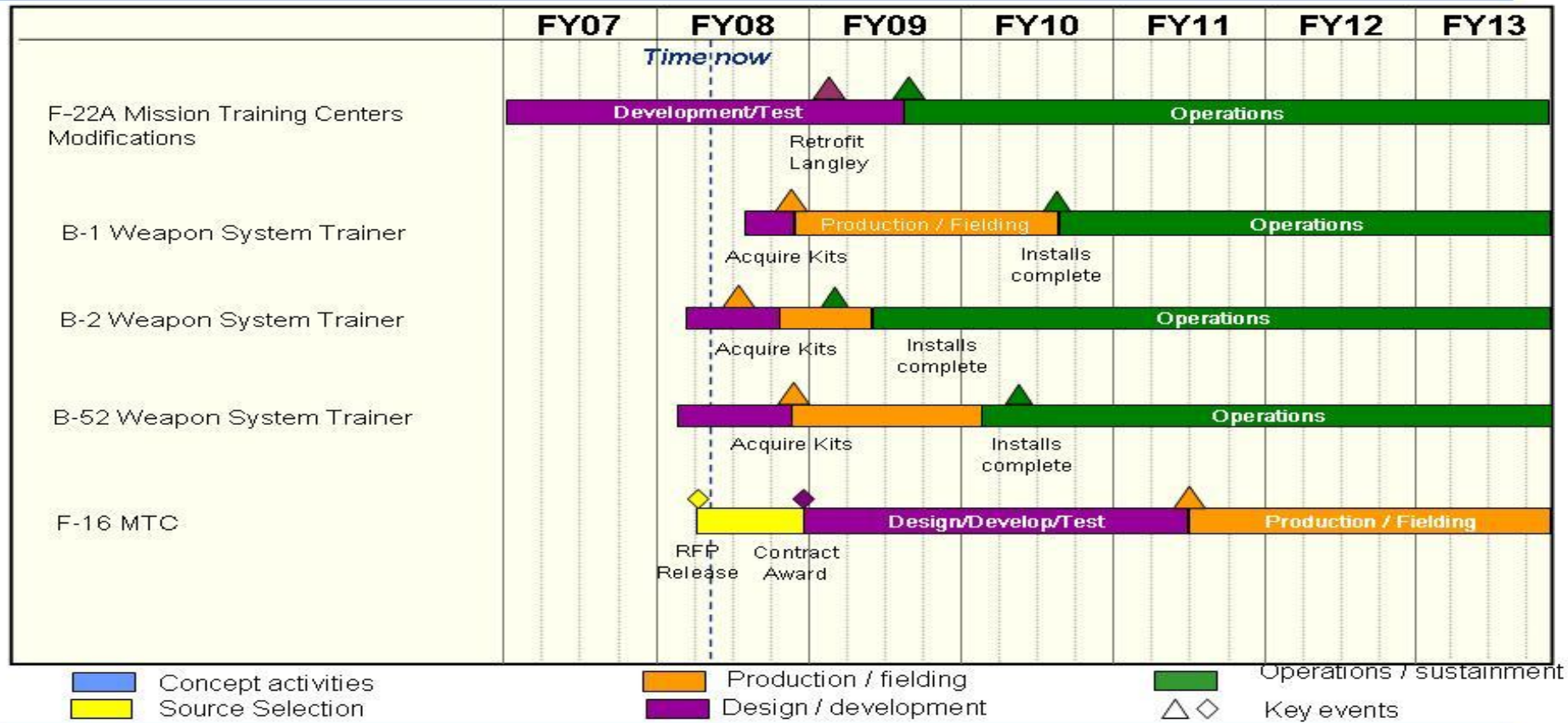
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0207701F Full Combat Mission Training

PROJECT NUMBER AND TITLE  
5012 Full Combat Mission Training



**DMO**  
**CAF Schedule**  
**AF Owned Systems**



**FY08 Staffer Brief**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0207701F Full Combat Mission Training</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5012 Full Combat Mission Training</b>
--	--	---

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) F-15E 2-ship operations begin: Mt Home	4Q		
(U) F-15E 2-ship operations begin: Seymour Johnson		1Q	
(U) F-15E 2-ship operations begin: Lakenheath		2Q	
(U) F-15E 2-ship operations (2nd) begin: Mt Home		4Q	
(U) F-22 Development			2Q
(U) F-22 Proof Kit: Langley			1Q
(U) B-1 Development begins		3Q	
(U) B-1 Mod kits acquired		4Q	
(U) B-2 Development begins		1Q	
(U) B-2 Mod kits acquired		4Q	
(U) B-2 Mod kits installed			1Q
(U) B-52 Development begins		1Q	
(U) B-52 Mod kits acquired		4Q	
(U) F-16 Procurement contract award/development begins		4Q	

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**UNCLASSIFIED**

PE NUMBER: 0401138F  
 PE TITLE: Joint Cargo Aircraft

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0401138F Joint Cargo Aircraft</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.781	20.869	26.777	11.391	9.607	19.017	0.000	0.000	98.842
5259 Joint Cargo Aircraft (JCA)	9.781	20.869	26.777	11.391	9.607	19.017	0.000	0.000	98.842

**(U) A. Mission Description and Budget Item Justification**

The Joint Cargo Aircraft (JCA) program is an Army/Air Force aircraft program. It procures a commercial derivative aircraft that meets the Army's immediate needs and provides the Air Force an additional capability in meeting its intratheater airlift mission. A joint Army/Air Force Source Selection Team selected the C-27J in a full and open competition. A JCA firm fixed price contract was awarded on 13 June 2007 to L3 Communications with delivery orders for two aircraft, engineering services, cost reporting, Live Fire Test and Evaluation hardware, and logistics support. The current program calls for 78 aircraft (54 Army and 24 Air Force). The Army began aircraft procurement in FY07. Their first aircraft delivery is scheduled for September 2008. Initial USAF procurement is planned for FY10 with delivery planned for FY12.

The JCA is a fixed wing airlift platform that will perform airlift missions in support of the Joint Force Commander (JFC), in a Joint Operations Area (JOA), at a time and place of the JFC's choosing to achieve strategic, operational and tactical objectives. Joint Publication (JP) 3-17, Joint Doctrine, Tactics, Techniques and Procedures for Air Mobility Operations, 14 AUG 02, identifies five basic airlift missions. The JCA provides the Joint Force Commander (JFC) with these mission capabilities predominantly at the tactical level across the designated JOA. The Army will employ the JCA to provide on-demand direct support as defined in Operational Support Airlift (OSA) missions to forward locations. The Air Force will use the JCA to conduct intratheater airlift in support of operational and tactical objectives for all other JP 3-17 missions. These roles will be a part of the common airlift user pool as defined in JP 3-17.

FY09 Budget Justification: Continues joint Live Fire Test & Evaluation (LFT&E) and Multi-Service Operational Test & Evaluation (MOT&E) programs, initiates Maintenance Training System development, continues the Joint Training System Business Case Analysis (BCA) and Training System Requirements Analysis (TSRA), and continues the Supportability BCA and Depot Source of Repair (DSOR) studies.

FY10 Budget Justification: Completes LFT&E and MOT&E, continues Maintenance Training System development, completes the Joint Training System BCA and TSRA, completes the Supportability BCA and DSOR studies, and initiates any resulting aircrew training system and depot development efforts. Fuselage Trainer first article acquisition begins.

FY11 Budget Justification: Continues the training system and depot development efforts. Begins first article acquisition of the Avionics Systems Management Trainer and Integrated Cockpit Systems Trainer. Completes the Fuselage Trainer first article acquisition.

FY12 Budget Justification: Completes first article acquisition of the Avionics Systems Management Trainer and Integrated Cockpit Systems Trainer.

Joint Cargo Aircraft is Budget Activity 05, System Development & Demonstration because it is a new system that has not been fielded yet.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	15.723	42.368	74.433
(U) Current PBR/President's Budget	9.781	20.869	26.777
(U) Total Adjustments	-5.942	-0.131	
(U) Congressional Program Reductions		-21.368	
Congressional Rescissions		-0.131	
Congressional Increases			
Reprogrammings	-5.500		
SBIR/STTR Transfer	-0.442		

(U) **Significant Program Changes:**

- Air Force and Army have agreed on a common aircraft configuration. Therefore, an unique AF-version of the JCA is no longer planned and the Developmental Test aircraft is no longer required.
- JCA Request for Proposals assumed Operational-Level maintenance would be contractor provided. The Air Force will instead use organic support for Operational-Level maintenance. Therefore, a Maintenance Training System must be developed.
- \$5.5M reprogramming for higher priority AF requirements
- Congress appropriated 50% of the President's Budget Request in FY08



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0401138F Joint Cargo Aircraft			5259 Joint Cargo Aircraft (JCA)		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5259 Joint Cargo Aircraft (JCA)	9.781	20.869	26.777	11.391	9.607	19.017	0.000	0.000	98.842
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Joint Cargo Aircraft (JCA) program is an Army/Air Force aircraft program. It procures a commercial derivative aircraft that meets the Army's immediate needs and provides the Air Force an additional capability in meeting its intratheater airlift mission. A joint Army/Air Force Source Selection Team selected the C-27J in a full and open competition. A JCA firm fixed price contract was awarded on 13 June 2007 to L3 Communications with delivery orders for two aircraft, engineering services, cost reporting, Live Fire Test and Evaluation hardware, and logistics support. The current program calls for 78 aircraft (54 Army and 24 Air Force). The Army began aircraft procurement in FY07. Their first aircraft delivery is scheduled for September 2008. Initial USAF procurement is planned for FY10 with delivery planned for FY12.

The JCA is a fixed wing airlift platform that will perform airlift missions in support of the Joint Force Commander (JFC), in a Joint Operations Area (JOA), at a time and place of the JFC's choosing to achieve strategic, operational and tactical objectives. Joint Publication (JP) 3-17, Joint Doctrine, Tactics, Techniques and Procedures for Air Mobility Operations, 14 AUG 02, identifies five basic airlift missions. The JCA provides the Joint Force Commander (JFC) with these mission capabilities predominantly at the tactical level across the designated JOA. The Army will employ the JCA to provide on-demand direct support as defined in Operational Support Airlift (OSA) missions to forward locations. The Air Force will use the JCA to conduct intratheater airlift in support of operational and tactical objectives for all other JP 3-17 missions. These roles will be a part of the common airlift user pool as defined in JP 3-17.

FY09 Budget Justification: Continues joint Live Fire Test & Evaluation (LFT&E) and Multi-Service Operational Test & Evaluation (MOT&E) programs, initiates Maintenance Training System development, continues the Joint Training System Business Case Analysis (BCA) and Training System Requirements Analysis (TSRA), and continues the Supportability BCA and Depot Source of Repair (DSOR) studies.

FY10 Budget Justification: Completes LFT&E and MOT&E, continues Maintenance Training System development, completes the Joint Training System BCA and TSRA, completes the Supportability BCA and DSOR studies, and initiates any resulting aircrew training system and depot development efforts. Fuselage Trainer first article acquisition begins.

FY11 Budget Justification: Continues the training system and depot development efforts. Begins first article acquisition of the Avionics Systems Management Trainer and Integrated Cockpit Systems Trainer. Completes the Fuselage Trainer first article acquisition.

FY12 Budget Justification: Completes first article acquisition of the Avionics Systems Management Trainer and Integrated Cockpit Systems Trainer.

Joint Cargo Aircraft is Budget Activity 05, System Development & Demonstration because it is a new system that has not been fielded yet.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**February 2008**

<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT NUMBER AND TITLE</b>
<b>05 System Development and Demonstration (SDD)</b>	<b>0401138F Joint Cargo Aircraft</b>	<b>5259 Joint Cargo Aircraft (JCA)</b>

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Joint LFT&E and MOT&E	3.150	1.915	9.695
(U) Joint Development Engineering	0.071	9.764	5.999
(U) Aircrew/Maintenance Training System Development			1.336
(U) Engineering, Training, and Logistics Studies	2.350	7.480	8.006
(U) Mission Support	2.210	1.710	1.741
(U) Internal Air Force Reprogramming Action	2.000		
(U) Total Cost	9.781	20.869	26.777

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Air Force Aircraft Procurement			5.439	124.845	265.622	536.532	481.835	445.896	1,860.169
(U) Army RDT&E	5.397	6.495	3.017						
(U) Army ACFT Procurement	71.864	155.982	264.160	301.270	424.125	462.701	461.512	2,913.776	5,055.390

**(U) D. Acquisition Strategy**  
 The Joint Cargo Aircraft (JCA) is an Army/Air Force aircraft program. The program will be obligating FY07-09 RDT&E funding to both the Army Test & Evaluation Center (ATEC) and the Air Force Operational Test and Evaluation Center (AFOTEC) to conduct Live Fire Test & Evaluation (LFT&E) and Multi-Service Operational Test & Evaluation (MOT&E) in accordance with the approved Test and Evaluation Master Plan (TEMP). The program office will also be requesting the prime contractor to conduct engineering, training and logistics studies throughout the first three years of the contract period. The prime contractor will also be tasked to develop solutions for the approved joint engineering requirements and to develop training systems.



Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

PROJECT NUMBER AND TITLE

5259 Joint Cargo Aircraft (JCA)

**AF JCA Program Schedule**

FY07				FY08				FY09				FY10				FY11				FY12				FY13				FY14															
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
Joint LFT&E/MOT&E Program																																											
																Maintenance Training System Development/Joint Development Engineering																											
Engr/Logistics/Training Studies																																											

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401138F Joint Cargo Aircraft

PROJECT NUMBER AND TITLE

5259 Joint Cargo Aircraft (JCA)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) Joint LFT&E and MOT&E	3-4Q	1-4Q	1-4Q
(U) Joint Development Engineering		2-4Q	1-4Q
(U) Maintenance Training System Development		2-4Q	1-4Q
(U) Engineering, Training and Logistics Studies	3-4Q	1-4Q	1-4Q

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PE NUMBER: 0401318F  
 PE TITLE: CV-22

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0401318F CV-22</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.756	16.583	18.562	41.777	39.260	33.138	24.103	Continuing	TBD
4103 CV-22	12.756	16.583	18.562	41.777	39.260	33.138	24.103	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures, and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft. Block 20 development includes capabilities such as radio frequency and infrared countermeasures improvements, co-site communications interference, electro-optical navigational sensor, tactical data link, intelligence broadcast receiver functionality, improved aero performance, anti-skid brakes, civil GPS, improved desert environment suitability, TF/TA radar improvements, voice/data recorder, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is using spiral acquisition to develop improved operational safety, suitability, and effectiveness capabilities in block increments.

USSOCOM and USAF jointly fund Block 10 enhancements, correction of deficiencies, and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance and information systems used with the V-22, support for operational testing, and CV-22 implementation and testing of MV-22 Block B and Block C changes.

USSOCOM and USAF jointly fund development projects to meet operational safety, suitability, and effectiveness mission needs. This includes designing, prototyping, integrating, and testing proposed solutions to emerging issues.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.501	16.688	18.717
(U) Current PBR/President's Budget	12.756	16.583	18.562
(U) Total Adjustments	-13.745	-0.105	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions		-0.105	
Congressional Increases			
Reprogrammings	-13.000		
SBIR/STTR Transfer	-0.745	-0.105	

**(U) Significant Program Changes:**

The Air Force reprogrammed \$13.0M to other priorities due to under execution.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>				PE NUMBER AND TITLE <b>0401318F CV-22</b>			PROJECT NUMBER AND TITLE <b>4103 CV-22</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4103 CV-22	12.756	16.583	18.562	41.777	39.260	33.138	24.103	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and resupply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration adds terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, RF warning receiver and jammer, infrared countermeasures, and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft. Block 20 development includes capabilities such as radio frequency and infrared countermeasures improvements, co-site communications interference, electro-optical navigational sensor, tactical data link, intelligence broadcast receiver functionality, improved aero performance, anti-skid brakes, civil GPS, improved desert environment suitability, TF/TA radar improvements, voice/data recorder, and other requirements specified in the V-22 Block C/20 Capabilities Development Document. The V-22 Joint Program Office is using spiral acquisition to develop improved operational safety, suitability, and effectiveness capabilities in block increments.

USSOCOM and USAF jointly fund Block 10 enhancements, correction of deficiencies, and Block 20 development. USSOCOM funds the development, integration and testing of SOF mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance and information systems used with the V-22, support for operational testing, and CV-22 implementation and testing of MV-22 Block B and Block C changes.

USSOCOM and USAF jointly fund development projects to meet operational safety, suitability, and effectiveness mission needs. This includes designing, prototyping, integrating, and testing proposed solutions to emerging issues.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 Development	2.548	1.820	1.510
(U) Block 20 Development	2.086	8.070	11.542
(U) Block 10/20 Test &Evaluation	0.539	4.693	3.510
(U) Support	6.583	1.000	1.000
(U) Management	1.000	1.000	1.000
(U) Total Cost	12.756	16.583	18.562

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) 3010 BP10/11/16/AP, PE 0401318F	387.044	583.766	487.211	503.785	434.656	451.636	461.858	586.907	3,896.863

Total Cost number does not include \$1B procurement funding prior to FY2007.



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401318F CV-22

PROJECT NUMBER AND TITLE

4103 CV-22

(U) **C. Other Program Funding Summary (\$ in Millions)**

FY2007 funding total includes \$99.252M in GWOT supplemental for one additional CV-22.

FY2008 funding totals do not include \$492.500M FY2008 GWOT requirements still pending Congressional consideration.

(U) **D. Acquisition Strategy**

The CV-22 program is managed by the Navy V-22 Joint Program Office (NAVAIR PMA-275). This ensures that the CV-22 changes are incorporated into the ongoing V-22 production line with minimum impact. Funding for the baseline CV-22 Engineering Manufacturing and Development, known as Block 0, is embedded in the Navy budget. Block 10 RDT&E funding is sent from USAF and USSOCOM to PMA-275 to be placed on contract with the V-22 prime contractor. Block 10 capability is required for compliance with the Joint Operational Requirements Document and associated Milestone III Capabilities Production Document (CPD). Block 20 and subsequent block upgrades are planned to follow the same acquisition strategy, with PMA-275 ensuring the integration of CV-22 unique systems with the ongoing basic vehicle improvements supporting both the CV-22 and the Marine Corps MV-22.

Development activities for the V-22 program are performed by the prime contractor selected on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>05 System Development and Demonstration (SDD)</b>				<b>0401318F CV-22</b>					<b>4103 CV-22</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>													
Development of 2 Production Representative Test Vehicles	SS, CPAF	Bell-Boeing	185.422								185.422		
Block 10 Development	SS, CPAF	Bell-Boeing	30.072	0.444	Aug-07	1.820	Mar-08	1.510	Mar-09	Continuing	TBD		
Block 10 Development	Multiple	Multiple	9.782	2.104	Mar-07					Continuing	TBD		
Block 20 Development	SS, CPAF	Bell-Boeing	1.864	2.086	May-07	8.070	Dec-07	11.542	Dec-08	Continuing	TBD		
Block 20 Development	Multiple	Multiple								Continuing	TBD		
Subtotal Product Development			227.140	4.634		9.890		13.052		Continuing	TBD	0.000	
Remarks:													
(U) <u>Support</u>													
Interim Contractor Support	SS, CPAF	Bell-Boeing, Dyn-Corp	19.306	6.583	Dec-06	1.000	Dec-07	1.000	Dec-08	Continuing	TBD		
Subtotal Support			19.306	6.583		1.000		1.000		Continuing	TBD	0.000	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
Block 10/20 Testing & Integration	SS, CPAF	Bell-Boeing, Rolls Royce	11.600	0.539	Sep-07	4.693	Feb-08	3.510	Feb-09	Continuing	TBD		
Block 10/20 Testing, Integration and Support	MIPR	Multiple	3.539								3.539		
Subtotal Test & Evaluation			15.139	0.539		4.693		3.510		Continuing	TBD	0.000	
Remarks:													
(U) <u>Management</u>													
Management & Integration Support	MIPR	Multiple	1.000	1.000	Dec-06	1.000	Dec-07	1.000	Dec-08	Continuing	TBD		
Subtotal Management			1.000	1.000		1.000		1.000		Continuing	TBD	0.000	
Remarks:													
(U) Total Cost			262.585	12.756		16.583		18.562		Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2008

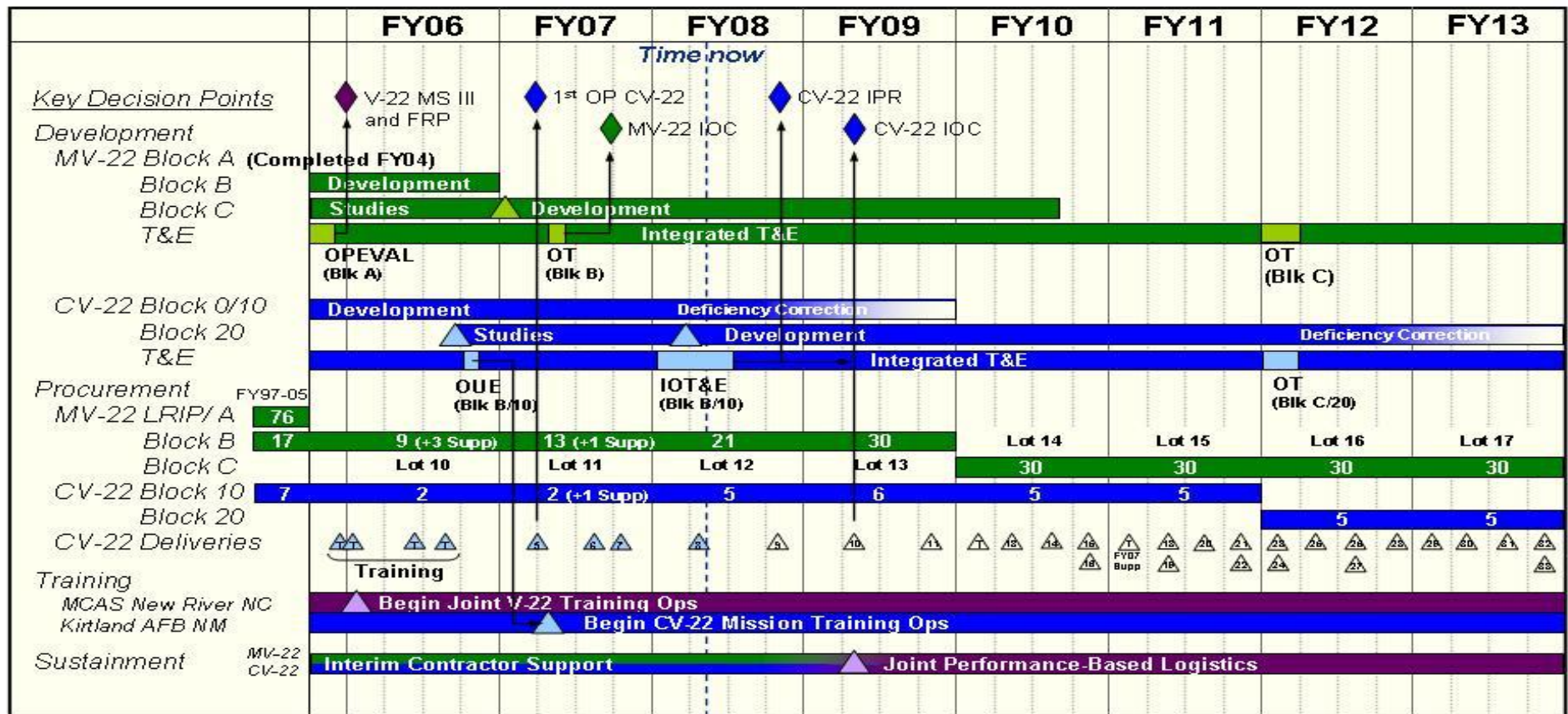
BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0401318F CV-22

PROJECT NUMBER AND TITLE  
4103 CV-22



# CV-22 Schedule



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**February 2008**

BUDGET ACTIVITY

**05 System Development and Demonstration (SDD)**

PE NUMBER AND TITLE

**0401318F CV-22**

PROJECT NUMBER AND TITLE

**4103 CV-22**

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 Development/Correction of Deficiencies	1-4Q	1-4Q	1-4Q
(U) Block 0/10 Flight Test	1-4Q	1-4Q	1-4Q
(U) Operational Test & Evaluation		1-3Q	
(U) Block 20 Studies/Development/Test	1-4Q	1-4Q	1-4Q
(U) Aircraft Deliveries	1-4Q	1-4Q	1-4Q
(U) CV-22 IOC			2Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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BUDGET ACTIVITY <b>05 System Development and Demonstration (SDD)</b>	PE NUMBER AND TITLE <b>0401845F SLC3S-A (Senior Leader C3S)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.700	0.000	1.992	0.000	0.000	0.000	0.000	0.000	0.000
5273 SLC3S-A Standard Communications Package	11.700	0.000	1.992	0.000	0.000	0.000	0.000	0.000	0.000

FY2008 GWOT requirement of \$11.7M pending Congressional consideration no longer required due to \$11.7M reprogramming add in FY2007.

**(U) A. Mission Description and Budget Item Justification**

FY2008 funding totals do not include \$11.700M FY2008 GWOT requirements still pending Congressional consideration.

The Senior Leader Command, Control, and Communications System - Airborne (SLC3S-A) provides executive airborne communications supporting world-wide command and control capabilities to US government senior leaders (i.e., the President of the United States (POTUS); Vice President of the United States (VPOTUS); Secretary of Defense (SECDEF); Secretary of State (SECSTATE); Chairman, Joint Chiefs of Staff (CJCS); Unified Combatant Commanders (COCOMs); and their staff other government senior leaders). The SLC3S-A capabilities include secure and non-secure voice, data, and video connectivity into Defense Information System Network/Global Information Grid, Defense Switched Network, Defense Red Switch Network, Voice Over Secure Internet Protocol Networks, National Security Council's Crisis Management System, and commercial networks up to the Top Secret/Sensitive Compartmented Information security classification level. These capabilities are used daily by the Senior Leaders to carry out their duties and responsibilities in support of the Global War on Terrorism (GWOT).

Currently, each Air Force Very Important Person Special Airlift Mission (VIPSAM) aircraft is configured with its own, unique communications suite. National Senior Leaders require 100% secure voice and data capability from general planning and strategy discussions to directing command decisions. The security, reliability, and availability of the SLC3S-A services determine America's victories or setbacks on the GWOT battlefield. This project will standardize the back-end, communications architecture and provide common capabilities and functionality.

This program is in budget activity 5, System Development and Demonstration (SDD), because it funds engineering and manufacturing development tasks aimed at meeting validated requirements.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401845F SLC3S-A (Senior Leader C3S)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	11.700		1.992
(U) Total Adjustments	11.700		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	11.700		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>				<b>PE NUMBER AND TITLE</b> <b>0401845F SLC3S-A (Senior Leader C3S)</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5273 SLC3S-A Standard Communications Package</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5273 SLC3S-A Standard Communications Package	11.700	0.000	1.992	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY2008 GWOT requirement of \$11.7M pending Congressional consideration no longer required due to \$11.7M reprogramming add in FY2007.

**(U) A. Mission Description and Budget Item Justification**

FY2008 funding totals do not include \$11.700M FY2008 GWOT requirements still pending Congressional consideration.

The Senior Leader Command, Control, and Communications System - Airborne (SLC3S-A) provides executive airborne communications supporting world-wide command and control capabilities to US government senior leaders (i.e., the President of the United States (POTUS); Vice President of the United States (VPOTUS); Secretary of Defense (SECDEF); Secretary of State (SECSTATE); Chairman, Joint Chiefs of Staff (CJCS); Unified Combatant Commanders (COCOMs); and their staff other government senior leaders). The SLC3S-A capabilities include secure and non-secure voice, data, and video connectivity into Defense Information System Network/Global Information Grid, Defense Switched Network, Defense Red Switch Network, Voice Over Secure Internet Protocol Networks, National Security Council's Crisis Management System, and commercial networks up to the Top Secret/Sensitive Compartmented Information security classification level. These capabilities are used daily by the Senior Leaders to carry out their duties and responsibilities in support of the Global War on Terrorism (GWOT).

Currently, each Air Force Very Important Person Special Airlift Mission (VIPSAM) aircraft is configured with its own, unique communications suite. National Senior Leaders require 100% secure voice and data capability from general planning and strategy discussions to directing command decisions. The security, reliability, and availability of the SLC3S-A services determine America's victories or setbacks on the GWOT battlefield. This project will standardize the back-end, communications architecture and provide common capabilities and functionality.

This program is in budget activity 5, System Development and Demonstration (SDD), because it funds engineering and manufacturing development tasks aimed at meeting validated requirements.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Build, integrate, and test SLC3S-A Air-To-GIG Gateway Upgrade	1.900		
(U) Build, integrate, and test SLC3S-A Communications Package proof-of-concept prototype	3.875		
(U) Develop SCL3S-A Communication Package requirements	1.000		
(U) Develop SCL3S-A Communication Package associated data items and training	0.400		0.500
(U) System Engineering, Software Development, Certifications	2.500		1.192
(U) Test and Evaluation	0.225		
(U) SPO Support (MITRE, A&AS) and Travel	1.800		0.300
(U) Total Cost	11.700	0.000	1.992

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0401845F SLC3S-A (Senior Leader C3S)

PROJECT NUMBER AND TITLE

5273 SLC3S-A Standard Communications Package

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) PE 0401845F, Senior Leader Communications

(U) **D. Acquisition Strategy**

Award single contract vehicle. Emphasize off-the-shelf technology, and maximize use of non-developmental items (NDIs).



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>05 System Development and Demonstration (SDD)</b>				<b>0401845F SLC3S-A (Senior Leader C3S)</b>					<b>5273 SLC3S-A Standard Communications Package</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Build and integrate SLC3S-A Gateway Upgrade	Competitive CPIF	TBD		1.900							1.900	
Develop SCP Proof-of-Concept, data, and training	Competitive CPIF	TBD		7.775				1.692			9.467	
Subtotal Product Development			0.000	9.675		0.000		1.692		0.000	11.367	0.000
Remarks:												
<u>(U) Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Government test and eval	Air Force Project Order	TBD		0.225							0.225	
Subtotal Test & Evaluation			0.000	0.225		0.000		0.000		0.000	0.225	0.000
Remarks:												
<u>(U) Management</u>												
SLC3S-A Program Office Contractor Support	Small Business T&M	TBD	0.000	1.800				0.300			2.100	
Subtotal Management			0.000	1.800		0.000		0.300		0.000	2.100	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	11.700		0.000		1.992		0.000	13.692	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE  
0401845F SLC3S-A (Senior Leader C3S)

PROJECT NUMBER AND TITLE  
5273 SLC3S-A Standard Communications Package

Fiscal Year	FY07				FY08				FY09				FY10				FY11				FY12				FY13							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>SLC3S-A</b>																																
Develop SCP requirements				█	█	█																										
Air to GIG Gateway Upgrade				█	█	█																										
SCP Prototype Delivery, ground								▲																								
Build, integrate, test, proof of concept				█	█	█	█																									
SCP Prototype Delivery, air								▲																								
System Engineering, software dev/cert					█	█	█	█	█	█																						
Develop SCP data and training								█	█	█																						
SCP Ready for Production												▲																				

As of Jan 08

- █ Planned Ongoing Activity
- █ Completed Activity
- ▲ Planned Event
- ▲ Completed Event

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>05 System Development and Demonstration (SDD)</b>	<b>PE NUMBER AND TITLE</b> <b>0401845F SLC3S-A (Senior Leader C3S)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5273 SLC3S-A Standard Communications Package</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Begin SCP Program	4Q		
(U) Complete SCP requirements development		2Q	
(U) Complete Air-To-Ground GIG gateway Upgrade		3Q	
(U) Complete SCP Air System Prototype		4Q	
(U) SCP Development Completed			4Q

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PE NUMBER: 0604256F  
 PE TITLE: Threat Simulator Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604256F Threat Simulator Development</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.411	39.639	34.568	38.791	40.839	42.359	42.642	Continuing	TBD
2907 Electronic Combat Intel Support	2.072	2.163	2.198	2.244	2.276	2.321	2.368	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	27.983	29.704	24.558	28.799	30.767	32.091	32.164	Continuing	TBD
7500 Foreign Materiel Acquisition/Exploitation	7.356	7.772	7.812	7.748	7.796	7.947	8.110	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This PE provides funding for the elements necessary to support the Air Force Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems. Each capability or facility improvement is pursued in concert with the others so as to avoid duplicate capabilities while at the same time producing the proper mix of test resources needed to support the AF EW Test Process and testing of EW systems which can be used in any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities improvements, hardware-in-the-loop test facilities improvements, and installed system test facility improvements. Test investment activities will also be funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs. This PE also provides funding for planning, budgetary management, and technical support of the Air Force for corporate-level implementation of the EW Test Process, improvement and modernization (I&M) activities and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. This PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program as well as to support EW intelligence efforts.

This PE is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for I&M of T&E capabilities at AF Test Centers.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0604256F Threat Simulator Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	37.987	39.892	39.856
(U) Current PBR/President's Budget	37.411	39.639	34.568
(U) Total Adjustments	-0.576	-0.253	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.576	-0.253	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>							PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>		PROJECT NUMBER AND TITLE <b>2907 Electronic Combat Intel Support</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2907 Electronic Combat Intel Support	2.072	2.163	2.198	2.244	2.276	2.321	2.368	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of blue systems to test facilities, travel of personnel to the test sites to evaluate and validate test results; range and laboratory costs; costs for instrumentation of blue systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:			
(U) Funds fighter and bomber testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	1.319	1.330	1.350
(U) Funds mobility/special operations transport/helicopter testing for foreign materiel operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.	0.673	0.770	0.765
(U) Funds classified operational assessments for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.	0.080	0.063	0.083
(U) Total Cost	2.072	2.163	2.198

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN None.									

**(U) D. Acquisition Strategy**

Not applicable.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
06 RDT&E Management Support				0604256F Threat Simulator Development			3321 Electronic Warfare Ground Test Resources		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3321 Electronic Warfare Ground Test Resources	27.983	29.704	24.558	28.799	30.767	32.091	32.164	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems. To manage program risk effectively throughout the weapons system acquisition process, and conduct test and evaluation (T&E) effectively and efficiently, a broad multi-spectrum, integrated set of T&E capabilities for modeling and simulation (M&S) through open-air ranges (OAR) is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The Electronic Warfare Test Analysis Tools & Methodologies (EWTATM) project standardizes test methodologies and provides common tools for data reduction and analysis. The National Radar Cross Section Test Facility (NRTF) at Holloman AFB, NM, provides timely, accurate, and secure RCS and antenna measurements for tri-service and joint program offices, DoD laboratories, DARPA and industry. The NRTF tests fielded and developmental systems and technology to meet Low Observable (a.k.a. stealth) and EW customer requirements. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS) provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides simulations of advanced Infrared (IR) & Radio Frequency (RF) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), RF missile warning, IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection, limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The DIADS Upgrades project will provide improvements to the existing DIADS system. The Installed Test Integration Program (ITIP) develops a multi-spectral synthetic battlespace with virtual and constructive modeling and simulation test and evaluation capabilities at Edwards AFB, CA. The Air Warfare Mission Simulator (AWMS) program develops an electronic warfare capability with high fidelity reconfigurable cockpits. This program will also provide the capability to link high fidelity cockpits to the information battlespace via High Level Architecture (HLA). Test investment activities will also be funded through the Technology Insertion & Risk Reduction (TIRR) program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development	PROJECT NUMBER AND TITLE 3321 Electronic Warfare Ground Test Resources		
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		FY 2007	FY 2008	FY 2009
(U) Accomplishments/Planned Program:				
(U) Electronic Combat (EC) Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including I&M of the EW test infrastructure.		0.844	1.126	1.147
(U) NRTF Upgrades: Enhance efficiency of operations and accuracy of Low Observable and antenna measurements. Continue investments to incentivize RCS test ranges to consolidate their workload to the NRTF. Continue RCS measurement enhancements to advance radar, range and target positioning capabilities; provide greater measurement sensitivity and dynamic range, increase bandwidth to address emerging radar and EW threats; increase data product quality and throughput.		2.660	2.790	2.538
(U) AFEWES. Includes upgrades to the IR and RF test capability, development of an IR Missile Warning System Pointer-Tracker evaluation capability, and development of improved IR foreground scene environment. Includes development of RF SAM-E2, RF SAM-F, RF SAM-H, IR SAM-K, IR SAM-M, and IR SAM-N simulators. Includes development of integrated test capability with OAR(s), as well as integrating the AFEWES threat suite with other test capabilities. Includes transition of flyout models to most current DIA or NASIC baseline and Verification and Validation efforts on all threat simulators.		5.843	3.325	3.353
(U) ITIP. Integration of ATIC (Avionics Test and Integration Complex) RF simulators/stimulators to replicate an EW battlespace to support testing of advanced weapons systems such as the F-22A, F-35, UAS, and Compass Call; includes upgrades of RF environment monitoring capabilities, as well as existing simulators/stimulators: Advanced Radar Environment Simulator (ARES), IR Sensor Stimulator (IRSS), RF threat simulators and Communications, Navigation and Identification (CNI) simulator and the integration of those upgrades into the electronic battlespace. Newly integrated capabilities include DIADS, ARES free-space radar target generation, JCS (Joint Communications Simulator), EW RF signal free-space generation; improvements to test control, real-time data displays, scenario development, data reduction and analysis functions.		10.301	8.751	7.323
(U) AWMS. Builds 2 TS/SAR modeling & simulation facilities and 2 reconfigurable/reusable high fidelity manned flight simulators with 360 degree field-of-view visual systems. It adds integrated avionics and EW capability to 4 simulators. Develops full mission level simulation capabilities, internal & external linking, and interoperable tools to run distributed simulations in multi-ship formations for Test & Evaluation of modern aircraft such as the F-35 and F-16. AWMS provides man-in-the-loop capability to other T&E assets.		2.045	1.629	3.755
(U) DIADS UPGRADES improve fidelity of the DIADS model by maintaining currency with the Threat Modeling and Analysis Program (TMAP) modeling architecture for threat models and upgrading individual integrated air defense system elements such as the radar model and surface to air missile model. DIADS will also be improved by		4.750	4.713	4.162

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>	PROJECT NUMBER AND TITLE <b>3321 Electronic Warfare Ground Test Resources</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
incorporating changes in the threat as evidenced by updates to intelligence databases. Develop distributed interfaces between DIADS and Blue (e.g. friendly) C4ISR simulations to develop a coherent synthetic battlespace for the test and training of multi-platform sensor integration programs. An architecture update will be incorporated to move from large proprietary computers to a non-proprietary personal computer based system as well as other technical refresh updates to the system. Improve man-in-the-loop functionality by upgrading DIADS operator displays and adding new operator positions. Continue the parametric validation effort of various DIADS components.			
(U) EWTATM establishes methodologies and provides tools to standardize data reduction across the Test Facilities. These tools will be interfaced with the Measure of Performance Analysis Tool (MOPAT) developed under an earlier program. EWTATM will also expand the MOPAT with the addition of new Measures Of Performance (MOPs). As these tools are developed, the results will be incorporated in the Test Methodology Reference.	1.540	1.989	2.062
(U) Technology Insertion & Risk Reduction (TIRR): will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. Will reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.		5.381	0.218
(U) Total Cost	27.983	29.704	24.558

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN									
(U) Related RDT&E PE 0604759F, Major T&E Investment; PE 0604940D, Central T&E Investment Program; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, T&E Support; PE 0605978F, Facilities Sustainment - T&E Support; PE 0605976F, Facility Restoration and Modernization; PE 0605804D, Development Test and Evaluation; PE 0605814D, Operational Test Activities and Analysis.									

(U) **D. Acquisition Strategy**  
 This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.

**Exhibit R-2a, RDT&E Project Justification**

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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0604256F Threat Simulator Development</b>			<b>PROJECT NUMBER AND TITLE</b> <b>7500 Foreign Materiel Acquisition/Exploitation</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
7500 Foreign Materiel Acquisition/Exploitation	7.356	7.772	7.812	7.748	7.796	7.947	8.110	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This project's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&E) funds are included in the prioritized Air Force FMA list established each year. Each MAJCOM prepares and approves a Foreign Materiel - Mission Need Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOM's requirements lists are then integrated into a classified Air Force requirement list. Each MAJCOM then approves the AF list and requirements, and final validation comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, air-to-ground bomb/missiles, satellites, early warning radars, and Intercontinental Ballistic Missiles. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.

Budget Activity Justification: This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:			
(U) Funds the acquisition of Foreign Materiel IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability.	3.450	3.649	3.666
(U) Funds the exploitation of acquired Foreign Materiel IAW prioritized lists and specific exploitation plans.	3.097	3.288	3.302
(U) Funds the operations and maintenance of the specialized Foreign Materiel assets.	0.809	0.835	0.844
(U) Total Cost	7.356	7.772	7.812

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN None.									

**(U) D. Acquisition Strategy**

Not applicable.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759F Major T&amp;E Investment</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	63.417	63.855	61.818	63.232	66.688	67.934	68.770	Continuing	TBD
4597 Air Force Test Investments	63.417	63.855	61.818	63.232	66.688	67.934	68.770	Continuing	TBD

In FY 2008, Project 4597, Air Force Test Investments, includes new start efforts

**(U) A. Mission Description and Budget Item Justification**

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR) program, formerly the Test Technology Development (TTD) program. The TIRR program provides funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment within the scope of this program element. The intent is to reduce the cost and risk associated with new technologies and methodologies using short-term (1-3 years) limited-funding projects prior to investing in larger programs.

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process (TIPP). Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

The 46TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. Advanced Airborne Instrumentation Integration (AII) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Operational Facilities (OPFACs) for Link-16 Weapon-Platform Integration (formerly

## Exhibit R-2, RDT&amp;E Budget Item Justification

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0604759F Major T&amp;E Investment

Link-16 Support) will provide a host platform simulator for C4I testing. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) will extend instrumentation capabilities into the Gulf of Mexico to permit testing of large footprint weapon systems.

AEDC, located at Arnold AFB, TN, provides pre-flight ground environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Improve Turbine Engine Structural Integrity (ITESI) project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. Real-Time Display and Analysis System (RDAS) will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. The Enhance Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cells (SL2 and SL3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be upgraded for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. Propulsion Consolidation and Streamlining (PC&S) program invests in modernization of AEDC jet engine test capability by consolidating major industrial aeropropulsion test facilities, improving plant and test cell reliability, increasing test cell capability, and streamlining test processes.

AFFTC, located at Edwards AFB, CA, conducts and supports DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between AFFTC and AEDC. The goal is for the two centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, Scheduling and Asset Tracking System; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry instrumentation, aircraft instrumentation suites, and ground support systems. It also provides a quick reaction capability for future weapon systems and enhancements required by AFFTC customers. The Advanced GPS Range Sensors (AGRS) project will provide increased Time, Space, Position Information (TSPI) accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Follow-on Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground

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0604759F Major T&E Investment

support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, and on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	61.671	59.064	62.333
(U) Current PBR/President's Budget	63.417	63.855	61.818
(U) Total Adjustments	1.746		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.409	
Congressional Increases		5.200	
Reprogrammings	1.746		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**  
 FY07: \$1.746M actuals layin.

FY08: Congressional Action plus of \$5.2M (\$3.6M for Holloman High Speed Test Track and \$1.6M for FPS-16 Radar Mobilization Upgrade). Congressional rescissions of \$-0.409M.

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BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0604759F Major T&E Investment			PROJECT NUMBER AND TITLE 4597 Air Force Test Investments		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4597 Air Force Test Investments	63.417	63.855	61.818	63.232	66.688	67.934	68.770	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

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**0604759F Major T&E Investment**

PROJECT NUMBER AND TITLE

**4597 Air Force Test Investments**

simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) will extend instrumentation capabilities into the Gulf of Mexico to permit testing of large footprint weapon systems.

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PE NUMBER AND TITLE

0604759F Major T&amp;E Investment

PROJECT NUMBER AND TITLE

4597 Air Force Test Investments

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, and on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) 46 Test Wing, Air Armament Center			
(U) Armament and Munitions Digital Modeling and Simulation (AMD M&S): Develops and coordinates Modeling and Simulation Master Plan and Modeling and Simulation activities.	3.536	3.379	2.979
(U) Advanced Airborne Instrumentation Integration (AII): Acquires and integrates state-of-the-art airborne instrumentation such as Advanced Common Airborne Instrumentation System (CAIS) and Advanced Range Telemetry System (ARTM). Acquires ground support equipment to support pre/post flight operations.	6.232		
(U) Test Control & Visualization (TCV): Upgrades telemetry (TM) systems and network infrastructure to handle higher data rates. Acquires and integrates real-time computing servers, data recorders, and video displays.	1.469		
(U) C4I Advanced Simulation and Test Environment (CASTE): Acquires equipment, instrumentation, hardware, software, and connectivity for C4I testing.	0.881		
(U) Over Water Impact Scoring System (OWISS): Develops the capability necessary to test long-range precision strike munitions in an overwater environment.	5.832	1.423	2.979
(U) C4ISR Modeling and Simulation: Acquires and develops comprehensive digital models and integrates real and synthetic environments to provide a realistic battlespace for testing C2 systems.	0.903	2.462	3.731
(U) Command and Control Test Operations Center (C2TOC): Develops a Joint Air Operations Center level test capability to conduct functional, performance and load/stress testing on C2 Weapons Systems.	1.619	2.187	2.483
(U) Advanced Range Telemetry System (ARTM): Improves and upgrades critical telemetry infrastructure for higher throughput rates. Improves quality of real-time data and more efficient utilization of the frequency spectrum.	2.906	4.176	4.866
(U) Operational Ground Test Facility (OGT): OGT is a required capability to test munitions in their operational environment. OGT is a hardware in the loop simulation with IR/UV/optical scene generators adding vibration, temperature and climatic variables to the simulation.	0.531	2.537	3.029
(U) Advanced Command Destruct System (ACDS): Improves & upgrades existing command destruct (aka flight termination) systems utilizing state-of-the-art datalink & encryption technologies to provide a robust & secure destruct commands to in-flight weapon systems.		2.042	1.837
(U) Advanced Munitions Test Improvements (AMTI): Develops new HITL capabilities to permit the testing of advanced		1.537	2.483

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Project 4597

Exhibit R-2a (PE 0604759F)

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification		DATE February 2008		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>4597 Air Force Test Investments</b>		
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
technology guidance, control, and signal processing techniques employed in the next generation weapon systems.				
(U) Ultra High-Accuracy Reference System (UHARS): Develops a high-accuracy inertial based TSPI system to meet the position & velocity requirements of advanced weapon systems and their navigation systems, and enables weapon system testing in GPS-denied environments.			0.500	1.000
(U) Eglin Air Armament Center: This was an FY07 Congressional Plus-up for Enterprise Test Data Management System (ETDMS.) ETDMS will facilitate effective management of large volumes of data; increase T&E efficiency; reduce time-delays and costs; foster effective data sharing between govt and contractors; and posture 46TW to receive and process data from operational units, bolstering warfighter effectiveness. This proposal directly supports current and upcoming test programs: F-22A, C-17, C-130J, C-130 AMP, F-16, B-1, B-52, B-2, J-UCAS.		2.000		
(U) Air Force Flight Test Center				
(U) Advanced GPS Range Sensors (AGRS): Acquire and integrate hardware necessary for the continued development of internal mount GPS/IMU TSPI sensors. Acquire and integrate low cost TSPI data link. Upgrades and delivers high accuracy kinematic GPS TSPI processing software. Provides consolidated inputs from AF test ranges to the Range Instrumentation System Program Office (RISPO) for GPS and data link equipment to be developed under the Common Range Integrated Instrumentation System (CRIIS) program. Provide and integrate replacement subsystems that will extend the service life of the Advanced Range Data System at AAC and AFFTC.		5.143	7.202	1.427
(U) Next Generation Test Instrumentation: Integrates new measurement technology into multiple aircraft and support labs. Provides enhancements and improvements to the Internet based Instrumentation Management Information Systems to improve modification cost accounting and program management. Expands the capabilities of ILIAD to program multiple vendor hardware suites and preflight test articles and airframes. Develops airborne instrumentation components to address new sensor interfaces. Purchases instrumentation components to upgrade obsolete and unreliable instrumentation components. Replaces obsolete data systems (Airborne Test Instrumentation System, Metraplex) and unreliable data recorders on Test aircraft, support fleet, and Test Pilot School aircraft.		2.628		
(U) AFFTC Range System Upgrade (ARSU). Expand the range digital voice communication system to meet increasing customer requirements. Implement range data command and control system to automate the setup, configuration, monitoring and reconfiguration of networks and widely dispersed end equipment supporting data, telemetry, voice, video and other real-time and non-real time data thereby increasing the number and quality of missions supported.		0.200	0.200	3.829
(U) AFFTC RT & Post Flight System Upgrade (ARPSU): Upgrades the TM processing to handle new data formats and increased data rates. Upgrades the data distribution network that transfers data from multiple data sources into the control rooms. Implements solutions for bi-directional TM (being developed under CTEIP programs) into the control rooms which increases the speed and capacity of the data analysis systems.		2.606	5.018	5.371
(U) AFFTC TSPI System Upgrade (ATSU): Acquires and implements non-GPS based TSPI solutions. Develops an		2.803	3.854	4.308

## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment	PROJECT NUMBER AND TITLE 4597 Air Force Test Investments		
		FY 2007	FY 2008	FY 2009
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b> automated TSPI architecture. Continues enhancements to the GPS based TSPI system systems to provide for the integration of new codes and frequencies.				
(U) Joint Airborne Instrumentation Integration (JAI): Develops state-of-the-art data acquisition and transmission systems with data rate capacity of 500-1000 MB/sec, solid state and 3-D recorders capable of storing terabytes of data, spectrum efficient and spectrum agile packetized data telemetering transmitters for global battlespace testing, airborne separation video equipment capable of color megapixel resolution in both the visible and Infrared (IR) spectrum, reference airborne time sources generated from current TSPI standards and integrates Range time and position equipment into test airframes.			4.521	6.944
(U) Enterprise Test Data Management: This was an FY07 Congressional Plus-up		1.400		
(U) Arnold Engineering Development Center				
(U) Real Time Display and Analysis System (RDAS): Designs, procures, installs, checks out and turns over the J2 and J1 Test Unit Supervisory Systems (TUSS), 4T Test Article Control System, SL2 TUSS, C1 TUSS, 4T Pretest System, and SL3 TUSS. Integrates checkout and turnover of the 4T Data Acquisition Processing Systems (DAPS). Designs and procures activities for the 4T Plant Automation effort. Installs and checks out the 4T Test System.		2.523	1.734	
(U) Propulsion Consolidation and Streamlining (PC&S): Improves plant and test cell reliability, increasing test cell capability, and streamlining test processes of the jet engine test facility.		10.156		
(U) VKF Plant Modernization: Provides pressurized air support for hypersonic wind tunnel and turbine engine test requirements.		3.385	3.854	4.786
(U) Tunnel 4T Modernization: 1) Upgrade the flex nozzle actuators & control system; 2) Modernize the Captive Trajectory System; 3) Process air control valve (65A) Analysis/Relocation; 4) Provide commonality of 4T data systems with ABC data systems; 5) Increase Mach to 2.5; 6) Electrical distribution within cover building; 7) Test Section Upgrades; 8) Add a portable Pressure Sensitive Paint (PSP) system.			2.322	3.264
(U) Tunnels A/B/C Modernization: 1) Replace/Modernize the Tunnel A, flex nozzle and diffuser, actuators & controls and perform calibrations to validate nozzle contours; 2) Construct a central facility operations center for efficient test execution; 3) Upgrade/Modernize classified/unclassified network, security and computer & data acquisition systems.			5.105	5.744
(U) Other Projects				
(U) Next Generation Satellite TT&C (Nxt Gen Sat TT&C): Modernizes the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. Replaces obsolete satellite COTS based C2 hardware and software components. Integrates X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Replaces obsolete data recording and data trending systems.		4.301	3.390	
(U) T&E Board of Directors Support: Coordinates tri-service investment efforts. Coordinates joint Reliance documents.		0.150	0.117	0.082

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Project 4597

Exhibit R-2a (PE 0604759F)

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Exhibit R-2a, RDT&E Project Justification

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February 2008

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0604759F Major T&amp;E Investment</b>	PROJECT NUMBER AND TITLE <b>4597 Air Force Test Investments</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Technology Insertion & Risk Reduction (TIRR): Short Focal Length Collimator (SFLC) will enable full Field-of-View (FOV) testing of space-based space surveillance & radiance-based sensors. HHSTT Rainfield Enhancement will improve methodologies for quantifying weather environments impact on missile systems. Sub-miniature EFTS & FTSA will produce miniaturized flight termination components necessary to the SFSS CTEIP program.	0.467	1.504	1.191
(U) Total Cost	61.671	59.064	62.333

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN	Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604940D, Central Test and Evaluation Investment Program; PE 0605804D, Development Test and Evaluation; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, Test and Evaluation Support; PE 0605978F, Facilities Sustainment - T&E Support; and PE 0605976F, Facility Restoration and Modernization.								

(U) **D. Acquisition Strategy**  
 This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.

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PE NUMBER: 0605101F  
 PE TITLE: RAND Project Air Force

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605101F RAND Project Air Force</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	33.611	30.802	28.676	29.288	29.403	29.975	30.578	Continuing	TBD
1110 Project Air Force	33.611	30.802	28.676	29.288	29.403	29.975	30.578	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking ahead, future research will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0605101F RAND Project Air Force**

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.510	30.999	31.294
(U) Current PBR/President's Budget	33.611	30.802	28.676
(U) Total Adjustments	7.101		
(U) Congressional Program Reductions			
Congressional Rescissions	0.001		
Congressional Increases			
Reprogrammings	7.100		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY 06 RDT&E Management Support				PE NUMBER AND TITLE 0605101F RAND Project Air Force			PROJECT NUMBER AND TITLE 1110 Project Air Force		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
1110 Project Air Force	33.611	30.802	28.676	29.288	29.403	29.975	30.578	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

(U) The FY06 research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

(U) Looking ahead, future research will build upon FY06 and earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605101F RAND Project Air Force</b>	PROJECT NUMBER AND TITLE <b>1110 Project Air Force</b>
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study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

(U) This program is in budget activity 6- Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Strategy and Doctrine	8.611	7.100	7.100
(U) Aerospace Force Development	6.900	6.532	6.000
(U) Manpower, Personnel, and Training	6.600	6.303	6.000
(U) Resource Management	7.300	7.000	5.699
(U) Integrative Research/Direct Support	4.200	3.867	3.877
(U) Total Cost	33.611	30.802	28.676

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**

A comprehensive review of RAND/Project AIR FORCE was completed in Sep 00 and led to a 5-year (FY01-FY05) Cost Plus / Fixed Fee contract, awarded on 01 Oct 00. A subsequent comprehensive review was conducted in FY05. A follow-on (FY06-FY10) Cost Plus / Fixed Fee contract was awarded in Oct 05.

**UNCLASSIFIED**

PE NUMBER: 0605712F  
 PE TITLE: Initial Operational Test & Evaluation

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	34.554	30.011	29.537	29.770	29.673	30.252	30.871	Continuing	TBD
0191 Initial Operational Test & Eval	34.554	30.011	29.537	29.770	29.673	30.252	30.871	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test & Evaluation

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	34.670	30.203	29.783
(U) Current PBR/President's Budget	34.554	30.011	29.537
(U) Total Adjustments	-0.116	-0.192	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.116	-0.192	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>			PROJECT NUMBER AND TITLE <b>0191 Initial Operational Test &amp; Eval</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
0191 Initial Operational Test & Eval	34.554	30.011	29.537	29.770	29.673	30.252	30.871	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond LRIP. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental Test/Operational Test (DT/OT), the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include:	27.453	19.431	17.596

FY07

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Plan for OA.
- AOA-10A Precision Engagement (AOA-10A PE): Conduct OUE.
- B-2 Radar Modernization Program (RMP): Plan OA and IOT&E.
- C-130 Aircraft Modernization Program (AMP): Plan for OA.
- Combat Search and Rescue Vehicle (CSAR-X): Plan for OA.
- CV-22: Plan for IOT&E.
- F-22: Conduct FOT&E Incr 2.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

February 2008

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

PROJECT NUMBER AND TITLE

0191 Initial Operational Test &amp; Eval

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

- Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Plan for IOT&E.
- Miniature Air Launched Decoy (MALD): Conduct OA.
- MQ-9: Plan for OT.
- RQ-4 Global Hawk: Conduct OA.
- Special Operations Forces Integrated Air Refueling System (SOF IARS): Plan for OUE.
- Other systems.

FY08

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Conduct OA.
- AOA-10A Precision Engagement (AOA-10A PE): Conduct IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct OA and IOT&E.
- B-52 COmbat NETwork Communications Technology (CONNECT): Conduct OA.
- C-130 Aircraft Modernization Program (AMP): Conduct OA.
- Combat Search and Rescue Vehicle (CSAR-X): Conduct OA.
- CV-22: Conduct IOT&E.
- F-22: Plan for FOT&E Incr 3.1.
- KC-135 Replacement Tanker (KC-X): Plan for OA.
- Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Plan for IOT&E.
- Miniature Air Launched Decoy (MALD): Complete OA.
- MQ-9: Conduct OT.
- RQ-4 Global Hawk: Complete OA.
- Special Operations Forces Integrated Air Refueling System (SOF IARS): Conduct OUE.
- Other systems.

FY09

- ALR-69A Radar Warning Receiver Capability Improvement (ALR-69A RWR CI): Plan for IOT&E.
- B-2 Radar Modernization Program (RMP): Conduct FOT&E.
- B-52 COmbat NETwork Communications Technology (CONNECT): Conduct OT.
- C-130 Aircraft Modernization Program (AMP): Plan for IOT&E.
- Combat Search and Rescue Vehicle (CSAR-X): Conduct OA.
- F-22: Plan for FOT&E Incr 3.1.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<ul style="list-style-type: none"> <li>- KC-135 Replacement Tanker (KC-X): Plan for OA.</li> <li>- Large Aircraft Infrared Countermeasures (LAIRCM) Phase II: Conduct IOT&amp;E.</li> <li>- Miniature Air Launched Decoy (MALD): Conduct IOT&amp;E.</li> <li>- RQ-4 Global Hawk: Conduct IOT&amp;E.</li> <li>- Other systems.</li> </ul>			

<b>(U) CATEGORY: SPACE SYSTEMS.</b> Plan, execute, and report IOT&E activities, to include:	3.036	2.792	1.834
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**FY07**

- Advanced EHF Satellite Communications (Advanced EHF): Conduct DT/OT.
- Combat Commanders Integrated Command & Control System-Increment 2 (CCIC2S Increment 2): Publish final report.
- Global Broadcast Service (GBS): Conduct MOT&E2.
- Global Positioning System/GPS-III (GPS-III): Conduct OUE.
- Space Based Infrared System (SBIRS): Plan for OUE.
- Space Based Space Surveillance (SBSS): Conduct OA.
- Wideband Global SATCOM (WGS): Plan for MOT&E.
- Other systems.

**FY08**

- Advanced EHF Satellite Communications (Advanced EHF): Conduct OUE.
- Global Positioning System/GPS-III (GPS-III): Conduct OA.
- Space Based Infrared System (SBIRS): Conduct OUE.
- Space Based Space Surveillance (SBSS): Plan for IOT&E.
- Satellite Control Network (SCN): Early Influence.
- Space Radar (SR): Plan for IOT&E.
- Transformational Satellite Communications System (TSAT): Plan for MOT&E.
- Wideband Global SATCOM (WGS): Conduct MOT&E.
- Other systems.

**FY09**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<ul style="list-style-type: none"> <li>- Advanced EHF Satellite Communications (Advanced EHF): Plan for MOT&amp;E.</li> <li>- Global Positioning System/GPS-III (GPS-III): Publish OA report.</li> <li>- National Polar-Orbit Ops Environment Satellite System (NPOESS): Plan for OA.</li> <li>- Operationally Responsive Space (ORS) Near Space: Early Influence.</li> <li>- Operationally Responsive Space (ORS) Responsive Satellites: Early Influence.</li> <li>- Space Based Infrared System (SBIRS): Plan for OUE.</li> <li>- Space Based Space Surveillance (SBSS): Conduct IOT&amp;E.</li> <li>- Satellite Control Network (SCN): Plan for IOT&amp;E.</li> <li>- Space Fence: Plan for OA.</li> <li>- Space Radar (SR): Conduct IOT&amp;E.</li> <li>- Transformational Satellite Communications System (TSAT): Conduct MOT&amp;E.</li> <li>- Wideband Global SATCOM (WGS): Publish final report.</li> <li>- Other systems.</li> </ul>			
<p><b>(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&amp;E activities, to include:</b></p> <p><b>FY07</b></p> <ul style="list-style-type: none"> <li>- AIM-9X Block II: Early Influence.</li> <li>- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for IOT&amp;E.</li> <li>- Small Diameter Bomb (SDB): Publish final report.</li> <li>- Other systems.</li> </ul> <p><b>FY08</b></p> <ul style="list-style-type: none"> <li>- AIM-9X Block II: Plan for IOT&amp;E.</li> <li>- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for IOT&amp;E.</li> <li>- Other systems.</li> </ul> <p><b>FY09</b></p> <ul style="list-style-type: none"> <li>- AIM-9X Block II: Conduct IOT&amp;E.</li> <li>- Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER): Plan for IOT&amp;E.</li> <li>- Small Diameter Bomb Increment II (SDB II): Conduct EOA.</li> </ul>	1.274	1.166	2.010



## Exhibit R-2a, RDT&amp;E Project Justification

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February 2008

BUDGET ACTIVITY

06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

PROJECT NUMBER AND TITLE

0191 Initial Operational Test &amp; Eval

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

FY 2007

FY 2008

FY 2009

- Other systems.

## (U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTER, AND INTELLIGENCE (C4I).

1.801

5.275

7.217

Plan, execute, and report IOT&amp;E activities, to include:

FY07

- Air Operations Center as a Weapons System (AOC): Planning and execution throughout spiral development.
- Airborne Signals Intelligence Payload (ASIP): Conduct OA.
- B-1 Fully Integrated Data Link (B-1 FIDL): Plan for OA.
- Distributed Common Ground System (DCGS): Plan for OUE.
- DoD National Airspace System (DoD NAS): Plan for FOT&E.
- F-15 Mark 12A (F-15 Mode 5): Plan for QOT&E
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Plan for OA.
- Integrated Broadcast Service (IBS): Conduct DT/OT.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct OA1.
- Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct OA
- Other systems.

FY08

- Air Operations Center as a Weapon System (AOC): Planning and execution throughout spiral development.
- Airborne Signals Intelligence Payload (ASIP): Conduct IOT&E.
- B-1 Fully Integrated Data Link (B-1 FIDL): Conduct OA.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Early Influence.
- Battle Control System - Fixed (BCS-F): Plan for OA and IOT&E.
- Battle Control System - Mobile Increment 1 (BCS-M Increment 1): Early Influence.
- Distributed Common Ground System (DCGS): Conduct OUE.
- DoD National Airspace System (DoD NAS): Plan for FOT&E.
- F-15 Mark 12A (F-15 Mode 5): Conduct QOT&E.
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Plan for OA.
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Conduct OA.
- Integrated Broadcast Service (IBS): Plan for OUE.

## Exhibit R-2a, RDT&amp;E Project Justification

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06 RDT&amp;E Management Support

PE NUMBER AND TITLE

0605712F Initial Operational Test &amp; Evaluation

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0191 Initial Operational Test &amp; Eval

(U) **B. Accomplishments/Planned Program (\$ in Millions)**FY 2007FY 2008FY 2009

- Joint Interface Control Officer (JICO) Support System (JSS): Conduct OA2.
- Network-Enabled Command and Control Capability (NECC): Conduct IOT&E.
- Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct IOT&E.
- Other systems.

FY09

- Air Operations Center as a Weapon System (AOC): Planning and execution throughout spiral development.
- Airborne Signals Intelligence Payload (ASIP): Complete IOT&E.
- B-1 Fully Integrated Data Link (B-1 FIDL): Conduct IOT&E.
- B-2 Extremely High Frequency Satellite Communications and Computer Upgrade Program (B-2 EHF SATCOM): Plan for OA.
- Battle Control System - Fixed (BCS-F): Conduct OA and IOT&E.
- Battle Control System - Mobile Increment 1 (BCS-M Increment 1): Plan for OA and IOT&E.
- Distributed Common Ground System (DCGS): Conduct IOT&E.
- DoD National Airspace System (DoD NAS): Conduct FOT&E.
- Expeditionary Combat Support System (ECSS): Plan for OA.
- Family of Advanced Beyond Line-of-Sight Terminals (FAB-T): Conduct OA.
- Global Hawk 4 Multiple Platform-Radar Technology Insertion Program (GH 4 MP-RTIP): Conduct DT/OT and Plan for IOT&E.
- Integrated Broadcast Service (IBS): Conduct OUE.
- Joint Interface Control Officer (JICO) Support System (JSS): Conduct MOT&E.
- Joint Tactical Radio System - Airborne Maritime Fixed (JTRS-AMF): Conduct OA.
- Network-Enabled Command and Control Capability (NECC): Conduct IOT&E.
- Rapid Attack Identification Detection and Reporting System (RAIDRS): Conduct IOT&E
- VC-25A Airborne Information Management System (AIMS): Plan for IOT&E.
- Other systems

(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&amp;E activities, to include:

0.990

1.347

0.880

FY07

- Common Low Observable Verification System (CLOVerS): Conduct OA and publish OA Final Report.
- Combat Survivor Evader Locator (CSEL): Plan and Conduct MOT&E.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0191 Initial Operational Test &amp; Eval</b>
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(U) **B. Accomplishments/Planned Program (\$ in Millions)** FY 2007      FY 2008      FY 2009

- Joint Mission Planning System (JMPS): Conduct IOT&E.
- Large Aircraft Infrared Countermeasures Phase II (LAIRCM PHASE II): Conduct DT/OT.
- Other systems.

FY08

- Joint Mission Planning System (JMPS): Conduct IOT&E & Reporting.
- Joint Integrative Analysis & Planning Capability (JIAPC): Early Involvement.
- Large Aircraft Infrared Countermeasures Phase II (LAIRCM PHASE II): Conduct IOT&E.
- Other systems.

FY09

- Joint Mission Planning System (JMPS): Conduct IOT&E & Reporting.
- Joint Integrative Analysis & Planning Capability (JIAPC): Early Involvement.
- Other systems.

(U) B. Budget Activity Justification  
 This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.

(U) Total Cost	34.554	30.011	29.537
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**  
N/A

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PE NUMBER: 0605807F  
 PE TITLE: Test and Evaluation Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605807F Test and Evaluation Support</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	713.419	720.952	787.737	794.443	799.632	809.530	816.671	Continuing	TBD
06TG 46 Test Group	29.204	28.799	30.268	31.587	31.516	31.900	32.168	Continuing	TBD
06TS Test and Evaluation Support	684.215	692.153	757.469	762.856	768.116	777.630	784.503	Continuing	TBD

FY2008 funding totals do not include \$22.115 FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

FY2008 funding totals do not include \$22.115M FY2008 GWOT requirements still pending Congressional consideration.

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, civilian payroll, and contractor services. It also provides resources for maintaining and modifying as required Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	739.708	740.602	748.731
(U) Current PBR/President's Budget	713.419	720.952	787.737
(U) Total Adjustments	-26.289	-19.650	
(U) Congressional Program Reductions		-15.053	
Congressional Rescissions	-35.000	-4.597	
Congressional Increases	0.011		
Reprogrammings	8.700		
SBIR/STTR Transfer		0.000	

**(U) Significant Program Changes:**

FY07: \$35M transferred to Space Based Space Surveillance. \$8.7M added for C-20 test aircraft.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>			PROJECT NUMBER AND TITLE <b>06TG 46 Test Group</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06TG 46 Test Group	29.204	28.799	30.268	31.587	31.516	31.900	32.168	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Project infrastructure support is provided for the unique capabilities of the 46th Test Group (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF/781st Test Squadron), the 586th Flight Test Squadron and Detachment 1 (Det 1). CIGTF provides independent test and evaluation of inertial, Global Positioning System, and integrated systems used for aircraft navigation and missile guidance systems, including vulnerability to electronic interference. HHSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bistatic amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. Det 1 provides the liaison function for coordinating and scheduling all US Air Force test and training operations at White Sands Missile Range (WSMR). OL-AA provides test support for the Air Force Research Lab (AFRL) Directed Energy Division. The 586th Flight Test Squadron executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs. The 46th TG support services contracts are awarded on the basis of full and open competition.

**Budget Activity Justification:**

This Program Element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

(U) Accomplishments/Planned Program:

(U) Provide infrastructure to support testing of DoD, FMS and commercial weapon systems.

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning System (GPS) upgrades, Defense Advanced GPS Receiver, Federal Aviation Authority (FAA) tests, GPS jamming and electronic countermeasures, Joint Precision Approach and Landing System (JPALS), GPS integrated and embedded inertial navigation programs, aircraft navigation systems including F-22, JSF, F-16, F-15, P-3, B-1, B-52, C-130, HH-60 and MH-53, munitions navigation systems including the Conventional Air-Launched Cruise Missile (CALCM), Small Diameter Bomb (SDB), as well as numerous advanced navigation and navigation warfare research projects; Bomb Live Unit (BLU) -121 and BLU-128 developmental testing, Theater High Altitude Area Defense (THAAD) Live Fire T&E (LFT&E), JSF ejection seat and transparency removal systems, High Speed Penetrator, Patriot Advanced Capabilities-3 (PAC-3), Joint Service Aircrew Mask, Army Tactical Missile System (ATACMS), Active Denial System (ADS), Airborne Laser (ABL), Advanced Tactical Laser (ATL), various high-powered microwave (HPM), and high-energy laser (HEL) systems, RCS testing, as well as	4.499	2.580	4.457

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>	PROJECT NUMBER AND TITLE <b>06TG 46 Test Group</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
multiple classified programs. Continue GPS-Joint Program Office (JPO) Responsible Test Organization (RTO) responsibilities.			
(U) Utilities	0.258	0.265	0.273
(U) Contractor Services (in-house contract support activities)	11.363	12.118	12.059
(U) T&E Civilian Pay	12.309	12.950	12.914
(U) Flying Hour Costs	0.775	0.886	0.565
(U) Total Cost	29.204	28.799	30.268

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related RDT&E: PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment - T&E Support									

(U) **D. Acquisition Strategy**  
Not applicable

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>			PROJECT NUMBER AND TITLE <b>06TS Test and Evaluation Support</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06TS Test and Evaluation Support	684.215	692.153	757.469	762.856	768.116	777.630	784.503	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School. Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). Included are operations at the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, California as well as operations at Tunnel 9 located at White Oak, Maryland. (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. Included are operations at Air Force Electronic Warfare Evaluation Simulator (AFEWES) located at AF Plant 4 in Ft. Worth, TX. The AFFTC mission includes the United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) 46th Test Wing (TW) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC 46TW provides the institutional test infrastructure required for the conduct of developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles); Command, Control, Communications, Computers and Intelligence (C4I) systems; target acquisition and weapon delivery systems; a multi-service climatic simulation capability, and determines target/test item spectral signatures for DOD and allied forces. AAC 46TW provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC 46TW technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Small Diameter Bomb (SDB), CSAR-X, Advanced Short Range Air-to-Air Missile (ASRAAM), Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc. T&E support services contracts are awarded on the basis of full and open competition.



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605807F Test and Evaluation Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>06TS Test and Evaluation Support</b>

Budget Activity Justification:

This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:			
(U) Provide infrastructure to support testing of DoD, other Government Agencies, FMS and commercial weapon systems.			
(U) ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)			
(U) Continue institutional test infrastructure support to enable ground testing for classified programs and unclassified programs (Alpha RLV, ICBM, JSF, Engine CIP, Spacetrack, Ballistic Missile Defense, Minuteman, Foreign Tech, HIFIRE, AMC-X, B1B-F101, Falcon, UH-60 IBC, AHW, F-18, F405 Engine, F/A-18E/F, DTRF Maint/Transition, Threat Airborne Simulator, Threat Signature Simulation, Kinetic Energy Interceptor, SM-3, FMS-XF710 Engine, and Global Hawk.)	15.937	9.213	18.199
(U) Utilities.	10.029	10.330	10.640
(U) Contractor Services (in-house contract support activities).	110.649	126.214	127.152
(U) T&E Civilian Pay.	14.587	15.914	15.985
(U) AIR FORCE FLIGHT TEST CENTER (AFFTC)			
(U) Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52 F-16, F-15, F-15E, F-22A, F-117, F-35, C-17, CV-22, ATIC, ECCM, ABL, Predator, Global Hawk, Test Tanker II, C-20, etc.) communications, information systems, and classified programs. Operate the USAF Test Pilot School.	48.218	27.095	43.749
(U) Utilities	6.215	7.417	7.575
(U) Contractor services (in-house contract support activities)	68.801	90.235	94.219
(U) T&E Civilian Pay	157.635	162.125	165.076
(U) Aircraft flying costs include test, test support and pilot proficiency for sustained readiness. Costs include programmed depot maintenance (PDM), engine overhauls, petroleum, oils and lubricants (POL), depot level reparables (DLR); fuel and fuel price increase; and related support. Funds proficiency flying to minimum levels allowing AFFTC to meet proficiency flying goals and funds the aircraft infrastructure to also support test flying requirements.	62.419	70.420	78.833
(U) AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)			
(U) Continue institutional test infrastructure support for non-nuclear air armaments (JASSM, SEEK EAGLE, WCMD, F-22A, AIM9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAF, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS), etc).	37.857	17.745	31.832

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>	PROJECT NUMBER AND TITLE <b>06TS Test and Evaluation Support</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Utilities.	4.827	5.009	5.211
(U) Contractor Services (in-house contract support activities).	66.541	76.106	75.786
(U) T&E Civilian Pay	48.761	47.156	49.470
(U) Aircraft flying hours costs include: pilot proficiency flying for sustained readiness; deferred and projected programmed depot maintenance (PDM); engine overhauls; petroleum, oils, and lubricants (POL); depot level reparable (DLR); fuel and fuel price increases; and related support. Funds proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals and funds the aircraft infrastructure to also support test flying requirements.	31.739	27.174	33.742
(U) Total Cost	684.215	692.153	757.469

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related RDT&E: PE 0604759F, Major T&E Investment; PE 0604256F Threat Simulator Development; PE 0604940D, Central T&E Investments; PE 0605976F, Facility Restoration and Modernization - T&E and PE 0605978F Facility Sustainment -T&E Support									

(U) **D. Acquisition Strategy**  
Not applicable.

**UNCLASSIFIED**

PE NUMBER: 0605860F  
 PE TITLE: Rocket Systems Launch Program (RSLP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605860F Rocket Systems Launch Program (RSLP)</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.503	19.023	14.895	15.079	15.142	15.435	15.746	Continuing	TBD
1023 Rocket System Launch Program (RSLP)	26.503	19.023	14.895	15.079	15.142	15.435	15.746	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). It includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. It provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	26.005	15.145	15.115
(U) Current PBR/President's Budget	26.503	19.023	14.895
(U) Total Adjustments	0.498		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.122	
Congressional Increases		4.000	
Reprogrammings	0.980		
SBIR/STTR Transfer	-0.482		

**(U) Significant Program Changes:**

FY2007: Added \$0.98M to support the Space Based Space Surveillance Minotaur launch. FY2008: Congress added \$4.0M for BMRST.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>							PE NUMBER AND TITLE <b>0605860F Rocket Systems Launch Program (RSLP)</b>		PROJECT NUMBER AND TITLE <b>1023 Rocket System Launch Program (RSLP)</b>	
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
1023 Rocket System Launch Program (RSLP)	26.503	19.023	14.895	15.079	15.142	15.435	15.746	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Rocket Systems Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missile assets. The RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposition, aging surveillance, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Missile Defense Agency (MDA), etc.). RSLP maintains exclusive control of deactivated Minuteman and Peacekeeper assets used in testing to include refurbishment, transportation and handling, storage, and launch services. RSLP also funds general research and development efforts for launch support operations (e.g., Modular Mechanical Ordnance Destruct System (MMODS), the new flight termination system to replace the obsolete system no longer being manufactured). It includes the Ballistic Missile Range Safety Technology (BMRST), a GPS-based mobile range system, capable of stand-alone operations or augmenting other range systems. It provides RSLP the capability to supply range assets at austere launch locations. BMRST can also augment existing range instrumentation in case of extensive equipment downtime, or a need to increase coverage for additional locations or multiple launches.

This program is in Budget Activity 06 - RDT&E Management Support, since RSLP provides research and development effort and/or operations support for general research and development use.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue storage and refurbishment of deactivated Minuteman, Peacekeeper and other missile flight test assets and perform research and development support operations as required	10.240	10.070	10.209
(U) Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors	5.141	5.075	4.686
(U) Expand BMRST system capability to include data encryption and secured command destruct links, downrange reentry support, and continue full Eastern Range certification	10.147	3.878	
(U) Space Launch Advanced Technology Demonstration	0.975		
(U) Total Cost	26.503	19.023	14.895

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None									

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0605860F Rocket Systems Launch Program (RSLP)

PROJECT NUMBER AND TITLE

1023 Rocket System Launch Program (RSLP)

(U) D. Acquisition Strategy

N/A

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605864F Space Test Program</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	48.801	47.129	48.072	49.070	50.145	51.250	52.376	Continuing	TBD
2617 Free-Flyer Spacecraft Missions	48.801	47.129	48.072	49.070	50.145	51.250	52.376	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the sole gateway for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. This list contained 51 experiments in 2007. The 2007 SERB list was approved following the board meeting in Nov 07.

(U) STP has a continually evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other U.S. Government, on a cost-reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle, and/or the International Space Station; readiness reviews, launch support, and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the resources available. These STP efforts led to the flight of 15 successful experiments in

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2008

BUDGET ACTIVITY

**06 RDT&E Management Support**

PE NUMBER AND TITLE

**0605864F Space Test Program**

FY07 and the planned launch of 17 experiments in FY08.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	46.135	47.430	58.361
(U) Current PBR/President's Budget	48.801	47.129	48.072
(U) Total Adjustments	2.666		
(U) Congressional Program Reductions			
Congressional Rescissions		-0.301	
Congressional Increases			
Reprogrammings	3.924		
SBIR/STTR Transfer	-1.258		

**(U) Significant Program Changes:**

\$3.9M reprogrammed in FY07 to cover costs associated with rebuilding new solar array panels for the Communication/Navigation Outage Forecasting System (C/NOFS).

FY09 funding reduced (~\$10M) due to higher Air Force priorities.



## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>06 RDT&amp;E Management Support</b>				<b>0605864F Space Test Program</b>			<b>2617 Free-Flyer Spacecraft Missions</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
2617 Free-Flyer Spacecraft Missions	48.801	47.129	48.072	49.070	50.145	51.250	52.376	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program flies an optimally selected number of DoD sponsored experiments consistent with priority, opportunity, and funding. STP missions are the most cost-effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Support the space acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, test, and acquire advanced payload support hardware for small and medium expendable launch vehicles and manned spaceflight vehicles

(U) The Deputy Secretary of Defense issued a Space Test Program Management & Funding Policy in Jul 2002, reaffirming STP as the primary provider of spaceflight for the entire DoD space research community. The policy states in part that "the STP funding level must be sufficient to provide spaceflight for DoD Space Experiments Review Board (SERB) approved experiments in a timely manner. As a goal the Air Force funding level should provide for a Small-Launch-Vehicle-Class mission every 2 years and a Medium-Launch-Vehicle-Class mission every 4 years. This is in addition to funding required to support secondary payload and spacecraft missions on other organizations' spacecraft and launch vehicles." The Jul 2002 policy statement also reaffirms STP's role as the single manager for all DoD payloads on the Space Shuttle and the International Space Station. Air Force Space Command issued a policy in May 2004 that establishes STP as the sole gateway for all agencies requesting launch services as a piggyback payload or secondary satellite on a Combatant Command mission. STP maintains a SERB ranked list of these prospective payloads seeking assistance. This list contained 51 experiments in 2007. The 2007 SERB list was approved following the board meeting in Nov 07.

(U) STP has a continually evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the SERB. STP is authorized to initiate new missions from the prioritized, SERB-approved list. STP may also support non-SERB customers, both DoD and other U.S. Government, on a cost-reimbursable basis. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: mission planning and related support activities; acquisition of a dedicated satellite, launch vehicle, and/or associated integration hardware; integration onto a host satellite, launch vehicle, NASA shuttle, and/or the International Space Station; readiness reviews, launch support, and approximately one year of on-orbit operations. This flexible approach is essential in order to take advantage of 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the resources available. These STP efforts led to the flight of 15 successful experiments in FY07 and the planned launch of 17 experiments in FY08.

(U) STP is in Budget Activity 6, RDT&E Management Support, because it supports RDT&E satellite launches.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605864F Space Test Program</b>	PROJECT NUMBER AND TITLE <b>2617 Free-Flyer Spacecraft Missions</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Provide program support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	1.266	3.545	4.979
(U) Initiate, develop, and continue integration of payloads onto piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions to include acquisition of associated spacecraft and integration hardware	28.333	20.623	12.866
(U) Initiate and continue purchase of launch vehicles and launch vehicle support for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	5.130	10.496	15.492
(U) Initiate, develop, and continue first year operations and operations planning for piggyback/secondary, Small Launch Vehicle, Medium Launch Vehicle, and manned spaceflight missions	5.250	3.154	4.747
(U) Conduct studies to explore future launch opportunities, risk reduction activities, and mission planning	8.822	9.311	9.988
(U) Total Cost	48.801	47.129	48.072

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related Procurement: Not Required									
(U) <b><u>D. Acquisition Strategy</u></b> Not Required									

**UNCLASSIFIED**

PE NUMBER: 0605976F

PE TITLE: Facility Restoration and Modernization - T&E

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605976F Facility Restoration and Modernization - T&amp;E</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	55.473	59.750	46.234	55.305	49.664	50.573	52.025	Continuing	TBD
06MC Facility Restoration and Modernization - T&E	55.473	59.750	46.234	55.305	49.664	50.573	52.025	Continuing	TBD

FY2008 funding totals do not include \$1.610 FY2008 GWOT requirements still pending Congressional consideration.

**(U) A. Mission Description and Budget Item Justification**

FY2008 funding totals do not include \$1.610M FY2008 GWOT requirements still pending Congressional consideration.

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.

These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

**Budget Activity Justification:**

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	55.472	59.131	46.592
(U) Current PBR/President's Budget	55.473	59.750	46.234
(U) Total Adjustments	0.001	0.619	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.381	
Congressional Increases		1.000	
Reprogrammings	0.001		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY08: Congressional Add: \$1M for Internal Base Facility Energy Independence - Wind Turbine

**Exhibit R-2a, RDT&E Project Justification**

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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605976F Facility Restoration and Modernization - T&amp;E</b>			<b>PROJECT NUMBER AND TITLE</b> <b>06MC Facility Restoration and Modernization - T&amp;E</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06MC Facility Restoration and Modernization - T&E	55.473	59.750	46.234	55.305	49.664	50.573	52.025	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

- (U) **A. Mission Description and Budget Item Justification**  
 FY2008 funding totals do not include \$1.610M FY2008 GWOT requirements still pending Congressional consideration. Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included.
- These restoration/modernization funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.
- Budget Activity Justification:  
 This program element is in Budget Activity 6, RDT&E Management Support, because it funds the restoration/modernization of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).
- (U) **B. Accomplishments/Planned Program (\$ in Millions)**
- |  |                |                |                |
|--|----------------|----------------|----------------|
|  | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
| (U) Accomplishments/Planned Program:   |                |                |                |
| (U) 46TG: Projects include RCS Advanced Measurement System (RAMS) Range Surface Reseal and Pit 3 440 volt cable replacement at the 781st TS, Building 1265 HVAC Controls Renovation at 746th TS, insulate HVAC in Building 1604 at the 846th TS, Hangar Door Installation at the 586th FLTS, and general restoration and modernization planning and design.  | 1.167          |                |                |
| (U) 46TG: Projects include Building 1265 HVAC at the 746th TS, replace RAMS Silo Roof Air Bag at 781st TS, repave Camera Pad & Connectors Phase 1 at the 846th TS and general restoration and modernization planning and design.   |                | 1.215          |                |
| (U) 46TG: Projects include NRTF Mainsite Roof Replacement and Mobile Target Shelter Refurbishment at the 781st TS, building 1261 HVAC Replacement at the 746th TS, repave Camera Pad & Connectors Phase 2 at the 846th TS and general restoration and modernization planning and design.   |                |                | 0.814          |
| (U) 46TW: The 46th Test Wing has an excess of 200 restoration/modernization projects effecting T&E facilities to include but not limited to the following categories: roofing, windows & doors, roads, fire protection, erosion, and HVAC. Some of these restoration/modernization projects include: replace 20+ year old CATV system between C-7 Control and C-7A Launch Facility with fiber optic cable system. Replace 20+ year old CATV system on Range 72 | 4.238          |                |                |

Exhibit R-2a, RDT&E Project Justification		DATE February 2008		
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0605976F Facility Restoration and Modernization - T&E	PROJECT NUMBER AND TITLE 06MC Facility Restoration and Modernization - T&E		
		FY 2007	FY 2008	FY 2009
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>				
with fiber optic cable system. Replace fabric on E294, the Hellfire hanger. Replace safety rails on stairs and roof of Bldg 8550. Bldg 440-MCL Icing Capability upgrade, B-70 MANPAD facility upgrade, Bldg 9521 Replace HVAC, Bldg 440 repair/upgrade lightening protection system, Bldg 9371 upgrade HVAC service power panel. Replace Condenser Coils on 80-Ton Chiller Unit for Radar (Bldg 9960). Enclose heavy equipment pole barn at RMT. Completion of C-72 Hellfire high speed video tracker upgrades, C-64 200M gun range facility upgrades, KEMTF facility upgrades, A-30/31 facility upgrade & modernization. Replace potable water/fire suppression system TS A-30 and A-31. Replace control building TS A-30. Replace roof Bldg 963. Replace C-72 high performance video tracker domes. Design fire suppression system Bldg 8320. Renovate and reclaim lab space Bldg 22. Replace septic system Bldg 9287. General restoration and modernization planning and design.				
(U) 46TW: Replace roof of building 8970 at TA B-70 control site. Rework parking area to enhance drainage at TA B-70 control site. Install fiber-optic cable to service building 9300 at TA B-70 control site. Upgrade/replace/install lightening protection of test range facilities. Paint/refurbish exterior of building 963 and general restoration and modernization planning and design.			2.474	
(U) 46TW: Upgrade/replace/install lightening protection of test range facilities. Restoration/modernization projects effecting T&E facilities to include but not limited to the following categories: roofing, windows & doors, roads, fire protection, corrosion control, erosion, fencing, and HVAC replacement/upgrades, minor construction/reconstruction of test facilities. Continue evaluation and implementation of mitigation efforts for site protection to critical test sites. Continue with fiber optic cable installation and interconnectivity infrastructure to enhance communications, data transfer and instrumentation.				2.307
(U) AEDC: Projects to revitalize the Engine Test Facilities, Propulsion Wind Tunnels, Von Karmon Test Facilities, and Space and Missile chambers located at Arnold AFB, TN, the National Full-Scale Aerodynamic Complex (NFAC) located at NASA Ames Reserach Center, CA, and Tunnel 9 located at White Oak, Maryland. Projects to restore and modernize the supporting plant facilities and to perform project specific planning and design. Also includes large-scale projects that directly support engine development, the Joint Strike Fighter program, hypersonic programs, the Missile Defense Agency, and spacecraft test and evaluation.		45.947	50.898	38.968
(U) AFFTC: Projects include designing costs for FY08 multiple projects, repairing HVAC chillers at Ridley Mission Control Center Bldg 1440; repairing retrofit CFC-11 chillers Phase 2 Bldg 1020; conception study for Bldg 1020 seismic upgrade; conception study for Bldg 1030 seismic upgrade; upgrading room 204B to top secret (TS) security authorization request (SAR) Bldg 1030; repairing roof at Bldg 1830 Weight and Balance Facility; and RAM replacement Bldg 1030. Replace Computer Floor Tile & Seismic Upgrade Floor System, B1440, Rms: 176-181, 278, 285, 268, 282 & 287		4.121		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605976F Facility Restoration and Modernization - T&amp;E</b>	<b>PROJECT NUMBER AND TITLE</b> <b>06MC Facility Restoration and Modernization - T&amp;E</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>			
(U) AFFTC: Projects include designing costs for FY09 multiple projects; replacement of 9 air handlers for Bldg 1440; modifying space for tool crib in Bldg 1030; upgrading of generators for bldg 1030; and replace/upgrade raised computer flooring for Rms 224, 142, 143, 234, and 314 for Bldg 1020.		4.163	
(U) AFFTC: Projects include designing costs for FY10 multiple projects; upgrade security 1st and 3rd floor of the north tower for Bldg 1030; install EMCS in Bldgs 4785, 4795, 4970, 5780, 5781, 5790; install HVAC in the avionics lab at Bldg 1030; concept study for seismic upgrades for Bldgs 1020, 1030, 1440, and 1830; installation of carpeted floor tiles in Rms 210NT and 211NT in Bldg 1030; demolish/repair/upgrade site bldgs and utilities for several off base Range sites; build a lockable storage area in Bldg 1030; construct a shop area for technicians in Bldg 1030; construct a break/lunch room in Bldg 1030; install kitchen type sink in Bldg 1030; RAM replacement for Bldg 1030; replacement of heating system in Bldg 1830; replacement of 4 non-functional electrical meters in Bldg 1830; removal of halon piping in Bldg 1440; installation of backflow preventers in Bldg 1030; installation of water meter at Bldg 1440; replacement of air compressor plant at Bldg 1830; upgrade ventilation system with emergency shut off at Bldg 1440.			4.145
(U) Congressional Add: Internal Base Facility Energy Independence - Wind Turbine		1.000	
(U) Total Cost	55.473	59.750	46.234

		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
(U) Other APPN Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604759F, Major T&E Investment, PE 0604940D, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605978F, Facility Sustainment - T&E support.										
(U) <b><u>D. Acquisition Strategy</u></b> Not applicable										

**UNCLASSIFIED**

PE NUMBER: 0605978F  
 PE TITLE: Facility Sustainment - T&E Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605978F Facility Sustainment - T&amp;E Support</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.073	33.849	28.898	30.486	28.537	28.969	29.229	Continuing	TBD
06MR Facility Sustainment - T&E Support	28.073	33.849	28.898	30.486	28.537	28.969	29.229	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

**Budget Activity Justification:**

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	28.072	30.865	29.136
(U) Current PBR/President's Budget	28.073	33.849	28.898
(U) Total Adjustments	0.001	2.984	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.216	
Congressional Increases		3.200	
Reprogrammings	0.001		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY08 Congressional Add: \$3.2M for Base Facility Energy Independence			

**Exhibit R-2a, RDT&E Project Justification**

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**February 2008**

<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605978F Facility Sustainment - T&amp;E Support</b>			<b>PROJECT NUMBER AND TITLE</b> <b>06MR Facility Sustainment - T&amp;E Support</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
06MR Facility Sustainment - T&E Support	28.073	33.849	28.898	30.486	28.537	28.969	29.229	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**  
 Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) T&E facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities. This work includes roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work. Other tasks associated with facilities operations (such as custodial services, grass cutting, landscaping, waste disposal, and the provision of central utilities) are not included.

These sustainment funds support the following Air Force test facilities: 46th Test Group (TG) at Holloman AFB, NM, the 46th Test Wing (TW) at Eglin AFB, FL, the Arnold Engineering and Development Center (AEDC) at Arnold AFB, TN and the Air Force Flight Test Center (AFFTC) at Edwards AFB.

**Budget Activity Justification:**

This program element is in Budget Activity 6, RDT&E Management Support, because it funds the sustainment of the institutional test infrastructure at the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplishments/Planned Program:			
(U) Sustainment of test unique infrastructure located at the 46th Test Group (TG), located at Holloman AFB, NM.	0.458	0.373	0.381
(U) Sustainment of test unique infrastructure at the 46th Test Wing (TW), located at Eglin AFB, FL.	1.155	0.526	0.318
(U) Sustainment of test unique infrastructure at the Arnold Engineering and Development Center (AEDC), located at Arnold AFB, TN and the National Full-scale Aerodynamic Complex (NFAC) located at NASA's Ames Research Center, CA.	25.291	28.587	27.074
(U) AFFTC: Projects include civil engineering in-house and emergency sustainment; EW facility sustainment Bldg 1020; boiler and cooler tower chemical treatment sustainment contract Bldg 1440; and upgrading STAEFA System Phase IV and V Bldg 1030.	1.169		
(U) AFFTC: Projects include Civil Engineering in-house day-to-day and emergency sustainment; EW Facility sustainment Bldgs 1020 and 1030; boiler and cooling tower chemical treatment sustainment contract Bldg 1440; sustaining deluge system for Anechoic Chamber Bldg 1030; and replacement of carpet in Rms 106, 107, 108, and 111 in Bldg 4970.		1.163	
(U) AFFTC: Projects include Civil Engineering in-house day-to-day and emergency sustainment; EW Facility sustainment Bldgs 1020 and 1030; and boiler and cooling tower chemical treatment sustainment contract Bldg 1440.			1.125



Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>	PE NUMBER AND TITLE <b>0605978F Facility Sustainment - T&amp;E Support</b>	PROJECT NUMBER AND TITLE <b>06MR Facility Sustainment - T&amp;E Support</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Congressional Add: Base Facility Energy Independence		3.200	
(U) Total Cost	28.073	33.849	28.898

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Other APPN  
 Related RDT&E: PE 0604256F, Threat Simulator Development, PE 0604759F, Major T&E Investment, PE 0604940F, Central T&E Investments, PE 0605807F, Test and Evaluation Support, and PE 0605976F, Facility Restoration and Modernization - T&E.

(U) **D. Acquisition Strategy**  
 Not applicable.

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**UNCLASSIFIED**

PE NUMBER: 0804731F  
 PE TITLE: GENERAL SKILL TRAINING

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>0804731F GENERAL SKILL TRAINING</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.295	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4980 Research and Development of Computer Forensic Anaylst Tools	0.295	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The DoD Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.305	0.000	0.000
(U) Current PBR/President's Budget	0.295	0.000	0.000
(U) Total Adjustments	-0.010		
(U) Congressional Program Reductions	-0.001		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.009		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

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**February 2008**

BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>0804731F GENERAL SKILL TRAINING</b>			PROJECT NUMBER AND TITLE <b>4980 Research and Development of Computer Forensic Anaylst Tools</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4980 Research and Development of Computer Forensic Anaylst Tools	0.295	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The DoD Cyber Crime Center (DC3) is a service organization that provides on demand state-of-the-art electronic forensic services and cyber investigative and operational support to the Department of Defense (DoD). DC3 also provides leadership as a DoD center of excellence in processing and analyzing digital evidence. It provides professional special investigative services for the protection of DoD people, investigations, operations, material and critical infrastructures worldwide. The DC3's objective is to support and address the proliferation of cyber crimes within or directed at the DoD. Within DC3, the DoD Cyber Crime Institute (DCCI) develops the foundation for accepted standards and practices based on valid research, science, and law with innovative ideas and methods. It serves as a resource for sound research to produce unique tools and procedures for the DoD law enforcement, counter terrorism, counterintelligence, force protection, information assurance, information operations and war fighting communities. It strives to develop national electronic forensics standards, cyber investigative tools and techniques, effective plans, policies and procedures and implement a knowledge management system. It provides the DoD community with analytical services and produces relevant intelligence reports, criminal intelligence reports and cyber investigation trend analyses. It focuses on new issues facing the DoD critical infrastructure protection efforts and those facing the cyber investigative discipline. DC3 must continue to expand its capabilities and continue to develop effective plans, policies, and procedures for addressing cybercrime and electronic forensic needs in DoD both now and in the future. The primary goal is to ensure the DoD has the ability to successfully perform its mission of electronic media processing and analysis in the future. Without funding, critical projects will be terminated. The DoD's ability to process digital evidence in a future environment of increasing case loads that have a large amount of data that is also hidden by sophisticated techniques will be greatly degraded.

This program is in Budget Activity 6 - Management and Support

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Accomplished/Planned Programs			
(U) Next Generation Electronic Media Analysis System			
(U) Damaged Storage Device Data Recovery Tools			
(U) Knowledge Management System			
(U) Vulnerability Assessment Environment (V.A.E.)	0.151		
(U) Fused Analysis System/Data Analysis Tools	0.144		
(U) Total Cost	0.295	0.000	0.000

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

0804731F GENERAL SKILL TRAINING

PROJECT NUMBER AND TITLE

4980 Research and Development of Computer Forensic Analyst Tools

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement	0.277	0.572	0.290	0.298	0.609			Continuing	TBD

(U) **D. Acquisition Strategy**

All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.

**UNCLASSIFIED**

PE NUMBER: 1001004F  
 PE TITLE: International Activities

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>1001004F International Activities</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.787	4.016	3.910	3.812	3.867	3.932	4.003	Continuing	TBD
4645 International Cooperative Research & Development	3.787	4.016	3.910	3.812	3.867	3.932	4.003	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are international technology assessment teams; space cooperation; specialized working groups; Research Technology Project development; NATO Research and Technology Organization; Air Senior National Representative activities; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; USAF displays at International Trade Shows to promote cooperation and interoperability activities; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP).

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

06 RDT&E Management Support

PE NUMBER AND TITLE

1001004F International Activities

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	3.896	4.041	4.124
(U) Current PBR/President's Budget	3.787	4.016	3.910
(U) Total Adjustments	-0.109		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.109		
(U) <u>Significant Program Changes:</u>			
N/A			



**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>				PE NUMBER AND TITLE <b>1001004F International Activities</b>			PROJECT NUMBER AND TITLE <b>4645 International Cooperative Research &amp; Development</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4645 International Cooperative Research & Development	3.787	4.016	3.910	3.812	3.867	3.932	4.003	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of Research and Development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and allied equipment through International Cooperative Research and Development (ICR&D).

The USAF is party to multiple international cooperative agreements to solve common US and allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program element funds the USAF to discover, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are international technology assessment teams; space cooperation; specialized working groups; Research Technology Project development; NATO Research and Technology Organization; Air Senior National Representative activities; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; program reviews; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; USAF displays at International Trade Shows to promote cooperation and interoperability activities; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP).

This program is in Budget Activity 6, Management and Support, funding provides for general R&D Management support for all aspects of ICR&D activities in the USAF.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	0.030	0.000	0.000
(U) ESEP/APEP - Funds the USAF execution and management oversight of ESEP and APEP agreements. Funds eight to ten field level military and civilian personnel from AFMC Facilities, Product Centers, Test Centers, Logistic Centers, and the Academy for tours at selected European and Asian government laboratories or other institutions. By FY09, the USAF will have signed ESEP agreements with 18 countries, signed APEP agreements with 1 country and be in negotiations with at least 4 other countries for the Exchange of Defense Professional Personnel (EDPP) which is one agreement that allows for the exchange of engineers, scientist and administrative personnel.	0.300	0.300	0.300
(U) ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ). Funds USAF participation in NATO Forums to promote	2.206	2.441	2.524

Exhibit R-2a, RDT&E Project Justification							DATE <b>February 2008</b>		
BUDGET ACTIVITY <b>06 RDT&amp;E Management Support</b>			PE NUMBER AND TITLE <b>1001004F International Activities</b>		PROJECT NUMBER AND TITLE <b>4645 International Cooperative Research &amp; Development</b>				
<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>			<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>				
NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF support and participation in OSD bi-lateral Acquisition forums. Funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds USAF efforts to expand existing relationships and technology development activities with: Australian, Canada, Denmark, France, Germany, Italy, Japan, NATO, Netherlands, Norway, South Korea, Singapore, Spain, Sweden, and UK. Funds USAF participation in initiating ICR&D relationships and activities with: Brazil, Poland, Chile, Czech Republic, India, South Africa and Turkey.									
<b>(U) Armaments Cooperation -</b> Funds the USAF's ability to develop and negotiate the increasing number of proposals for ICR&D bi-lateral and multi-lateral Agreements with key allies. Work will continue on agreements developed, but not signed, during FY08 in the areas of: materials and composites, human effectiveness, nanotechnology, coalition information sharing, biomimetics, virtual munitions design, hypersonics, alternative energy, IED defeat, distributed mission operations, lasers, unmanned air systems, reconnaissance and surveillance, command and control, electronic warfare, space surveillance, satellite communication, hyperspectral imaging.			0.751	0.875	0.686				
<b>(U) Air Force Material Command (AFMC) -</b> Funds support and oversight of International Armaments Cooperation R&D efforts within the Air Force Research Laboratories (AFRL). Funds AFRL support of technical assessments and discussions to identify, create, and develop promising cooperative R&D programs. Funds AFRL participation in meetings of the Technical Coordination Program (TTCP) and NATO Research and Technology Organization.			0.400	0.300	0.300				
<b>(U) International Space Cooperation -</b> Existing and expanding mission requirement to be supported by the International Activities. Funds research and development cooperation to provide a foundation upon which to develop operational strategies, concepts, and technologies with our allies, which in turn provides foundation for long-term operational cooperation. Cooperation with our allies in space will allow the USAF to geographically distribute ground systems and provides invaluable access to remote test ranges for test and evaluation of space systems.			0.100	0.100	0.100				
<b>(U) Total Cost</b>			3.787	4.016	3.910				
<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>									
	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
<b>(U) N/A</b>									
<b>(U) <u>D. Acquisition Strategy</u></b>									
This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best									

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>06 RDT&amp;E Management Support</b>	<b>PE NUMBER AND TITLE</b> <b>1001004F International Activities</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4645 International Cooperative Research &amp; Development</b>
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US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, realize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are then funded by the program office.