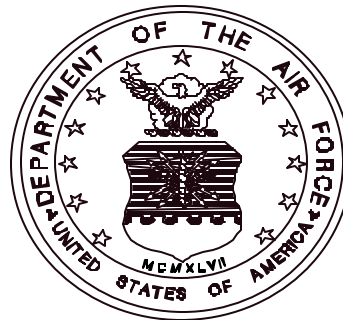


**UNCLASSIFIED**

**DEPARTMENT OF THE AIR FORCE  
RDT&E DESCRIPTIVE SUMMARIES FOR  
FY 2001 PRESIDENT'S BUDGET**

**VOLUME IIB**



**FEBRUARY 2000**

**UNCLASSIFIED**

## TABLE OF CONTENTS

	<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
<b>#1 - Basic Research</b>			
	1	0601102F Defense Research Sciences	1
<b>#2 - Applied Research</b>			
	2	0602102F Materials	43
	3	0602201F Aerospace Flight Dynamics	57
	4	0602202F Human Effectiveness Applied Research	73
	5	0602203F Aerospace Propulsion	93
	6	0602204F Aerospace Sensors	111
	7	0602269F Hypersonic Technology Program	133
	8	0602601F Space Technology	137
	9	0602602F Conventional Munitions	161
	10	0602605F DIRECTED ENERGY TECHNOLOGY	169
	11	0602702F Command Control and Communications	175
	12	0602805F Dual Use Science & Technology	191
<b>#3 - Advanced Technology Development</b>			
	13	0603106F Logistics Systems Technology	195
	14	0603112F Advanced Materials for Weapon Systems	199
	15	0603202F Aerospace Propulsion Subsystems Integration	211
	16	0603203F Advanced Aerospace Sensors	215
	17	0603205F Flight Vehicle Technology	227
	18	0603211F Aerospace Structures	233
	19	0603216F Aerospace Propulsion and Power Technology	237
	20	0603227F Personnel Training and Simulation Technology	247
	21	0603231F Crew Systems and Personnel Protection Technology	253
	22	0603245F Flight Vehicle Technology Integration	261
	23	0603253F Advanced Sensor Integration	265
	24	0603270F Electronic Combat Technology	271
	25	0603302F Space and Missile Rocket Propulsion	281

## TABLE OF CONTENTS

	<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>	
	26	0603311F	Ballistic Missile Technology	293
	27	0603401F	Advanced Spacecraft Technology	297
	28	0603410F	Space Systems Environmental Interactions Technology	321
	29	0603444F	MAUI SPACE SURVEILLANCE SYSTEMS	325
	30	0603601F	Conventional Weapons Technology	327
	31	0603605F	Advanced Weapons Technology	337
	32	0603707F	Weather Systems Technology	353
	33	0603723F	Environmental Engineering Technology	355
	34	0603726F	Aerospace Info Tech Sys Integration	359
	35	0603728F	Battlespace C2 Technology	369
	36	0603789F	C3I Advanced Development	377
	37	0603876F	Space Based Laser	389
#4 - Demonstration and Validation				
	38	0603260F	Intelligence Advanced Development	395
	39	0603319F	Airborne Laser Technology	413
	40	0603430F	Advanced (EHF MILSATCOM (Space)	419
	41	0603432F	Polar MILSATCOM (Space)	425
	42	0603434F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	431
	43	0603438F	Space Control Technology	439
	44	0603441F	Space Based IR Arch (Dem Val)(Space)	445
	45	0603617F	Command Control and Communication Applications	451
	46	0603690F	Information Operations Technology	471
	47	0603742F	Combat Identification Technology	475
	48	0603790F	NATO Cooperative R&D	483
	49	0603800F	Joint Strike Fighter	505
	50	0603850F	Integrated Broadcast Service (DEM/VAL)	517
	51	0603851F	ICBM - DEM/VAL	523
	52	0603854F	Wideband MILSATCOM (Space)	551
	53	0603856F	Air Force/National Program Cooperation (AFNPC)	571
	54	0603859F	Pollution Prevention	577

## TABLE OF CONTENTS

	<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
	55	0603860F Joint Precision Approach and Landing Systems - Dem/Val	583
	56	0604237F Variable Stability In-Flight Simulation Test Aircraft	589
	57	0604327F Hardened Target Munitions	593
#5 - Engineering and Manufacturing Development			
	58	0207249F Precision Attack Systems	599
	59	0305176F Combat Survivor Evader Locator	603
	60	0604012F Joint Helmet Mounted Cueing System (JHMCS)	609
	61	0604201F Integrated Avionics Planning and Development	615
	62	0604222F Nuclear Weapons Support	627
	63	0604226F B-1B	647
	64	0604227F Distributed Mission Training (DMT)	655
	65	0604233F Specialized Undergraduate Pilot Training	659
	66	0604239F F-22 EMD	675
	67	0604240F B-2 Advanced Technology Bomber	689
	68	0604270F EW Development	695
	69	0604441F Space Based Infrared Systems (SBIRS) High EMD	727
	70	0604442F Space Based Infrared Systems (SBIRS) Low	733
	71	0604479F MILSTAR LDR/MDR Sat Comm	739
	72	0604600F Munitions Dispenser Development	747
	73	0604602F Armament/Ordnance Development	753
	74	0604604F Submunitions	767
	75	0604617F Agile Combat Support	773
	76	0604618F Joint Direct Attack Munition	779
	77	0604703F Aeromedical Systems Development	785
	78	0604706F Life Support Systems	791
	79	0604708F Civil, Fire, Environmental, Shelter	799
	80	0604727F Joint Standoff Weapons Systems	807
	81	0604735F Combat Training Ranges	813
	82	0604740F Integrated Command & Control Applications	821
	83	0604750F Intelligence Equipment	831

## TABLE OF CONTENTS

	<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>	
	84	0604754F	Joint Tactical Information Distribution System	839
	85	0604762F	Common Low Observable Verification Sys	853
	86	0604779F	Joint Interoperability of Tactical Command/Control	859
	87	0604800F	Joint Strike Fighter EMD	865
	88	0604805F	Commercial Operations and Support Savings Initiative	871
	89	0604851F	ICBM - EMD	877
	90	0604853F	Evolved Expendable Launch Vehicle - EMD	901
	91	0605011F	RDT&E For Aging Aircraft	907
#6 - Management and Support				
	92	0604256F	Threat Simulator Development	913
	93	0604258F	Target Systems Development	925
	94	0604759F	Major T&E Investment	929
	95	0605101F	RAND Project Air Force	939
	96	0605306F	Ranch Hand II Epidemiology Study	943
	97	0605712F	Initial Operational Test & Evaluation	947
	98	0605807F	Test and Evaluation Support	957
	99	0605808F	Development Planning	969
	100	0605854F	Pollution Prevention	973
	101	0605860F	Rocket Systems Launch Program (RSLP)	977
	102	0605864F	Space Test Program	981
	103	1001004F	International Activities	987
#7 - Operational System Development				
	104	0101113F	B-52 SQUADRONS	995
	105	0101120F	Advanced Cruise Missile	1,015
	106	0101122F	Air Launched Cruise Missile	1,021
	107	0102325F	Joint Surveillance System	1,029
	108	0102326F	Region/ Sector Operations Control Center	1,035
	109	0102411F	North Atlantic Defense System	1,041
	110	0207027F	Air Space Command & Control Agency	1,047

## TABLE OF CONTENTS

<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
111	0207131F A-10 SQUADRONS	1,053
112	0207133F F-16 Squadrons	1,059
113	0207134F F-15E SQUADRONS	1,067
114	0207136F Manned Destructive Suppression	1,075
115	0207141F F-117A Squadron	1,081
116	0207161F Tactical AIM Missiles	1,087
117	0207163F Advanced Medium Range Air-to-Air Missile	1,095
118	0207247F Air Force TENCAP	1,101
119	0207253F Compass Call	1,107
120	0207268F Aircraft Engine Component Improvement Program (CIP)	1,111
121	0207320F Sensor Fuzed Weapon (SFW)	1,117
122	0207325F Joint Air-to-Surface Standoff Missile (JASSM)	1,123
123	0207412F Theater Air Control Systems	1,129
124	0207414F COMBAT INTELLIGENCE SYSTEM	1,135
125	0207417F Airborne Warning and Control System (AWACS)	1,141
126	0207423F Advanced Communications Systems	1,147
127	0207438F Theater Battle Management (TBM) C4I	1,157
128	0207581F JOINT STARS	1,177
129	0207590F Seek Eagle	1,185
130	0207601F USAF Modeling and Simulation	1,191
131	0207605F Wargaming and Simulation Centers	1,199
132	0208006F Mission Planning Systems	1,203
133	0208021F Information Warfare Support	1,211
134	0208031F WRM-EQUIPMENT/SECONDARY ITEMS	1,217
135	0208060F Theater Missile Defenses	1,223
136	0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER	1,235
137	0303110F Defense Satellite Communications System	1,241
138	0303112F AIR FORCE COMMUNICATIONS	1,247
139	0303131F Minimum Essential Emergency Communications Network (MEECN)	1,251
140	0303140F Information Systems Security Program	1,267
141	0303141F Global Combat Support System (GCSS)	1,283

## TABLE OF CONTENTS

<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
142	0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	1,289
143	0303401F Communications Security	1,295
144	0303601F MILSATCOM Terminals	1,301
145	0305099F Global Air Traffic Management (GATM)	1,307
146	0305110F Satellite Control Network	1,325
147	0305111F Weather Service	1,333
148	0305114F Air Traffic Control/Approach/Landing System (ATCALs)	1,339
149	0305119F Medium Launch Vehicles	1,351
150	0305128F Security And Investigative Activities	1,357
151	0305137F National Airspace System	1,363
152	0305138F Inert Upper Stage (IUS)	1,369
153	0305144F Titan Space Launch Vehicles	1,375
154	0305158F Tactical Terminals	1,381
155	0305160F Defense Meteorological Satellite Program	1,385
156	0305164F NAVSTAR Global Positioning System (User EQ) Space)	1,393
157	0305165F NAVSTAR GPS (Space)	1,403
158	0305182F Spacelift Range System	1,411
159	0305202F Dragon U-2 (JMIP)	1,419
160	0305205F Endurance Unmanned Aerial Vehicles	1,427
161	0305206F Airborne Reconnaissance Systems	1,453
162	0305207F Manned Reconnaissance System	1,475
163	0305208F Distributed Common Ground Systems	1,487
164	0305906F NCMC - TW/AA System	1,499
165	0305910F SPACETRACK	1,519
166	0305911F Defense Support Program	1,535
167	0305913F NUDET Detection System (Space)	1,547
168	0305917F Space Architect	1,553
169	0308601F Modeling and Simulation Support	1,559
170	0308699F Shared Early Warning System	1,567
171	0401115F C-130 AIRLIFT SQUADRONS	1,573
172	0401119F C-5 Airlift Squadrons	1,583

## TABLE OF CONTENTS

<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
173	0401130F C-17 Aircraft	1,595
174	0401214F Air Cargo Materiel Handling (463-L)	1,607
175	0401218F KC-135s	1,611
176	0401219F KC-10S	1,617
177	0404011F Special Operations Forces	1,623
178	0702207F Depot Maintenance (Non-IF)	1,629
179	0708011F Industrial Preparedness	1,635
180	0708026F Productivity, Reliability, Availability, Maintainability Program	1,641
181	0708071F Joint Logistics Program - Ammunition System	1,647
182	0708611F Support Systems Development	1,653
183	0708612F Computer Resources Support Improvement Program	1,669
184	0901218F Civilian Compensation Program	1,675
185	1001018F NATO AGS	1,679
	<b>Other Exhibits</b>	
	Military Construction Project Data (DD Form 1391)	
	Combating Terrorism Exhibit	



ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
A-10 SQUADRONS	0207131F	1,053
Advanced (EHF MILSATCOM (Space)	0603430F	419
Advanced Aerospace Sensors	0603203F	215
Advanced Communications Systems	0207423F	1,147
Advanced Cruise Missile	0101120F	1,015
Advanced Materials for Weapon Systems	0603112F	199
Advanced Medium Range Air-to-Air Missile	0207163F	1,095
Advanced Sensor Integration	0603253F	265
Advanced Spacecraft Technology	0603401F	297
Advanced Weapons Technology	0603605F	337
Aeromedical Systems Development	0604703F	785
Aerospace Flight Dynamics	0602201F	57
Aerospace Info Tech Sys Integration	0603726F	359
Aerospace Propulsion	0602203F	93
Aerospace Propulsion and Power Technology	0603216F	237
Aerospace Propulsion Subsystems Integration	0603202F	211
Aerospace Sensors	0602204F	111
Aerospace Structures	0603211F	233
Agile Combat Support	0604617F	773
Air Cargo Materiel Handling (463-L)	0401214F	1,607
AIR FORCE COMMUNICATIONS	0303112F	1,247
Air Force TENCAP	0207247F	1,101
Air Force/National Program Cooperation (AFNPC)	0603856F	571
Air Launched Cruise Missile	0101122F	1,021
Air Space Command & Control Agency	0207027F	1,047
Air Traffic Control/Approach/Landing System (ATCALs)	0305114F	1,339
Airborne Laser Technology	0603319F	413
Airborne Reconnaissance Systems	0305206F	1,453
Airborne Warning and Control System (AWACS)	0207417F	1,141
Aircraft Engine Component Improvement Program (CIP)	0207268F	1,111
Armament/Ordnance Development	0604602F	753

## ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
B-1B	0604226F	647
B-2 Advanced Technology Bomber	0604240F	689
B-52 SQUADRONS	0101113F	995
Ballistic Missile Technology	0603311F	293
Battlespace C2 Technology	0603728F	369
C-130 AIRLIFT SQUADRONS	0401115F	1,573
C-17 Aircraft	0401130F	1,595
C3I Advanced Development	0603789F	377
C-5 Airlift Squadrons	0401119F	1,583
Civil, Fire, Environmental, Shelter	0604708F	799
Civilian Compensation Program	0901218F	1,675
Combat Identification Technology	0603742F	475
COMBAT INTELLIGENCE SYSTEM	0207414F	1,135
Combat Survivor Evader Locator	0305176F	603
Combat Training Ranges	0604735F	813
Command Control and Communication Applications	0603617F	451
Command Control and Communications	0602702F	175
Commercial Operations and Support Savings Initiative	0604805F	871
Common Low Observable Verification Sys	0604762F	853
Communications Security	0303401F	1,295
Compass Call	0207253F	1,107
Computer Resources Support Improvement Program	0708612F	1,669
Conventional Munitions	0602602F	161
Conventional Weapons Technology	0603601F	327
Crew Systems and Personnel Protection Technology	0603231F	253
Defense Meteorological Satellite Program	0305160F	1,385
Defense Research Sciences	0601102F	1
Defense Satellite Communications System	0303110F	1,241
Defense Support Program	0305911F	1,535
Depot Maintenance (Non-IF)	0702207F	1,629
Development Planning	0605808F	969

ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
DIRECTED ENERGY TECHNOLOGY	0602605F	169
Distributed Common Ground Systems	0305208F	1,487
Distributed Mission Training (DMT)	0604227F	655
Dragon U-2 (JMIP)	0305202F	1,419
Dual Use Science & Technology	0602805F	191
E-4B NATIONAL AIRBORNE OPERATIONS CENTER	0302015F	1,235
Electronic Combat Technology	0603270F	271
Endurance Unmanned Aerial Vehicles	0305205F	1,427
Environmental Engineering Technology	0603723F	355
Evolved Expendable Launch Vehicle - EMD	0604853F	901
EW Development	0604270F	695
F-117A Squadron	0207141F	1,081
F-15E SQUADRONS	0207134F	1,067
F-16 Squadrons	0207133F	1,059
F-22 EMD	0604239F	675
Flight Vehicle Technology	0603205F	227
Flight Vehicle Technology Integration	0603245F	261
Global Air Traffic Management (GATM)	0305099F	1,307
Global Combat Support System (GCSS)	0303141F	1,283
Hardened Target Munitions	0604327F	593
Human Effectiveness Applied Research	0602202F	73
Hypersonic Technology Program	0602269F	133
ICBM - DEM/VAL	0603851F	523
ICBM - EMD	0604851F	877
Industrial Preparedness	0708011F	1,635
Inert Upper Stage (IUS)	0305138F	1,369
Information Operations Technology	0603690F	471
Information Systems Security Program	0303140F	1,267
Information Warfare Support	0208021F	1,211
Initial Operational Test & Evaluation	0605712F	947
Integrated Avionics Planning and Development	0604201F	615

## ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
Integrated Broadcast Service (DEM/VAL)	0603850F	517
Integrated Command & Control Applications	0604740F	821
Intelligence Advanced Development	0603260F	395
Intelligence Equipment	0604750F	831
International Activities	1001004F	987
Joint Air-to-Surface Standoff Missile (JASSM)	0207325F	1,123
Joint Direct Attack Munition	0604618F	779
Joint Helmet Mounted Cueing System (JHMCS)	0604012F	609
Joint Interoperability of Tactical Command/Control	0604779F	859
Joint Logistics Program - Ammunition System	0708071F	1,647
Joint Precision Approach and Landing Systems - Dem/Val	0603860F	583
Joint Standoff Weapons Systems	0604727F	807
JOINT STARS	0207581F	1,177
Joint Strike Fighter	0603800F	505
Joint Strike Fighter EMD	0604800F	865
Joint Surveillance System	0102325F	1,029
Joint Tactical Information Distribution System	0604754F	839
KC-10S	0401219F	1,617
KC-135s	0401218F	1,611
Life Support Systems	0604706F	791
Logistics Systems Technology	0603106F	195
Major T&E Investment	0604759F	929
Manned Destructive Suppression	0207136F	1,075
Manned Reconnaissance System	0305207F	1,475
Materials	0602102F	43
MAUI SPACE SURVEILLANCE SYSTEMS	0603444F	325
Medium Launch Vehicles	0305119F	1,351
MILSATCOM Terminals	0303601F	1,301
MILSTAR LDR/MDR Sat Comm	0604479F	739
Minimum Essential Emergency Communications Network (MEECN)	0303131F	1,251
Mission Planning Systems	0208006F	1,203

ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
Modeling and Simulation Support	0308601F	1,559
Munitions Dispenser Development	0604600F	747
National Airspace System	0305137F	1,363
National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	0603434F	431
NATO AGS	1001018F	1,679
NATO Cooperative R&D	0603790F	483
NAVSTAR Global Positioning System (User EQ) Space)	0305164F	1,393
NAVSTAR GPS (Space)	0305165F	1,403
NCMC - TW/AA System	0305906F	1,499
North Atlantic Defense System	0102411F	1,041
Nuclear Weapons Support	0604222F	627
NUDET Detection System (Space)	0305913F	1,547
Personnel Training and Simulation Technology	0603227F	247
Polar MILSATCOM (Space)	0603432F	425
Pollution Prevention	0603859F	577
Pollution Prevention	0605854F	973
Precision Attack Systems	0207249F	599
Productivity, Reliability, Availability, Maintainability Program	0708026F	1,641
Ranch Hand II Epidemiology Study	0605306F	943
RAND Project Air Force	0605101F	939
RDT&E For Aging Aircraft	0605011F	907
Region/ Sector Operations Control Center	0102326F	1,035
Rocket Systems Launch Program (RSLP)	0605860F	977
Satellite Control Network	0305110F	1,325
Security And Investigative Activities	0305128F	1,357
Seek Eagle	0207590F	1,185
Sensor Fuzed Weapon (SFW)	0207320F	1,117
Shared Early Warning System	0308699F	1,567
Space and Missile Rocket Propulsion	0603302F	281
Space Architect	0305917F	1,553
Space Based Infrared Systems (SBIRS) High EMD	0604441F	727

## ALPHABETICAL LISTING

<b>Program Element Title</b>	<b>PE</b>	<b>PAGE</b>
Space Based Infrared Systems (SBIRS) Low	0604442F	733
Space Based IR Arch (Dem Val)(Space)	0603441F	445
Space Based Laser	0603876F	389
Space Control Technology	0603438F	439
Space Systems Environmental Interactions Technology	0603410F	321
Space Technology	0602601F	137
Space Test Program	0605864F	981
Spacelift Range System	0305182F	1,411
SPACETRACK	0305910F	1,519
Special Operations Forces	0404011F	1,623
Specialized Undergraduate Pilot Training	0604233F	659
Submunitions	0604604F	767
Support Systems Development	0708611F	1,653
Tactical AIM Missiles	0207161F	1,087
Tactical Terminals	0305158F	1,381
Target Systems Development	0604258F	925
Test and Evaluation Support	0605807F	957
Theater Air Control Systems	0207412F	1,129
Theater Battle Management (TBM) C4I	0207438F	1,157
Theater Missile Defenses	0208060F	1,223
Threat Simulator Development	0604256F	913
Titan Space Launch Vehicles	0305144F	1,375
USAF Modeling and Simulation	0207601F	1,191
Variable Stability In-Flight Simulation Test Aircraft	0604237F	589
Wargaming and Simulation Centers	0207605F	1,199
Weather Service	0305111F	1,333
Weather Systems Technology	0603707F	353
Wideband MILSATCOM (Space)	0603854F	551
WRM-EQUIPMENT/SECONDARY ITEMS	0208031F	1,217
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1,289

**UNCLASSIFIED**

**Fiscal Year 2001 Budget Estimate Submission  
RDT&E Descriptive Summaries, Volume II  
February 2000**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

1. (U) GENERAL. 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 FY2001 President's Budget Submission (PB). All formats in this document are in accordance with the guidelines of the DoD Financial Management Regulation, Volume 2B, Chapter 5 with the exception of the R-3 exhibit. The Air Force could not support the format matrix because our programs do not track their programs in the manner required to complete the exhibit.

- a. Contents: Exhibits R-2, R-2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2001 RDT&E program except the classified program elements. The formats and contents of this document are in accordance with the guidelines and requirement of the Congressional committees insofar as possible. The F-22 "P-5" budget exhibit directed by the Authorization Conference Report number 106-371 has been inserted behind the R-3 exhibit for program element 0604239F.
- 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. The Justification book has been assembled in accordance with DoD Financial Management Regulation 7000.14, Vol. 2B Cpt 5, Sec 050302 with the exception of the R-1; Project Funding Listing which was distributed under a separate cover due to classification.

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.

PROGRAM ELEMENT COMPARISON SUMMARY  
INTRODUCTION AND EXPLANATION OF CONTENTS

<b>Program Element</b>	<b>Remarks</b>
BUDGET ACTIVITY 1: BASIC RESEARCH	
BUDGET ACTIVITY 2: APPLIED RESEARCH	
0602202F, Human Effectiveness Applied Research	Project 6219 was terminated after FY 1999, but Congress added funding in FY 2000.
0602269F, Hypersonic Technology Program	Project 1025 funding for this program in FY01 is contained in PEs 0602023F Aerospace Propulsion, 0603203F Aerospace Propulsion Subsystems Integration and 0603216F Aerospace Propulsion and Power Technology.
0602601F, Space Technology	Project 1011 all rocket propulsion efforts will be transferred to 0602203F, Project 4847. Project 3326 all lasers and imaging efforts will be transferred to PE 0602605F, Projects 4866 and 4867.
0602605F, Directed Energy Technology	Projects 4866 and 4867 were transferred from PE 0602601F.
0602702F, Command, Control and Communications	Project 4506, Surveillance Technology will be transferred to Project 4594, PE 0602702F and Project 7622, PE 0602204F beginning in FY01.
BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT	
0603726F, Aerospace Information Technology Systems Integration	In FY 2001, the efforts in Project 632863, Integrated Photonics, will be conducted in PE 0603203F, Project 63665A. Prior to FY 2001, the efforts in Project 634850, Collaborative C2, were performed in PE 0603253F, Projects 632735 and 63666A.
BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION	
0603441F, Space Based IR Arch (Dem/Val)	SBIRS Low efforts performed in Project 0007 will be transferred to PE 0604442F, Project 4598 in FY00 and 01.
0603800F, Joint Strike Fighter	Project 2025 will complete in FY01.



PROGRAM ELEMENT COMPARISON SUMMARY  
INTRODUCTION AND EXPLANATION OF CONTENTS

<b>Program Element</b>	<b>Remarks</b>
BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION Continued	
0603854F, Wideband Milsatcom	Project 4870 is a FY01 new start.
0603856F, Air Force/NRO Partnership	Project 4782, the Air Force/National Program Cooperation (AFNPC) effort is a FY01 new start.
0603859F, Pollution Prevention	Project 4852, Pollution Prevention will be transferred from PE 0605854F, previously in Budget Activity 6 beginning in FY01.
BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEVELOPMENT	
0207249F, Precision Attack Systems Procurement	Project 2693 is a FY01 new start.
0604012F, Joint Helmet Mounted Cueing System	Project 4789 the Joint Helmet Mounted Cueing Systems effort is a FY01 new start.
0604201F, Integrated Avionics Planning and Development	Project 2257 will complete in FY01.
0604270F, EW Development	Project 8462 is a FY01 new start.
0604602F, Armament Ordnance Development	Project 3133 will complete in FY01.
0604327F, Hardened Target Munitions	Project 4641 will complete in FY00.
0604617F, Agile Combat Support	Project 2895 will complete in FY01.
0604706F, Life Support System	Project 412A, the K-36/3.5A Ejection Seat effort is a FY01 new start.
0604754F, Joint Tacital Information Distribution System	Project 4749, the Air Defense System Integrator effort is a FY01 new start
0604851F, ICBM	Project 4210 completes in FY00.
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT	
0604256F, Threat Simulator Development	Project 3321, Joint Modeling and Simulation System (JMASS) funding and responsibility transferred in FY00 to PE 0207601F.

PROGRAM ELEMENT COMPARISON SUMMARY  
INTRODUCTION AND EXPLANATION OF CONTENTS

<b>Program Element</b>	<b>Remarks</b>
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT Continued	
0604256F, Threat Simulator Development	Project 7500, Foreign Materiel Acquisition and Exploitation (FMA/E) established a funding line in FY00.
0605808F, Development Planning	PE terminated in FY00.
0604759F, Major T&E Investment	Project 4759, two I&M projects started in FY00: Modeling & Simulation T&E Resources (MASTER); and Seeker T&E.
0604759F, Major T&E Investment	Project 4759, the Advanced Range Telemetry Integration (ARTM) was developed by CTEIP (OSD PE 0604940D). The ARTM I&S (Integration and Support) funding in this PE begins in FY01. Integrates the OSD developed ARTM into the Edwards AFB range.
0605854F, Pollution Prevention	Program moved into Budget Activity 4, to PE 0603859F beginning in FY01.
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT	
0101120F, Advanced Cruise Missile	Project 4798, the AGM-129A Advanced Cruise Missile Service Life Extension Program effort is a FY01 new start.
0207133F, F-16 Squadrons	Project 2671, the Automated Ground Collision Avoidance system, Falcon Star, and Targeting Pod/HARM Targeting Systems efforts are FY01 new starts.
0207141F, F-117A Squadrons	Project 3956, the F-117 Enhanced GBU-27 effort is a FY01 new start.
0303140F, Information Systems Security Program	Project 4585, Cryptologic 2020, will be funded under PE 33401F, Comm Sec, Project 4861, Cryptologic 2020, beginning in FY01.
0303601F, Milsatcom Terminals	Project 2487, the Airborne Wideband Terminal and Ground Multiband Terminal effort are a FY01 new start.
0305205F, Endurance Unmanned Aerial Vehicles	Project 4883 is a FY01 new start. Project 4816 will merge into 4799 in FY00.

PROGRAM ELEMENT COMPARISON SUMMARY  
INTRODUCTION AND EXPLANATION OF CONTENTS

<b>Program Element</b>	<b>Remarks</b>
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT Continued	
0305206F, Airborne Reconnaissance System	Project 4882 is a FY01 new start.
0305207F, Manned Reconnaissance system	Project 4820 will be transferred to PE 0305202F beginning in FY01.
0305910F, Spacetrack	Project 4791, the Ground-Based Electro-Optical Deep Space Surveillance Sustainment effort is a FY00 new start.
0401115F, C-130 Airlift Squadrons	Project 4885 is a FY01 new start.
0401130F, C-17 Aircraft	Project 4886 is a FY01 new start.
0404011F, Special Operations Forces	Project 4860 is a FY01 new start.
0708612F, Computer Resources Support Improvement Program	FY01 funding was moved to this PE from PE 0708611F, Project 67309.
1001018F, NATO Joint Stars	Project 0002, the Project Definition of NATO Advanced Trans Atlantic Radar Project effort is a FY01 new start pending Congressional approval.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604256F Threat Simulator Development					
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	32,054	31,672	34,785	37,990	39,993	42,673	43,516	Continuing	TBD
662907 Electronic Combat Intel Support	1,886	1,708	1,968	1,882	1,913	2,033	2,053	Continuing	TBD
663321 Electronic Warfare Ground Test Resources	30,168	27,610	26,687	29,078	30,893	33,333	33,964	Continuing	TBD
667500 Foreign Material Acquisition/Exploitation	0	2,354	6,130	7,030	7,187	7,307	7,499	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b>A. Mission Description</b>                      This PE provides funding for the elements necessary to support the AF Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of AF 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. This PE provides funding for the management and technical oversight of implementation activities, the Air Force-led tri-Service effort to establish a common modeling and simulation architecture, development and improvement of digital EW models, measurement facilities operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvements, and development and improvement of open air threat simulators for flight testing. This PE also provides funding for planning, management, budgetary, and technical support to the Air Force for corporate-level implementation of the Electronic Warfare (EW) Test Process and for improvement and modernization (I&amp;M) and application of the test and evaluation (T&amp;E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&amp;E facility I&amp;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, beginning in FY 00.</p> <p>(U) <b>B. Budget Activity Justification</b>                      This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&amp;D) effort for Improvement and Modernization of T&amp;E capabilities at Air Force Test Centers.</p>									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE		
<b>06 - Management and Support</b>		<b>0604256F Threat Simulator Development</b>		
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>			
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
	<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2000 PBR)	34,086	32,391	36,848
(U)	Appropriated Value	34,582	32,391	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions	-496	-29	
	b. Small Business Innovative Research	-679		
	c. Omnibus or Other Above Threshold Reprogram	-300	-485	
	d. Below Threshold Reprogram	-873		
	e. Rescissions	-180	-205	
	f. Other			
(U)	Adjustments to Budget Years Since FY 2000 PBR			-2,063
(U)	Current Budget Submit/FY 2001 PBR	32,054	31,672	34,785
(U)	<u>Significant Program Changes:</u>			TBD

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>				PROJECT <b>662907</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
662907    Electronic Combat Intel Support	1,886	1,708	1,968	1,882	1,913	2,033	2,053	Continuing	TBD
<p>(U)    <b><u>A. Mission Description</u></b>            This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&amp;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 for personnel to the test sites to evaluate and validate test results real-time, range and laboratory costs; costs for instrumentation of blue systems; 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).</p> <p>(U)    <b><u>FY 1999 (\$ in Thousands)</u></b>            (U)    \$1,571            Funded fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reports were accomplished.            (U)    \$236                Funded transport aircraft for foreign material operational exploitation. Extensive evaluations and reports were accomplished.            (U)    \$79                  Funded classified operational assessments for foreign material operational exploitation. Extensive evaluations and reports were accomplished.            (U)    \$1,886              Total</p> <p>(U)    <b><u>FY 2000 (\$ in Thousands)</u></b>            (U)    \$1,372              Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$281                Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$55                  Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$1,708              Total</p> <p>(U)    <b><u>FY 2001 (\$ in Thousands)</u></b>            (U)    \$1,553              Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$344                Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$71                  Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.            (U)    \$1,968              Total</p> <p>(U)    <b><u>B. Project Change Summary</u></b>            None</p>									
Project 662907			Page 3 of 11 Pages				Exhibit R-2A (PE 0604256F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>	PROJECT <b>662907</b>
---	---	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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**  
 Not applicable.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4

(U) Not applicable. Discrete tasks vary depending on availability of FMA hardware and exploitation schedules. The annual budget is based on supporting up to eight opportunities for operational units to conduct quick look assessments of available FMA.

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>				PROJECT <b>663321</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
663321	Electronic Warfare Ground Test Resources	30,168	27,610	26,687	29,078	30,893	33,333	33,964	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b></p> <p>The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. To manage program risk effectively throughout the weapon system acquisition process, and conduct test and evaluation (T&amp;E) effectively and efficiently, a spectrum of T&amp;E capabilities from modeling and simulation through open-air ranges is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&amp;E facilities, including studies, analyses, and related documentation. The Joint Modeling and Simulation System (JMASS) is an Air Force-led, tri-service project to establish a common, DoD-wide, digital simulation architecture and set of models in support of T&amp;E. FY00 funding for the JMASS architecture and software development transitioned to PE 27601F. Prior to FY00, the EW T&amp;E Modeling &amp; Simulations (M&amp;S) program provided funds to support Missile and Space Intelligence (MSIC) and National Air Intelligence Center (NAIC) in the development of Electronic Combat (EC) capable threat engagement models using the JMASS architecture. From FY00 and beyond, JMASS model development funds will be programmed under other Program Elements. The EW T&amp;E M&amp;S program will lead correlation, verification and validation activities of integrated simulations of validated models across the EW test facilities using the Silver Bullet measurement capability. The National RCS Test Facility - NRTS (formerly Radar Target Scatter (RATSCAT)) upgrade project provides improvements to the NRTS at Holloman AFB, NM, to support radar cross section (RCS) measurement requirements of DoD customers, with either conventional or stealth systems. 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) &amp; Radio Frequency (RF) Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs), IR/ Ultra-violet (UV) &amp; RF missile warning, end-to-end testing of the missile warning/IR Countermeasure function; 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 and limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The Electronic Combat Integrated Test (ECIT) project upgrades the AF Hardware-in-the-Loop (HITL), System Integration Labs (SIL), and Installed System Test Facility (ISTF) at Edwards AFB, CA. The HITL and SILs at Edwards allow for the stimulation of real aircraft avionics with the benefit of a laboratory environment. The AF ISTF consists of a large, instrumented, anechoic chamber which provides for evaluation of EW systems when installed on its host aircraft, both prior to and throughout the flight test program. The goal of the ECIT upgrade is to integrate coherent EW threat stimulators into the ground test facilities at Edwards and modernize instrumentation/test operation capabilities. In FY 99 ECIT began a 3-year effort to fund the purchase of EW equipment in support of the F-22's Integrated Hardware-In-The-Loop Avionics Test (IHAT) capability. The IHAT capability is being transferred to Edwards AFB, CA from Marietta, GA. In FY 00, the Air Warfare Mission Simulator (AWMS) program will provide the electronic warfare capability into the high fidelity reconfigurable cockpits being developed under PE64759. This program will also provide the capability to link the high fidelity cockpits into the information battlespace via High Level Architecture (HLA).</p>										
Project 663321		Page 5 of 11 Pages					Exhibit R-2A (PE 0604256F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604256F Threat Simulator Development</b>	<b>February 2000</b> <b>663321</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 1999 (\$ in Thousands)</u>	
(U)	\$527	EW Test Process Support. Conducted requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Completed cost-benefit analysis of digital modeling and simulation (M&S) in support of the EW Test Process.
(U)	\$7,500	JMASS. Established the JMASS Joint Program Office (JPO). Initiated development of joint version of the JMASS software, which affords compatibility with the DoD High-Level Architecture (HLA). Completed transition of JMASS to PCs and UNIX computer platforms. Continued development and integration of JMASS-compliant threat models to support the needs of various DoD customers. The EW Test and Evaluation Modeling and Simulation (EW T&E M&S) completed funding the intelligence agencies to develop JMASS compliant, digital threat models required by the B-1B DSUP customer to support the EW Test Process. Specifically the intel agencies completed development of the JMASS RF environment model, completed development of the Surface-to-Air Digital Simulator (SADS) 2c/e, finished development of an Air Intercept / Air-to-Air Missile (AI/AAM) model, and the JMASS program office established a JMASS library. Began development of verification and validation process for integrated simulations configured to support development and operational testing. Began correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet.
(U)	\$1,774	RATSCAT Upgrades. Achieved Initial Operational Capability (IOC) of BICOMS Mobile Radar. Integrated and achieved IOC of RATSCAT Advanced Measurement System (RAMS) Radar Replacement. Began development on improved RAMS pylon.
(U)	\$2,486	AFEWES Operation. Continued AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers. Continued development of semi-active SAM simulations (SAM-C1 and SAM-E) simulations, and began development of Advanced Simulator modifications (SAM-C2)
(U)	\$6,097	DIADS. Provided mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system. Began verification and validation efforts of DIADS baseline. Began development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers.
(U)	\$11,784	ECIT. Continued Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Completed development and acceptance of the Network and Controls portion of the I&TGC effort. Began initial planning and purchase of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability at Edwards AFB.
(U)	\$30,168	Total
Project 663321		Exhibit R-2A (PE 0604256F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604256F Threat Simulator Development</b>	<b>February 2000</b> <b>663321</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 2000 (\$ in Thousands)</u>	
(U)	\$896	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 improvement and modernization (I&M) of the EW test infrastructure.
(U)	\$3,947	EW Test and Evaluation Modeling and Simulation (EW T&E M&S). Continue development of verification and validation process for integrated simulations configured to support development and operational testing. Continue correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet. Begin study of requirements to migrate realistic sensor information from the EC environment into cockpit simulators in support of the Air Warfare Mission Simulator (AWMS) program.
(U)	\$1,959	NRTF Upgrades. Complete development on RAMS Pylon. Complete industry partnership efforts with first major EW supplier.
(U)	\$5,872	AFEWES. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers to include defining requirements for upgrades to the IR laboratory. Complete development of Advance Simulator Modifications (SAM-C2), and begin development of advanced RF semi-active SAM simulations (SAM-D).
(U)	\$2,772	DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system. Continue verification and validation efforts required for achieving IOC of DIADS baseline. Continue development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers. Begin support of major OT customers with RED IADS scenario generation and execution.
(U)	\$12,164	ECIT. Complete IOC of Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Begin requirements definitions and acquisition planning to fully integrate the suite of simulators/stimulators into a coherent multi-spectral test environment. Continue purchase and integration of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.
(U)	\$27,610	Total
(U)	<u>FY 2001 (\$ in Thousands)</u>	
(U)	\$909	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 improvement and modernization (I&M) of the EW test infrastructure.
(U)	\$3,919	EW Test and Evaluation Modeling and Simulation (EW T&E MS). Continue development of verification and validation process for integrated simulations configured to support development and operational testing. Continue correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet. Complete AWMS requirement study and develop acquisition
Project 663321		Exhibit R-2A (PE 0604256F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
<b>06 - Management and Support</b>	<b>0604256F Threat Simulator Development</b>	<b>663321</b>	
(U) <b><u>A. Mission Description Continued</u></b>			
(U) <b><u>FY 2001 (\$ in Thousands) Continued</u></b>			
	strategy to provide realistic EC sensor information into cockpit simulators.		
(U) \$1,692	NRTF Upgrades. Enhance efficiency of operations and accuracy of measurements. Expand partnerships with major industry EW suppliers.		
(U) \$6,092	AFEWES. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers to include initiation of IR lab upgrade effort. Complete development of advanced simulator modifications (SAM-C2). Complete development of advanced RF semi-active SAM simulation (SAM-D), and begin development of a second advanced RF semi-active SAM simulation (SAM-F).		
(U) \$3,451	DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the IADS scenario with current intel data. Complete verification and validation efforts required to achieve IOC of DIADS baseline. Continue development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers.		
(U) \$10,624	ECIT. Complete FOC of Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Begin requirements definitions and acquisition planning to fully integrate the suite of simulators/stimulators into a coherent multi-spectral test environment. Complete purchase of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.		
(U) \$26,687	Total		
(U) <b><u>B. Project Change Summary</u></b>			
(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b>			
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>
			<u>FY 2002</u>
			<u>Estimate</u>
			<u>FY 2003</u>
			<u>Estimate</u>
			<u>FY 2004</u>
			<u>Estimate</u>
			<u>FY 2005</u>
			<u>Estimate</u>
			<u>Cost to</u>
			<u>Complete</u>
			<u>Total Cost</u>
(U) AF RDT&E			
(U) Other APPN			
(U) Related RDT&E:			
(U) PE 0604759F, Major T&E Investment			
(U) PE 0604940D, Central T&E Investment Program			
(U) <b><u>D. Acquisition Strategy</u></b>			
	Contracts funded from this program are predominately awarded on the basis of full and open competition.		
Project 663321	Page 8 of 11 Pages	Exhibit R-2A (PE 0604256F)	

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>	PROJECT <b>663321</b>
---	---	--------------------------

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Establish JMASS JPO	*											
(U) ECIT Infrastructure and Generic Test Capability (I&GTC) IOC									X			
(U) ECIT SIL Integration					X							
(U) ECIT BAF Integration											X	
(U) Digital Integrated Air Defense System Baseline Start/Complete			X									X
(U) AFEWES SAM-C Upgrade						X						
(U) AFEWES SAM-D Development Start/ Complete							X					X
(U) AFEWES SAM-E Dev Complete								X				
(U) AFEWES SAM-F Dev Start										X		
(U) AFEWES IR Lab Upgrade									X			
(U) EW T&E M&S Threat Models Complete		*										
(U) BICOMS Radar IOC / FOC			*		*							
(U) RAMS Replacement Radar IOC			*									
(U) RAMS Pylon IOC						X						
(U) RAMS Pylon FOC								X				

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>				PROJECT <b>667500</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
667500 Foreign Material Acquisition/Exploitation	0	2,354	6,130	7,030	7,187	7,307	7,499	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>                      This project is established for the specific purpose of supporting the USAF requirements for Foreign Materiel Program in the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&amp;E) funds are included in the prioritized Air Force Foreign Materiel Acquisition (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 list are then integrated into an 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 list is classified secret. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, and early warning radars. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total                      Not applicable.</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$1,765 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Material Acquisition list; subject to assets availability.                      (U) \$350 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans.                      (U) \$239 Funds the operations and maintenance of the specialized Foreign Material assets.                      (U) \$2,354 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$2,595 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Material Acquisition list; subject to assets availability.                      (U) \$2,957 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans.                      (U) \$578 Funds the operations and maintenance of the specialized Foreign Material assets.                      (U) \$6,130 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b>                      Significant Program Changes:</p>									
Project 667500			Page 10 of 11 Pages				Exhibit R-2A (PE 0604256F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0604256F Threat Simulator Development</b>	PROJECT <b>667500</b>
---	---	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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**  
 Not applicable.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4

(U) Not applicable. Details are classified and are reported through other channels.

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604258F Target Systems Development</b>				PROJECT <b>662459</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
662459	Target Payloads	6,343	0	191	192	193	1,842	1,851	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>  Aerial Targets are used to determine air-to-air weapons effectiveness and mission proficiency of our tactical systems against enemy aircraft. The overall objective is to improve air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and evaluation. The program develops full-scale and subscale aerial targets and target control systems. Specialized target payload subsystems are developed for full-scale and subscale targets for missile scoring, electronic and infrared (IR) countermeasures, and radar and IR signature augmentation. Electronic countermeasures and infrared countermeasures being developed include chaff and flare dispenser systems. The Drone Radio Frequency (RF) Electronic Enhancement Mechanism (DREEM) is being developed to provide subscale radar cross section (RCS) enhancement to replicate full size threat aircraft.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>  (U) \$412 Continued Contractor - Support &amp; Management  (U) \$295 Continued Travel, Training and Second Destination Transportation - Support &amp; Management  (U) \$232 Continued Management Information Systems (MIS), Communications and Assessment - Support &amp; Management  (U) \$586 Completed DREEM Demonstration Validation Testing  (U) \$4,818 Army Big Crow program  (U) \$6,343 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>  (U) \$0 Congress zeroed-out small legacy programs under \$1 million.  (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>  (U) \$129 Continue Support &amp; Management  (U) \$37 Continue Travel &amp; Training Support &amp; Management  (U) \$25 Continue MIS, Communication and Assessment - Support and Management  (U) \$191 Total</p>										
Project 662459			Page 1 of 3 Pages				Exhibit R-2 (PE 0604258F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604258F Target Systems Development</b>			PROJECT <b>662459</b>			
(U) <b><u>B. Budget Activity Justification</u></b>										
This program is in budget activity 6 - Management Support because it provides overall support to research and development activities.										
(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)	6,572	192	192		TBD				
(U)	Appropriated Value	6,666	0							
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions	-75								
	b. Small Business Innovative Research	-177								
	c. Omnibus or Other Above Threshold Reprogram									
	d. Below Threshold Reprogram	-17								
	e. Rescissions	-54								
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR			-1						
(U)	Current Budget Submit/FY 2001 PBR	6,343	0	191		TBD				
(U) <b><u>Significant Program Changes:</u></b>										
FY99 Congressional action added \$5M for the Army Big Crow program. Funds were passed from this PE to the Army.										
FY00 Congress zeroed-out small legacy programs under \$1 million.										
(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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)	PE35116F: Appropriation: Missile Procurement, AF Budget Activity: 14 Program Title: Target Drones									
(U)	WSC MQM107 (MQM-107E)	3,793						Continuing		TBD
(U)	WSC: M04AQF (QF-4)	21,508						Continuing		TBD
(U)	Spares: BQM-34, QF-4, MQM-107	173						Continuing		TBD

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0604258F Target Systems Development</b>	PROJECT <b>662459</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) PE35116F: Appropriation: Aircraft Procurement, AF Budget Activity: 10 Program Title: Target Drones									
(U) WSC: 10TRGT	0	31,332	32,915	36,688	37,217	46,874	39,181	Continuing	TBD
(U) Spares: 16TRGT	0	885	610	729	973	976	978	Continuing	TBD

(U) **E. Acquisition Strategy**  
The acquisition strategy is competitive, cost plus contracts.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) QF-4 Follow-on Production Options		*				X				X		
(U) DREEM - Dem Val Testing	*											
(U) MQM-107E - First Delivery		*										
(U) MQM-107E - IOC						X						
(U) Non Developmental Item (NDI) SSAT BQM-34												
(U) - Contract Award				*								
(U) - First Delivery						X						
(U) - IOC						X						

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0604759F Major T&amp;E Investment</b>				PROJECT <b>664597</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
664597	Air Force Test Investments	37,995	56,659	54,057	51,136	50,053	60,502	70,242	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

This program element provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC), Arnold Engineering Development Center (AEDC), Air Force Flight Test Center (AFFTC), and the Space and Missile Systems Center's Test & Evaluation Directorate (SMC/TE). 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 requirement for improvement in missile seeker test capabilities such as the Guided Weapon Evaluation Facility (GWEF) and the Seeker T&E projects; 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 Acquisition and Processing System (DAPS) and Computer Aided Modernization Project (CMP) projects. Test investment activities are also funded at the Joint Program Office (JPO) for Test and Evaluation (T&E). 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. Also, all projects have been reviewed through the tri-Service Reliance effort (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in the Test Capability Master Plans. 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 have over \$10 billion worth of unique test facilities/capabilities. They 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.

46 TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration provides standardized airborne test instrumentation to enhance interoperability and commonality. Global Positioning System (GPS) Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all Major Range and Test Facility Bases (MRTFB) and specifically at the Eglin Ranges for munitions testing. C4I Test Capabilities Upgrade will provide

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

<b>BUDGET ACTIVITY</b> <b>06 - Management and Support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759F Major T&amp;E Investment</b>	<b>PROJECT</b> <b>664597</b>
--	--	---------------------------------

(U) **A. Mission Description Continued**

connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. The Preflight Integration of Munitions and Electronic Systems (PRIMES) facility conducts preflight test and evaluation of total integrated weapon systems in a secure anechoic chamber. The Armament Systems Test Environment (ASTE) Range Systems effort upgrades instrumentation of the major data collection systems supporting open air testing. Mission Control/Data Analysis provides for real-time central mission control and analysis. Multispectral Missile Engagement Hardware-in-the-Loop (HITL) Test provides a capability to support multiple and wide field-of-view missile engagements incorporating multispectral stimulators. The Santa Rosa Island Reconstitution effort will provide hardware-in-the-loop equipment for three focus sites to support armament/munitions and C4I testing. Seeker T&E will upgrade unique Electro-Optical/Infrared/Millimeter Wave (EO/IR/MMW) field measurement capabilities to support tri-Service smart weapons development. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, ASRAAM, AGM-130, JTIDS, JSTARS, Combat Talon, etc.

AEDC, located at Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, 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 AEDC Data Acquisition and Processing System (DAPS) provides processing capability for advanced turbine engine testing for programs like the F-22. This effort also upgrades data systems for the arc heaters and hypervelocity gun facility for Theater High Altitude Air Defense (THAAD) testing. Inefficiencies in these current data systems result in increased program costs and schedule delays. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Propulsion Wind Tunnel (PWT) Upgrades project sustains long-term operation of tunnels 16T and 16S to meet transonic/supersonic test needs. The Improve Turbine Engine Structural Integrity 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. The Hypersonic Capability Development project provides for the studies and analysis of the hypersonic wind tunnel requirements definition and program planning.

AFFTC, located at Edwards AFB, CA conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, uninhabited aerial vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment, develop and integrate supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time, first generation, post-test data processing, archival, and display requirements of the next decade. The developmental approach is directed towards providing a high degree of interoperability between systems and components adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-Service test ranges. The Flight Simulation Modernization project will upgrade the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Modeling and Simulation T&E Resources (MASTER) project will provide the Test and Evaluation Modeling and Simulation (TEMS) facility with subsystem models to build future simulations and the tools to validate real-time modeling with ground tests and open-air range flight

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		<b>DATE</b> February 2000
<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT</b>
<b>06 - Management and Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>664597</b>
<p>(U) <b><u>A. Mission Description Continued</u></b>            test. The Linked Interactive T&amp;E Networking (LITENING) project will provide the network infrastructure to support inter-range simulations and support the efficient transmission of flight test data to various facilities at Edwards for processing and analysis. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry systems to provide greater efficiencies in telemetry frequency utilization.</p> <p>SMC/TE located at Kirtland AFB, NM is responsible for test planning and implementation for all space and ballistic missile systems. The Combined Space Test Task Force project will provide the capability to develop and test new satellites and ground control systems.</p>		
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>		
(U) \$0	46 Test Wing, Air Armament Center	
(U) \$1,615	CAIS Integration. Continued integration, procured production units, and continued procurement of support equipment.	
(U) \$724	C4I Test Capabilities Upgrade. Continued the acquisition of workstations, network connections, and processing hardware/software.	
(U) \$2,453	GWEF. Completed the expanded radar simulator and midwave IR simulator. Began development of the multispectral man-in-the-loop simulator. Continued aircraft/munitions modeling and simulation.	
(U) \$2,109	GPS Range Integration. Continued integration and completed the acquisition of translator/processor system.	
(U) \$1,071	PRIMES. Acquired a F-15/APG 63-V1 radar interface. Began acquisition of a data link for the Com/Nav simulator.	
(U) \$1,712	ASTE Range Systems. Continued upgrades to TSPI systems, telemetry, microwave, communications, arenas, gun test, and photo-optics.	
(U) \$853	Mission Control/Data Analysis. Began procurement of data acquisition equipment and real-time TM equipment, and a 3-D terrain generation/visualization capability.	
(U) \$1,672	Multispectral Missile Warning System Test Capability. Began acquisition of a high off boresight angle flight motion simulator and countermeasure simulations.	
(U) \$2,395	Santa Rosa Island Reconstitution. Continued development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability.	
(U) \$1,197	EC Operational Test and Training. Provided for the operations and maintenance of range assets required by AFSOC to test and train aircrews at the Eglin location.	
(U) \$400	GPS Y2K Receivers. Procured required GPS receivers to conduct Y2K testing.	
(U) \$0	Arnold Engineering Development Center	
(U) \$868	AEDC DAPS. Completed installation of the J4 rocket test cell DAPS. IOC of J1/J2 test cell portion of DAPS.	
(U) \$1,097	CMP. Continued purchase of CMP workstations. Continued to implement the AEDC Reengineering Computer Base.	
(U) \$4,560	PWT Upgrades. Continued installation of data acquisition and processing system in 16T and 16S tunnels. Completed installation of the on-cart data acquisition and processing system in the 16T wind tunnel and the pre-test check out system in the 16T/16S wind tunnels. Began design of plant control systems.	
Project 664597	Page 3 of 9 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>February 2000</b> <b>664597</b>
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 1999 (\$ in Thousands) Continued</u>	
(U)	\$695	Improve Turbine Engine Structural Integrity. Began design and procurement of Non-Intrusive Stress Monitoring System (NSMS) hardware. Installed dynamic data acquisition and processing system.
(U)	\$2,681	Hypersonic Capability Development. Continued study contracts for requirements definition and program planning.
(U)	\$0	Air Force Flight Test Center
(U)	\$3,514	CAIS I&S development. Continued rehost of TIMS to Windows NT platform (Instrumentation Loading, Integration, and Decommuation (ILIAD)) and improved TIMS with automated setup of systems, automated diagnostics, and simulation capability. Continued development of an advanced solid state recorder.
(U)	\$5,595	ADAPS. Continued to integrate simulation system with real-time data analysis capability. Began development of desktop simulation capability. Continued to provide the traditional structures & flutter post-test analysis capability in near real-time in the Ridley Mission Control Rooms. Began installation of post test analysis capabilities for flight testing. Provided avionics data processing in near real-time in the Ridley Mission Control Rooms. Ensured Y2K compliance of all systems under development.
(U)	\$1,127	Flight Simulation Modernization. Provided the reconfigurable cockpit prototype to validate the design for the reconfigurable cockpit upgrades to the TEMS facility.
(U)	\$658	LITENING. Began the network design phase. Communication Equipment Rooms have been surveyed, network traffic is in the process of being analyzed and connectivity to the Defense Research Engineering Network (DREN) has been established.
(U)	\$0	Space & Missile Systems Center T&E Directorate
(U)	\$752	Combined Space Test Task Force. Began procurement of hardware and software to complete evaluations of on-orbit R&D satellites and technologies. Began development of a satellite command and control database and models.
(U)	\$0	Other Projects
(U)	\$247	Joint Project Office for T&E support.
(U)	\$37,995	Total
(U)	<u>FY 2000 (\$ in Thousands)</u>	
(U)	\$0	46 Test Wing, Air Armament Center
(U)	\$2,958	CAIS Integration. Continue integration, procure mini-CAIS hardware, and continue procurement of support equipment for CAD/CAM and preflight quick-look capability.
(U)	\$1,538	C4I Test Capabilities Upgrade. Continue acquisition of workstations, network connections, and processing hardware/software. Begin upgrades to the JTIDS OPFAC.
(U)	\$3,787	GWEF. Continue acquisition of the multispectral man-in-the-loop. Begin acquisition of an active laser simulator and an Imaging IR Simulation
Project 664597		Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>February 2000</b> <b>664597</b>
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>	
	& Projection capability. Continue development of aircraft/munitions modeling and simulation.	
(U) \$1,755	GPS Range Integration. Continue acquisition of Advanced Range Data System (ARDS) pods, S/W improvements, and ground vehicle instrumentation.	
(U) \$1,927	PRIMES. Begin development of aircraft/munitions interface simulations for F-15 and F-16. Continue advanced signature generator upgrades. Complete the Com/Nav simulator data link.	
(U) \$2,698	ASTE Range Systems. Continue upgrades to telemetry, TSPI systems, communications and arenas. Begin upgrades to gun ranges, microwave, fuze test, range instrumentation systems and the Kinetic Energy Munition Test Facility. Acquire a Forward Looking Infrared (FLIR) system, and video phototheodolites.	
(U) \$1,263	Mission Control/Data Analysis. Continue procurement of data acquisition equipment and 3-D terrain generation/visualization capability. Begin acquisition of H/W and S/W for 'near' real-time data processing.	
(U) \$1,648	Multispectral Missile Warning System Test Capability. Complete the high off boresight angle flight motion simulator (FMS) and countermeasures simulation.	
(U) \$1,398	Seeker T&E. Begin upgrades to the MMW measurement systems. Acquire a midwave focal plane array (FPA) imaging radiometer. Upgrade the Seeker Test Van tracking system.	
(U) \$4,431	Eglin Range Upgrades. Will support three on-going projects: 1. Santa Rosa Island Reconstitution will continue development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability. 2. Armament Systems Test Environment will improve several subsystems by integrating the latest technology to support the T&E of modern weapon systems. 3. C4I Upgrades will improve multifunctional reconfigurable C4I Test and Evaluation infrastructure.	
(U) \$0	Arnold Engineering Development Center	
(U) \$1,196	CMP. Add increment five worksystems. Initiate the Aircraft Systems Test Operations Pilot effort. Integrate the Product Data Manager application software packages. Initiate the migration of real-property drawings and designs to a raster format.	
(U) \$6,761	PWT Upgrades. Complete installation of data acquisition and processing system in the 16T wind tunnel. Design the 16S wind tunnel data acquisition and processing system. Begin installation of 16S wind tunnel data acquisition and processing system. Begin installation of 16T/16S wind tunnel plant control systems. Begin planning/design for electric motor repower upgrades. Begin planning for flow quality improvements.	
(U) \$523	Improve Turbine Engine Structural Integrity. Develop Non-Intrusive Stress Monitoring System (NSMS) software to identify turbine engine rotor blade characteristics. Install additional channels for the dynamic data acquisition and processing system.	
(U) \$1,000	Laser Induced Surface Induction (LISI). Fund the development and test of University of Tennessee Space Institute LISI project	
(U) \$3,938	Hypersonic Capability Development. Continue study contracts for requirements definition and program planning.	
Project 664597		Exhibit R-2 (PE 0604759F)



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>February 2000</b> <b>664597</b>
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>	
(U)	\$0	Air Force Flight Test Center
(U)	\$3,651	CAIS I&S. Continue development and implementation of an internet-based instrumentation management information system. Procure additional airborne Solid State Recorder. Procure bandwidth efficient telemetry transmitters and demodulators. IOC of ILIAD will be established. Begin integration of commercial tools for instrumentation support into ILIAD. Test prototype and procure a production Solid State Recorder. Complete rehost of TIMS to ILAD. Begin development of CAIS Bus to Next Generation (NextGen) Bus (Fibre Channel) bridge. Provide the capability to support new airborne instrumentation capabilities including: on-board processing innovations, on-board smart sensors, and high data rate decommutation and recording.
(U)	\$2,807	ADAPS. Integrate real-time systems across the flight test center to replace older systems. Begin distribution of full capability for post test analysis system. Evaluate and activate first prototypes of modeling and simulation integration of real-time operations.
(U)	\$3,367	Flight Simulation Modernization. Upgrade TEMS facility with first of four reconfigurable cockpits. This system will be a high fidelity cockpit with a high fidelity visual system. Upgrade the interfaces between the TEMS simulations to allow multi-ship testing.
(U)	\$2,151	LITENING. Connect the Avionics Test & Integration Complex (ATIC), Ridley Mission Control Center and the Combined Test Forces together. Begin development on the ATM Network Operations Center.
(U)	\$1,666	MASTER. Develop the repository for models and data using established procedures to validate them with data collected during ground and flight test. The models and the data will be used to support man-in-the-loop simulator testing and training, which will support configurable simulations for the AWMS cockpits. Existing models will be converted to Joint Modeling & Simulation System (J-MASS) real-time compatible models.
(U)	\$5,021	Heavylift Launch Platform. Upgrade B-52H aircraft to perform heavy-lift launch platform duties for Re-usable Aerospace Vehicles (RAV) testing and operation. The upgrade will strengthen the B-52H wing structure and pylon mounts, increasing the external payload capacity from 25,000 to 70,000 pounds. Upgrade also includes installation of instrumentation needed for monitoring key test parameters of the launch platform and test vehicle.
(U)	\$0	Space & Missile Systems Center T&E Directorate
(U)	\$950	Combined Space Test Task Force. Begin development and acquisition of expert systems to support operations and testing of future technology for R&D satellites. Evaluate effectiveness of these systems and their value to support warfighter needs.
(U)	\$0	Other Projects
(U)	\$225	Joint Project Office for T&E support.
(U)	\$56,659	Total
Project 664597		Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0604759F Major T&amp;E Investment</b>	<b>February 2000</b> <b>664597</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 2001 (\$ in Thousands)</u>	
(U)	\$0	46 Test Wing, Air Armament Center
(U)	\$2,914	CAIS Integration. Complete integration and required support equipment acquisition.
(U)	\$1,762	C4I Upgrade. Complete the acquisition of workstations, connectivity, HW/SW upgrades, and JTIDS OPFAC upgrades. Acquire test analysis equipment and M&S tools.
(U)	\$2,545	GWEF. Complete the multispectral man-in-the-loop and imaging IR developments. Continue aircraft/munition M&S efforts.
(U)	\$1,711	GPS Range Integration. Complete acquisition of ARDS pods, S/W improvements, and ground vehicle instrumentation.
(U)	\$1,692	PRIMES. Complete the aircraft/munitions interface simulations and the advanced signature generator upgrades. Acquire a synthetic aperture radar target simulator.
(U)	\$1,856	ASTE Range Systems. Complete acquisition of instrumentation/equipment for infrastructure upgrades in such areas as TSPI, microwave, TM, fiber optics/communications, arena test, gun ranges, high speed video, and fuze test.
(U)	\$1,402	Mission Control/Data Analysis. Complete procurement of data acquisition equipment, near real-time data processing equipment, and a 3-D terrain generation/visualization capability.
(U)	\$862	Seeker T&E. Complete upgrades to the MMW measurement system and acquire a high speed digital data recorder, a longwave and shortwave length FPA imaging radiometers. Upgrade the Airborne Seeker Evaluation Test System (ASETS) instrumentation.
(U)	\$0	Arnold Engineering Development Center
(U)	\$3,777	CMP. Procure/Install increment six worksystems. Complete Product Data Manager integration with application software packages. Upgrade older worksystems to the state-of-the-art PC hardware configuration. FOC of CMP systems.
(U)	\$20,133	PWT Upgrades. Complete installation of 16S wind tunnel data acquisition and processing system. Complete installation of plant control systems in 16T/16S wind tunnels. Initiate procurements for electric motor upgrades. Begin design of flow quality improvements.
(U)	\$886	Improve Turbine Engine Structural Integrity. Complete installation of the dynamic data acquisition and processing system and the NSMS. Begin planning/design of the Structural Dynamic Response Analysis Capability.
(U)	\$0	Air Force Flight Test Center
(U)	\$2,662	CAIS I&S. Complete the development and integration of an internet-based instrumentation management system. Continue development of CAIS Bus to NextGen Bus (Fibre Channel) Bridge. Provide data compression and on-board processing operational capability developed under the ARTM program.
(U)	\$2,601	ADAPS. Complete integration of the post test analysis capability at the Combined Test Force level. Complete post test analysis development. Complete the installation of common data systems throughout the Flight Test Center. Upgrade control room workstations. Complete integration of modeling and simulation with real-time operations.
Project 664597		Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
<b>06 - Management and Support</b>		<b>0604759F Major T&amp;E Investment</b>		<b>February 2000</b> <b>664597</b>	
(U)	<b><u>A. Mission Description Continued</u></b>				
(U)	<u>FY 2001 (\$ in Thousands) Continued</u>				
(U)	\$3,887	Flight Simulation Modernization. Upgrade TEMS Facility with the second of four reconfigurable cockpits.			
(U)	\$2,322	LITENING. Extend the ATM backbone network to critical Range Support buildings and CTFs. Develop the Network Operations Center to monitor and manage network traffic loads. Expand secure network links to allow classified test data to be transferred between integrated secret, compartmentalized facilities.			
(U)	\$1,000	MASTER. Convert and validate flying qualities and avionics models acquired from System Program Offices into J-MASS compatible models. Arnold AFB will begin to convert propulsion, weapons, and airframe interaction models.			
(U)	\$768	Advanced Range Telemetry (ARTM) Integration. Begin integration of RCC FQPSK modulation/demodulation technology into telemetry transmitters/receivers. Begin integration of PCM data compression and forward error correction technology into the range infrastructure. Begin improvement and modernization of telemetry ground stations.			
(U)	\$0	Space & Missile Systems Center T&E Directorate			
(U)	\$942	Combined Space Test Task Force. Continue development and evaluation of expert systems to support operations and testing of future technology R&D satellites. Implement lessons learned and transition technical advancements to operational users.			
(U)	\$0	Other Projects			
(U)	\$335	Joint Project Office for T&E support.			
(U)	\$54,057	Total			
(U)	<b><u>B. Budget Activity Justification</u></b>				
	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>C. Program Change Summary (\$ in Thousands)</u></b>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	40,416	47,334	56,238	
(U)	Appropriated Value	41,068	57,934		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-652	-39		
	b. Small Business Innovative Research	-805			
	c. Omnibus or Other Above Threshold Reprogram		-870		
	d. Below Threshold Reprogram	-1,403			
Project 664597		Page 8 of 9 Pages		Exhibit R-2 (PE 0604759F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>06 - Management and Support</b>				<b>0604759F Major T&amp;E Investment</b>				<b>664597</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>										
			<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>			<u>Total Cost</u>
	e. Rescissions		-213		-366					
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR						-2,181			
(U)	Current Budget Submit/FY 2001 PBR		37,995		56,659		54,057			TBD
(U)	<u>Significant Program Changes:</u> Congressional action, FY00 plus up of 13,600: Eglin Range Upgrade (4,500), Hypersonic Capability Development (4,000), Heavy Launch Platform (5,100).									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
	Related RDT&E: PE 0604256F, Threat Simulater Development and PE 0604940D, Central Test and Evaluation Investment Program									
<b>(U) E. Acquisition Strategy</b>										
	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.									
<b>(U) F. Schedule Profile</b>										
			<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>			
			1	2	3	4	1	2	3	4
(U)	This PE contains multiple schedule profiles which are available upon request.									

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605101F RAND Project Air Force</b>				PROJECT <b>661110</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
661110	Project Air Force	23,485	19,864	24,080	20,354	20,769	21,198	21,537	Continuing	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**  
 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. Results and analytical findings directly impact senior management deliberations 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 and system acquisition. Integrative research projects are also conducted at the division level with direct support assistance provided through the most applicable program. Research programs address organizational cross-cutting 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, integrating the ISR Mix, implementation of the Air Expeditionary Force, tailoring and reducing infrastructure and improved weapon system costing.

(U) In FY 99, principal research efforts included studies on Chinese defense modernization and the USAF, NATO's role in ensuring energy security, the role of aerospace power in urban conflict, implications of unmanned air vehicles for the future shape of the Air Force, enhancing the effectiveness of air expeditionary forces, exploiting commercial communication systems, implementation of lean logistics and agile combat support, improved Air Force contracting for support services, improved weapon system cost analysis, and improved ways of measuring and forecasting Air Force readiness, managing the aging aircraft fleet, shaping the future total force, and creating a human resource system to support the expeditionary aerospace force.

(U) During FY00, research undertaken by Project AIR FORCE (PAF) will be driven by specific focus areas developed through the USAF strategic planning process, force modernization initiatives, and enduring management and resource areas of concern to USAF leadership. The research agenda for FY00 extends work initiated in FY99. Work has been defined in support of research themes which focus on major external challenges and opportunities affecting USAF operations; institutionalization of the USAF vision and strategic plan, implementation of the Air Expeditionary Force concept; integration of air and space operations; power projection forces; and, force mix and infrastructure. Of particular note in FY00 will be the continuation of an assessment of Kosovo lessons learned, covering a broad spectrum of planning,

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																						
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605101F RAND Project Air Force</b>	PROJECT <b>661110</b>																						
<p>(U) <u><b>A. Mission Description Continued</b></u> operational and support activities and the application of these findings to future Air Force plans and operations.</p> <p>(U) For FY01, the current research themes which guide the PAF research agenda will be adjusted as necessary, primarily to reflect the major questions that will be addressed during QDR 2001. Questions of interest will likely be incorporation of Kosovo lessons learned, maturation of the AEF concept of operations, continued use of commercial sources and methods, effective use of Air Force resources and long term modernization of the aerospace force.</p> <p>(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 spins not necessarily in the best interest of the Air Force at large.</p> <p>(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 deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial individuals and activities.</p> <p>(U) <u><b>FY 1999 (\$ in Thousands)</b></u></p> <table border="0"> <tr><td>(U) \$4,300</td><td>Strategy and Doctrine</td></tr> <tr><td>(U) \$6,800</td><td>Force Modernization and Employment</td></tr> <tr><td>(U) \$8,400</td><td>Resource Management and Systems Acquisition</td></tr> <tr><td>(U) \$3,985</td><td>Integrative Research/Direct Support</td></tr> <tr><td>(U) \$23,485</td><td>Total</td></tr> </table> <p>(U) <u><b>FY 2000 (\$ in Thousands)</b></u></p> <table border="0"> <tr><td>(U) \$3,500</td><td>Strategy and Doctrine</td></tr> <tr><td>(U) \$6,250</td><td>Aerospace Force Development</td></tr> <tr><td>(U) \$2,400</td><td>*Manpower, Personnel and Training</td></tr> <tr><td>(U) \$6,400</td><td>Resource Management and Systems Acquisition</td></tr> <tr><td>(U) \$1,314</td><td>Integrative Research / Direct Support</td></tr> <tr><td>(U) \$19,864</td><td>Total</td></tr> </table> <p>* No split in FY99, program new in FY00</p>			(U) \$4,300	Strategy and Doctrine	(U) \$6,800	Force Modernization and Employment	(U) \$8,400	Resource Management and Systems Acquisition	(U) \$3,985	Integrative Research/Direct Support	(U) \$23,485	Total	(U) \$3,500	Strategy and Doctrine	(U) \$6,250	Aerospace Force Development	(U) \$2,400	*Manpower, Personnel and Training	(U) \$6,400	Resource Management and Systems Acquisition	(U) \$1,314	Integrative Research / Direct Support	(U) \$19,864	Total
(U) \$4,300	Strategy and Doctrine																							
(U) \$6,800	Force Modernization and Employment																							
(U) \$8,400	Resource Management and Systems Acquisition																							
(U) \$3,985	Integrative Research/Direct Support																							
(U) \$23,485	Total																							
(U) \$3,500	Strategy and Doctrine																							
(U) \$6,250	Aerospace Force Development																							
(U) \$2,400	*Manpower, Personnel and Training																							
(U) \$6,400	Resource Management and Systems Acquisition																							
(U) \$1,314	Integrative Research / Direct Support																							
(U) \$19,864	Total																							
Project 661110	Page 2 of 4 Pages	Exhibit R-2 (PE 0605101F)																						

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																																												
<b>06 - Management and Support</b>		<b>February 2000</b>																																																												
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																												
<b>06 - Management and Support</b>	<b>0605101F RAND Project Air Force</b>	<b>661110</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$4,420 Strategy and Doctrine</p> <p>(U) \$6,965 Aerospace Force Development</p> <p>(U) \$2,966 Manpower, Personnel and Training</p> <p>(U) \$7,644 Resource Management and Systems Acquisition</p> <p>(U) \$2,085 Integrative Research / Direct Support</p> <p>(U) \$24,080 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>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.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 55%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 15%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">19,991</td> <td style="text-align: center;">20,560</td> <td style="text-align: center;">20,294</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">21,168</td> <td style="text-align: center;">20,560</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: center;">-1,177</td> <td style="text-align: center;">-262</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: center;">-675</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-304</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: center;">4,300</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: center;">-131</td> <td style="text-align: center;">-130</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: center;">3,786</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">23,485</td> <td style="text-align: center;">19,864</td> <td style="text-align: center;">24,080</td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b> N/A</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	19,991	20,560	20,294		(U) Appropriated Value	21,168	20,560			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1,177	-262			b. Small Business Innovative Research	-675				c. Omnibus or Other Above Threshold Reprogram		-304			d. Below Threshold Reprogram	4,300				e. Rescissions	-131	-130			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			3,786		(U) Current Budget Submit/FY 2001 PBR	23,485	19,864	24,080	
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	19,991	20,560	20,294																																																											
(U) Appropriated Value	21,168	20,560																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-1,177	-262																																																												
b. Small Business Innovative Research	-675																																																													
c. Omnibus or Other Above Threshold Reprogram		-304																																																												
d. Below Threshold Reprogram	4,300																																																													
e. Rescissions	-131	-130																																																												
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			3,786																																																											
(U) Current Budget Submit/FY 2001 PBR	23,485	19,864	24,080																																																											
Project 661110	Page 3 of 4 Pages	Exhibit R-2 (PE 0605101F)																																																												



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2000			
BUDGET ACTIVITY <b>06 - Management and Support</b>					PE NUMBER AND TITLE <b>0605101F RAND Project Air Force</b>					PROJECT <b>661110</b>			
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>													
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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													
<b>(U) E. Acquisition Strategy</b>													
The RAND Project Air Force contract is a 5 year (base + 4 option yrs) Cost Plus / Award Fee contract													
<b>(U) F. Schedule Profile</b>													
				<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>			
				1	2	3	4	1	2	3	4	1	
(U)	Approve FY99 Research Plan			*									
(U)	Adjust FY99 Research Plan				*								
(U)	Program-Wide Evaluation - FY99						*						
(U)	Draft FY00/01 Research Plan						*						
(U)	Approve FY00/01 Research Plan							*					
(U)	Annual Evaluation FY00											X	
(U)	Draft FY01 Research Plan								X			X	
(U)	Approve FY01 Research Plan											X	
(U)	Adjust FY01 Research Plan											X	

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605306F Ranch Hand II Epidemiology Study</b>				PROJECT <b>662767</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
662767	Ranch Hand II Epidemiology Study	4,122	4,408	4,356	11,318	10,892	4,825	4,943	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b></p> <p>This program was directed in 1980 by the Assistant to the President of the United States for Domestic Affairs and Policy upon the recommendation of the Interagency Working Group on the Possible Long-Term Effects of Phenoxy Herbicides and Contaminants. As a result of this Presidential direction, PE 0605306F was established to conduct a 20-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins. Dioxins are an unwanted by-product from numerous current manufacturing processes and a major health concern of the EPA and other government agencies.</p> <p>This project involves a 20-year study, which was initiated in 1982, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Vietnam. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$1,390 Completed examination data base and conducted statistical analyses of examination data.</p> <p>(U) \$229 Analyzed laboratory specimens to include serum dioxin assays and completion of fat biopsy analyses as well as conducted statistical research studies to include completion of a mathematical model to integrate mortality and morbidity data for analysis.</p> <p>(U) \$2,503 Processed and documented examination data to include updating of the participant database; conducted medical records coding; performed the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conducted data analysis for articles to be submitted to peer-reviewed journals as directed.</p> <p>(U) \$4,122 Total</p>										
Project 662767			Page 1 of 3 Pages				Exhibit R-2 (PE 0605306F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605306F Ranch Hand II Epidemiology Study</b>	<b>662767</b>
(U) <b><u>A. Mission Description Continued</u></b>		
(U) <b><u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$1,120	Complete statistical analysis of examination data. Document all analyses and findings in 4,000 page, fifth cycle final report. Conduct analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Analyses are based on current morbidity data trends and findings.	
(U) \$386	Conduct other agency/university studies supporting scientific effort; start Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange; conduct morbidity and mortality mathematical modeling; conduct dioxin half-life and serum dioxin analyses.	
(U) \$2,902	Process and document examination data to include updating of the participant database; conduct medical records coding; perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conduct data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U) \$4,408	Total	
(U) <b><u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$1,105	Conduct analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Analyses are based on current morbidity data trends and findings. Conduct process review prior to final examination cycle to determine potential participation rates, requirements for in-house or regional examination sites and statistical, schedule, and cost implications of the aging study population.	
(U) \$567	Conduct other agency/university studies supporting scientific effort; complete Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange; complete morbidity and mathematical modeling; complete dioxin half-life and serum dioxin analyses; start semen DNA study.	
(U) \$2,684	Process and document examination data to include updating of the participant database; conduct medical records coding; perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conduct data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U) \$4,356	Total	
(U) <b><u>B. Budget Activity Justification</u></b>		
	This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development use.	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>06 - Management and Support</b>				<b>0605306F Ranch Hand II Epidemiology Study</b>				<b>662767</b>		
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			<u>Total Cost</u>	
(U)	Previous President's Budget (FY 2000 PBR)			4,273	4,510	4,554			TBD	
(U)	Appropriated Value			4,408	4,510					
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions			-135	-10					
	b. Small Business Innovative Research			-78						
	c. Omnibus or Other Above Threshold Reprogram				-63					
	d. Below Threshold Reprogram			-50						
	e. Rescissions			-23	-29					
	f. Other								TBD	
(U)	Adjustments to Budget Years Since FY 2000 PBR					-198				
(U)	Current Budget Submit/FY 2001 PBR			4,122	4,408	4,356			TBD	
(U)	<u>Significant Program Changes:</u>									
	Not Applicable.									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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.									
<b>(U) E. Acquisition Strategy</b>										
	Not Applicable.									
<b>(U) F. Schedule Profile</b>										
		<u>FY 1999</u>				<u>FY 2000</u>			<u>FY 2001</u>	
				1	2	3	4	1	2	3
								4	1	2
									3	4
(U)	Not Applicable.									

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>				PROJECT <b>660191</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
660191	Initial Operational Test & Eval	29,171	26,510	28,238	29,464	29,764	30,359	30,960	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            Initial Operational Test and Evaluation (IOT&amp;E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&amp;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&amp;E is performed on new systems in development, major modifications and other systems as directed. This PE funds Congressionally mandated IOT&amp;E to support major weapon system acquisition decisions beyond low-rate initial production (LRIP), Milestone III, fielding, and declaration of initial operational capability (IOC). For major systems designated for use in combat, the law requires IOT&amp;E be completed under realistic field conditions before proceeding beyond low rate initial production. This PE funds the OT participation in Combined Developmental Test (DT)/OT, the Air Force participation in Multiservice Operational Test and Evaluation (MOT&amp;E), and Follow-on Operational Test and Evaluation (FOT&amp;E) when it is the continuation of IOT&amp;E activities past the Milestone III decision. FOT&amp;E answers specific questions about unresolved Critical Operational Issues (COIs) and test issues, or completes areas not finished during the IOT&amp;E. This PE also funds related operational test and evaluation (OT&amp;E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&amp;E which support major milestones and decision points prior to Milestone III, fielding, or declaration of IOC. IOT&amp;E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C41); 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.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$13,482 (U) CATEGORY: AIR SYSTEMS (renamed category Aircraft/Support to read Air Systems). Planned, executed, and reported IOT&amp;E activities, to include the following: Airborne Laser (ABL); Common Missile Warning System (CMWS); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; CV-22; F-15 Tactical Electronic Warfare System (TEWS); F-22; Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); and other systems.            - ABL: Advance planning for EOA2 and IOT&amp;E.            - CMWS: Planned and executed OA; advance planning for combined DT/OT and IOT&amp;E.            - B-1B CMUP Block E: Planned and executed OA and combined DT/OT. Detailed Planning for IOT&amp;E.            - B-1B CMUP Block F: Planned and executed OA; plan for combined DT/OT. Advance planning for IOT&amp;E.</p>										
Project 660191		Page 1 of 10 Pages				Exhibit R-2 (PE 0605712F)				

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	
		PROJECT <b>660191</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 1999 (\$ in Thousands) Continued</u>	
	<ul style="list-style-type: none"> <li>- CV-22: Advance planning for MV-22 IOT&amp;E involvement.</li> <li>- F-15 TEWS: Executed IOT&amp;E and wrote report.</li> <li>- F22: Executed OA. Advance planning for combined DT/OT and IOT&amp;E.</li> <li>- JHMCS: Executed IOT&amp;E (was identified in the General category in the Feb 1999 R-2 Exhibit).</li> <li>- JSF: Executed EOA. Advance planning for combined DT/OT.</li> </ul>	
(U)	\$0	
(U)	<p data-bbox="420 618 1986 716">(U) CATEGORY: SPACE SYSTEMS (renamed category Space to read Space Systems). Planned, executed, and reported IOT&amp;E activities, to include the following: MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); and other systems</p> <ul style="list-style-type: none"> <li>- MILSTAR II: Planned and executed combined DT/OT. Advance planning for MOT&amp;E.</li> <li>- NPOESS: Early involvement; advance planning for OA.</li> <li>- SBIRS: Detailed planning and execution of combined DT/OT and IOT&amp;E (SBIRS High and SBIRS LEO have been combined under SBIRS).</li> </ul>	
(U)	\$0	
(U)	<p data-bbox="420 857 1986 987">(U) CATEGORY: WEAPONS (renamed category Missile/Munitions to read Weapons). Planned, executed, and reported IOT&amp;E activities, to include the following: AIM-9X Air to-Air Missile; Hard Target Smart Fuse (HTSF); ICBM Upgrades (Guidance Replacement Program (GRP), Propulsion Replacement Program (PRP)); Joint Air-to-Surface Standoff Missile (JASSM); Joint Direct Attack Munition (JDAM); Joint Standoff Weapon (JSOW); Wind Corrected Munitions Dispenser (WCMD); and other systems.</p> <ul style="list-style-type: none"> <li>- AIM-9X: Executed OA and wrote report. Participate in DT. Advance planning for IOT&amp;E.</li> <li>- HTSF: Advance planning for combined DT/OT (was identified in the General category in the Feb 1999 R-2 Exhibit).</li> <li>- ICBM Upgrades: Executed GRP IOT&amp;E and wrote final report. Detailed planning for PRP IOT&amp;E.</li> <li>- JASSM: Advance planning for OA and combined DT/OT.</li> <li>- JDAM: Executed IOT&amp;E and wrote final report.</li> <li>- JSOW: Executed combined DT/OT. Detailed planning for MOT&amp;E.</li> <li>- WCMD: Detailed planning for combined DT/OT. Advance planning for IOT&amp;E.</li> </ul>	
(U)	\$0	
(U)	<p data-bbox="420 1256 1986 1354">(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE (C4I). Planned, executed, and reported IOT&amp;E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Defense IEMATS (DIRECT); Global Transportation Network (GTN); Integrated Broadcast System (IBS);</p>	

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b> PROJECT <b>660191</b>	
(U) <u><b>A. Mission Description Continued</b></u>		
(U) <u><b>FY 1999 (\$ in Thousands) Continued</b></u>		
	<p>Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and C2 Evacuation System (TRAC2ES); and other systems.</p> <ul style="list-style-type: none"> <li>- DCAPEs: Advance planning for combined DT/OT and OUE.</li> <li>- DCGS: Executed combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- DIRECT: Executed OA. Detailed planning for IOT&amp;E.</li> <li>- GTN: Executed combined DT/OT and operational field tests (OFT) on incremental software releases.</li> <li>- IBS: Advance planning for OUE</li> <li>- R/SAOC: Executed combined DT/OT. Detailed planning for OFT and IOT&amp;E.</li> <li>- TBM-CS: Executed combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- TRAC2ES: Executed combined DT/OT. Advance planning for IOT&amp;E.</li> </ul>	
(U) \$0		
(U) \$1,167	<p>(U) CATEGORY: COMBAT SUPPORT (new category). Planned, executed, and reported IOT&amp;E activities, to include the following: Combat Survivor Evader Locator (CSEL); Deployable Power &amp; Generation Distribution System (DPGDS); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Computer Aided Acq and Log Systems (JCALS); Joint Service Elec Combat System Tester (JSECST); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Tactical Weather Radar (TWR); and other systems.</p> <ul style="list-style-type: none"> <li>- CSEL: Advance planning for combined DT/OT and OA.</li> <li>- DPGDS: Executed combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- ILS-S: Advance planning for combined DT/OT, OFT, and IOT&amp;E.</li> <li>- JAMSS: Executed combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- JCALS: Executed incremental combined DT/OT events and dedicated OT events.</li> <li>- JSECST: Advance planning for combined DT/OT and IOT&amp;E.</li> <li>- NGSL: Detailed planning and execution of OA. Advance planning for IOT&amp;E.</li> <li>- RSA: Executed incremental OUEs.</li> <li>- TWR: Executed combined DT/OT. Complete detailed planning for and execute IOT&amp;E.</li> </ul>	
(U) \$0		
(U) \$4,786	<p>(U) CATEGORY: TEST SUPPORT (renamed category General to read Test Support). Provide test capabilities infrastructure to support OT.</p> <ul style="list-style-type: none"> <li>- Test Capabilities Infrastructure: Advance planning for software evaluation tool development, non-MRTFB instrumentation, and missile</li> </ul>	



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>February 2000</b> <b>660191</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 1999 (\$ in Thousands) Continued</u>		
	warning sensor stimulator.	
	- Y2K: Assisted MAJCOM to plan and conduct of Y2K testing and consequence management.	
(U) \$29,171	Total	
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$15,029	(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Airborne Laser (ABL); F-15 APG-63 Radar Upgrade (APG-63); Advanced Strategic & Tactical IR Expendable (ASTE); Common Missile Warning System (CMWS); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); Miniature Air Launched Decoy (MALD); and other system.	
	- ABL: Advance planning for EOA2, combined DT/OT, and IOT&E.	
	- APG-63: Execute IOT&E Phase I and write interim summary report. Detail planning for IOT&E Phase II.	
	- ASTE: Conduct incremental IOT&E. Advance planning for FOT&E.	
	- CMWS: Advance planning for combined DT/OT and IOT&E.	
	- B-1B CMUP Block E: Write OA report; complete detailed planning for and conduct IOT&E.	
	- B-1B CMUP Block F: Executing OA; plan and execute combined DT/OT. Advance planning for IOT&E.	
	- CV-22: Participate in OPTEVFOR-led MV-22 IOT&E. Plan and execute combined DT/OT.	
	- F-15 FOTD: Advance planning for combined DT/OT and IOT&E.	
	- F-22: Execute OA. Detailed planning and execution of combined DT/OT. Advance planning for IOT&E.	
	- JHMCS: Execute IOT&E and write final report (identified in the General category in the Feb 1999 R-2 Exhibit).	
	- JSF: Execute EOA. Advance planning for combined DT/OT.	
	- MALD: Detailed planning for IOT&E.	
(U) \$0		
(U) \$1,059	(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Advanced EHF Satellite Communications; Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite Block IIR (GPS IIR); MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); and other systems.	
	- Advanced EHF: Detailed planning for OA.	
	- EELV: Detailed planning and execution of OA.	
	- GBS: Execute combined DT/OT and MOT&E. Detailed planning for FOT&E.	
Project 660191	Page 4 of 10 Pages	Exhibit R-2 (PE 0605712F)

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>660191</b>
(U) <u><b>A. Mission Description Continued</b></u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> <li>- GPS IIR: Execute combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- MILSTAR II: Plan and execute combined DT/OT. Detailed planning and execute MOT&amp;E.</li> <li>- NPOESS: Detailed planning for OA.</li> <li>- SBIRS: Complete IOT&amp;E and write final report. Perform initial OUE on post-Increment 1 ground system upgrade.</li> </ul>	
(U) \$0		
(U) \$6,605	<p>(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&amp;E activities, to include the following: AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); ICBM-MMIII Propulsion Replacement Program (PRP); Joint Air-to-Surface Standoff Missile (JASSM); Joint Standoff Weapon (JSOW); Wind Corrected Munitions Dispenser (WCMD); and other systems.</p> <ul style="list-style-type: none"> <li>- AIM-9X: Plan and assist DT. Detailed planning for IOT&amp;E.</li> <li>- HTSF: Detailed planning for combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- PRP: Execute IOT&amp;E and write final report.</li> <li>- JASSM: Conduct OA and combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- JSOW: Execute MOT&amp;E and write final report.</li> <li>- WCMD: Execute combined DT/OT. Detailed planning and execution of IOT&amp;E.</li> </ul>	
(U) \$0		
(U) \$1,380	<p>(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&amp;E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Defense IEMATS (DIRECT); Global Air Traffic Management (GATM); Global Transportation Network (GTN); Integrated Broadcast System (IBS); ICBM Minuteman MEECN Program (ICBM MMP); Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and C2 Evacuation System (TRAC2ES); Global Transportation Network (GTN), and other systems.</p> <ul style="list-style-type: none"> <li>- DCAPES: Execute combined DT/OT and OUE.</li> <li>- DCGS: Execute combined DT/OT. Detailed planning for IOT&amp;E.</li> <li>- DIRECT: Execute IOT&amp;E and write final report. Advance planning for FOT&amp;E.</li> <li>- GATM: Execute EOA. Detailed planning and execution of combined DT/OT.</li> <li>- GTN: Execute combined DT/OT and write OFT report.</li> <li>- IBS: Execute OUEs Advance planning for MOT&amp;E.</li> <li>- ICBM MMP: Detailed planning and execution of combined DT/OT and IOT&amp;E.</li> </ul>	
Project 660191	Page 5 of 10 Pages	Exhibit R-2 (PE 0605712F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>660191</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> <li>- R/SAOC: Execute OFT and IOT&amp;E. Advance planning for FOT&amp;E.</li> <li>- TBM-CS: Execute combined DT/OT. Advance planning for IOT&amp;E.</li> <li>- TRAC2ES: Continue combined DT/OT. Detailed planning and execution of IOT&amp;E. Write final report.</li> <li>- GTN: DT/OT final report was published Oct 99.</li> </ul>	
(U) \$0		
(U) \$1,331	<p>(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&amp;E activities, to include the following: Combat Survivor Evader Locator (CSEL); Defense Civilian Personnel Data System (DCPDS); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Computer Aided Acq and Log Systems (JCALS); Joint Mission Planning System (JMPS); Joint Precision Approach &amp; Landing system (JPALS); Joint Service Elec Combat System Tester (JSECST); Joint Simulation System (JSIMS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Tactical Weather Radar (TWR); Common Low Observable Verification System (CLOVerS), and other systems.</p> <ul style="list-style-type: none"> <li>- CSEL: Detailed planning and execute combined DT/OT and OA. Advance planning for IOT&amp;E.</li> <li>- DCPDS: Detailed planning and execution of IOT&amp;E.</li> <li>- ILS-S: Execute combined DT/OT, OFT, and IOT&amp;E</li> <li>- JAMSS: Execute combined DT/OT. Detailed planning for IOT&amp;E.</li> <li>- JCALS: Execute incremental combined DT/OT events and dedicated OT events.</li> <li>- JMPS: Detailed planning and execution of EOA. Advance planning for IOT&amp;E.</li> <li>- JPALS: Advance planning and execution of EOA.</li> <li>- JSECST: Execute combined DT/OT and IOT&amp;E. Write final report.</li> <li>- JSIMS: Plan and execute B2 CE OA and write final report (National Air Space Model (NASM) was combined with JSIMS).</li> <li>- NGSL: Complete OA and write report. Detailed planning for IOT&amp;E.</li> <li>- RSA: Execute incremental OUEs</li> <li>- TWR: Complete IOT&amp;E and write final report.</li> <li>- CLOVerS: Advance planning for IOT&amp;E (listed in the General category in the Feb 1999 R-2 Exhibit).</li> </ul>	
(U) \$0		
(U) \$1,106	<p>(U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.</p> <ul style="list-style-type: none"> <li>- Test Capabilities Infrastructure: Developing software evaluation tools, non-MRTFB instrumentation, and missile warning sensor stimulator.</li> </ul>	
(U) \$26,510	Total	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>February 2000</b> <b>660191</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$15,795	(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Airborne Laser (ABL); F-15 APG-63 Radar Upgrade (APG-63); Advanced Strategic & Tactical IR Expendable (ASTE); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; Common Missile Warning System (CMWS); CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Joint Strike Fighter (JSF); Miniature Air Launched Decoy (MALD); and other systems. - ABL: Detailed planning for EOA2. Advance planning for combined DT/OT, and IOT&E. - APG-63: Execute IOT&E Phase II and write final report. - ASTE: Conduct incremental IOT&E. Advance planning for FOT&E. - B-1B CMUP Block E: Complete IOT&E and write final test report. - B-1B CMUP Block F: Complete OA and write report; continue combined DT/OT. Detailed planning for IOT&E. - CMWS: Advance planning for combined DT/OT and IOT&E. - CV-22: Continuing combined DT/OT. Detailed planning for CV-22 IOT&E. - F-15 FOTD: Advance planning for combined DT/OT and IOT&E. - F-22: Execute OA. Detailed planning and execution of combined DT/OT. Detailed planning for IOT&E. - JSF: Execute EOA. Advance planning for combined DT/OT. - MALD: Execute IOT&E and write final report.	
(U) \$0		
(U) \$1,295	(U) CATEGORY: SPACE SYSTEM. Plan, execute, and report IOT&E activities, to include the following: Advanced EHF Satellite Communications (Advanced EHF); Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite Block IIR (GPS IIR); National Polar-Orbit Ops Environment Satellite System (NPOESS); MILSTAR II; Space Based InfraRed System (SBIRS); and other systems. - Advanced EHF: Execute OA and write report. - EELV: Complete OA and write report. Detailed planning for IOT&E. - GBS: Complete MOT&E and write final report. Execute FOT&E. - GPS IIR: Execute combined DT/OT. Advance planning for IOT&E. - MILSTAR II: Complete MOT&E and write final report. - NPOESS: Conduct OA and write report. - SBIRS: Continue performing OUEs to support Increment 2 ground system upgrades.	
(U) \$0		
Project 660191	Page 7 of 10 Pages	Exhibit R-2 (PE 0605712F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605712F Initial Operational Test &amp; Evaluation</b>	<b>660191</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$6,883	(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include the following: Agent Defeat Weapon (ADW); AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); Joint Air-to-Surface Standoff Missile (JASSM); Joint Standoff Weapon (JSOW); and other systems. - ADW: Early Involvement. - AIM-9X: Continue detailed planning and execute IOT&E. - HTSF: Detailed planning and execution of IOT&E. - JASSM: Detailed planning and execution of IOT&E. - JSOW: Advance planning for FOT&E.	
(U) \$0		
(U) \$1,219	(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Global Air Traffic Management (GATM); Integrated Broadcast System (IBS); ICBM Minuteman MEECN Program (ICBM MMP); Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); Global Transportation Network (GTN), and other systems. - DCAPES: Complete OUE and write final report. - DCGS: Complete combined DT/OT and execute IOT&E. - GATM: Continue to execute combined DT/OT. - IBS: Detailed planning and execution of MOT&E. - ICBM MMP: Complete IOT&E and write final report. - R/SAOC: Execute FOT&E. - TBM-CS: Execute Combined DT/OT. Detailed planning for IOT&E. - GTN: DT/OT final report was published Oct 99.	
(U) \$0		
(U) \$1,546	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include the following: Combat Survivor Evader Locator (CSEL); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Mission Planning System (JMPS); Joint Precision Approach & Landing system (JPALS); Joint Simulation System (JSIMS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Common Low Observable Verification System (CLOVerS), and other systems. - CSEL: Detailed planning for IOT&E.	

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																							
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT <b>660191</b>																																																							
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <b><u>FY 2001 (\$ in Thousands) Continued</u></b></p> <ul style="list-style-type: none"> <li>- ILS-S: Advance planning for Combined Test Force (CTF) activities for next software release.</li> <li>- JAMSS: Detailed planning and execution of IOT&amp;E. Write final report.</li> <li>- JMPS: Detailed planning and execution of IOT&amp;E.</li> <li>- JPALS: Complete EOA and write report.</li> <li>- JSIMS: Plan and execute B3 CE OA and write final report.</li> <li>- NGSL: Execute IOT&amp;E and write final report.</li> <li>- RSA: Execute incremental OUEs.</li> <li>- CLOVerS: Detailed planning and execution of IOT&amp;E. Write final report.</li> </ul> <p>(U) \$0</p> <p>(U) \$1,500                      (U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.</p> <ul style="list-style-type: none"> <li>- Test Capabilities Infrastructure: Continue to develop test capability requirements and shortfalls (i.e. software evaluation tools, mod/sim, etc).</li> </ul> <p>(U) \$28,238                      Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program element is in Budget Activity 6, RDT&amp;E Management Support, because it funds weapon system IOT&amp;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.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right; width: 10%;"><u>FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">27,294</td> <td style="text-align: right;">23,819</td> <td style="text-align: right;">28,689</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">29,541</td> <td style="text-align: right;">27,219</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-2,247</td> <td style="text-align: right;">-131</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: right;">-406</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: right;">2,040</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: right;">-163</td> <td style="text-align: right;">-172</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: right;">-451</td> <td></td> </tr> </tbody> </table>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	27,294	23,819	28,689		(U) Appropriated Value	29,541	27,219			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-2,247	-131			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram		-406			d. Below Threshold Reprogram	2,040				e. Rescissions	-163	-172			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-451	
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																					
(U) Previous President's Budget (FY 2000 PBR)	27,294	23,819	28,689																																																						
(U) Appropriated Value	29,541	27,219																																																							
(U) Adjustments to Appropriated Value																																																									
a. Congressional/General Reductions	-2,247	-131																																																							
b. Small Business Innovative Research																																																									
c. Omnibus or Other Above Threshold Reprogram		-406																																																							
d. Below Threshold Reprogram	2,040																																																								
e. Rescissions	-163	-172																																																							
f. Other																																																									
(U) Adjustments to Budget Years Since FY 2000 PBR			-451																																																						
Project 660191	Page 9 of 10 Pages	Exhibit R-2 (PE 0605712F)																																																							

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605712F Initial Operational Test &amp; Evaluation</b>	PROJECT <b>660191</b>
---	--	--------------------------

(U) **C. Program Change Summary (\$ in Thousands) Continued**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Current Budget Submit/FY 2001 PBR	29,171	26,510	28,238	TBD

(U) **Significant Program Changes:**  
 FY99: a below threshold reprogramming increase of \$2,400K in support of Y2K requirements; reductions of \$360K to fund other Air Force Requirements.  
 FY00: The FY 2000 appropriated value includes a Congressional plus up of \$3.4M for IOT&E (no specific language).

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) **E. Acquisition Strategy**

N/A

(U) **F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4

(U) IOT&E is not an acquisition program  
 There are numerous IOT&E programs in any one fiscal year. Specific IOT&E schedules can be made available on a case-by-case basis through AFOTEC, Director of Operations.

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY		PE NUMBER AND TITLE							
<b>06 - Management and Support</b>		<b>0605807F Test and Evaluation Support</b>							
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	351,170	381,476	386,205	388,017	397,530	403,332	418,738	Continuing	TBD
6606TG 46 Test Group	19,172	21,292	20,718	22,691	23,070	23,542	23,638	Continuing	TBD
6606TS Test and Evaluation Support	331,998	360,184	365,487	365,326	374,460	379,790	395,100	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, maintenance and repair of test facilities, civilian payroll, and contractor services. It also provides resources for maintaining 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. Beginning in FY00, the justification narratives within each center have been modified to include standardized categories which better explain the nature of the test and evaluation infrastructure support activities.

**(U) B. Budget Activity Justification**

This program element is in Budget Activity 6, RDT&E Management Support, because it funds 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) C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	353,531	392,104	380,635	
(U) Appropriated Value	363,168	382,104		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-9,637	-396		
b. Small Business Innovative Research	0	0		
c. Omnibus or Other Above Threshold Reprogram	7,903	1,338		
d. Below Threshold Reprogram	-5,563			



UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

**06 - Management and Support**

**0605807F Test and Evaluation Support**

(U) C. Program Change Summary (\$ in Thousands) Continued

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
e. Rescissions	-1,964	-1,570		
f. Other	-2,737			
(U) Adjustments to Budget Years Since FY 2000 PBR			5,570	
(U) Current Budget Submit/FY 2001 PBR	351,170	381,476	386,205	TBD
(U) <u>Significant Program Changes:</u>				
FY00 Congressional adjustments: Program reduction of \$15M; Big Crow Program Office addition of \$5M.				
FY00 reductions funded other AF and DoD requirements.				

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>				PROJECT <b>6606TG</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
6606TG	46 Test Group	19,172	21,292	20,718	22,691	23,070	23,542	23,638	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>            This project funds test infrastructure overhead support including: Command and supervisory staffs; supply stocks; upkeep, refurbishment, repair, and replacement of non-repairable or obsolete test equipment; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries, utilities, temporary duty travel, support contract costs for hardware and software engineering and maintenance. 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 High Speed Test Track (HSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF). CIGTF provides independent assessments of inertial components, aircraft navigation systems, and missile guidance systems. HSTT 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 bi-static amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. The 46th TG support services contracts are awarded on the basis of full and open competition.</p>										
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>										
(U)	\$3,905	Central Inertial Guidance Test Facility (CIGTF): Provided infrastructure test support for programs such as Advanced Inertial Concepts (AICON), continued Global Positioning System-Joint Program Office (GPS-JPO) Responsible Test Organization (RTO) responsibilities, Project 2000 integration support, GPS jamming and electronic countermeasures, NAVWAR, Federal Aviation Administration (FAA), Wide Area Augmentation System, GPS integrated and embedded INS program, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as JDAM and other programs.								
(U)	\$4,554	Holloman High Speed Test Track (HHSTT): Provided infrastructure test support (including full-scale testing simulating in-flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography) for the F-22 Ejection System, Advanced Concepts Escape System (ACES) II, Continuous Improvement Program (CIP), Standard Missile (SM) 2 Seeker, SM 2 Live Fire T&E (LFT&E), Patriot Advanced Capability (PAC) 3 LFT&E, Theater High Altitude Area Defense (THAAD) LFT&E, and other programs.								
(U)	\$4,423	National RCS Cross Section Test Facility (NRTF): Provided infrastructure test support for programs such as static RCS testing for stores, low observable testbeds, and other classified programs.								
(U)	\$6,290	46th Test Group Headquarters (46TG): Provided command guidance, resource management, plans and programs, protection services, information systems, logistics, liaison support and scheduling for WSMR airspace, photo and safety chase, support of air-to-air and air-to-ground								
Project 6606TG		Page 3 of 11 Pages				Exhibit R-2A (PE 0605807F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605807F Test and Evaluation Support</b>	<b>6606TG</b>
(U) <b><u>A. Mission Description Continued</u></b>		
(U) <b><u>FY 1999 (\$ in Thousands) Continued</u></b>		
	live fire, life support equipment services, and aerospace ground equipment support.	
(U) \$19,172	Total	
	Beginning in FY00, the justification narratives within each center have been modified to include standardized categories which better explain the nature of the test and evaluation infrastructure support activities.	
(U) <b><u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$3,913	Continue test infrastructure overhead support to enable testing for unclassified program such as AICON, continued GPS-JPO RTO responsibilities, GPS jamming and electronic countermeasures, NAVWAR, FAA, Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as Joint Direct Attack Munition (JDAM), the F-22A Ejection Seat, Joint Strike Fighter (JSF), SM 2 Seeker, SM-2 Forward Looking Fuze, SM-2 LFT&E, PAC 3 LFT&E, THAAD LFT&E, Army Tactical Infrared Countermeasure System (ATIRCMS) Phase II, Long-Range Fiber Optic Guided (LONGFOG) missile, static RCS testing for stores, low observable testbeds, as well as multiple classified programs.	
(U) \$8,987	Contractor Services (in-house contract support activities)	
(U) \$8,392	T&E Civilian Pay. Filled technical positions.	
(U) \$21,292	Total	
(U) <b><u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$3,652	Continue test infrastructure overhead support to enable testing for unclassified program such as AICON, continued GPS-JPO RTO responsibilities, GPS jamming and electronic countermeasures, NAVWAR, FAA, Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems including B-2 and F-22, munitions navigation systems such as JDAM, the F-22A Ejection Seat, SM 2 Seeker, SM-2 Forward Looking Fuze, SM-2 FLT&E, PAC 3 LFT&E, THAAD LFT&E, ATIRCMS Phase II, LONGFOG missile, static RCS testing for stores, low observable testbeds, as well as multiple classified programs.	
(U) \$8,428	Contractor Services (in-house contract support activities)	
(U) \$8,638	T&E Civilian Pay	
(U) \$20,718	Total	
(U) <b><u>B. Project Change Summary</u></b>		
	(U) Significant Program Changes: None	

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b>	PROJECT <b>6606TG</b>
---	--	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) Related RDT&E:									
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)	400	0	0	949	1,018	1,098	1,255		TBD
(U) PE 0604256F, Threat Simulator	1,774	2,003	1,705	2,075	2,140	1,743	1,934		TBD
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2001 through FY2005 are To Be Determined.	6,500	8,395							TBD

(U) **D. Acquisition Strategy**

Not applicable

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
(U) N/A	1	2	3	4	1	2	3	4	1	2	3	4

46TG infrastructure support operations are continuous and are not driven by discrete start/end dates.

**UNCLASSIFIED**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>06 - Management and Support</b>				<b>PE NUMBER AND TITLE</b> <b>0605807F Test and Evaluation Support</b>				<b>PROJECT</b> <b>6606TS</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
6606TS Test and Evaluation Support	331,998	360,184	365,487	365,326	374,460	379,790	395,100	Continuing	TBD

**(U) A. Mission Description**

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, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance. Test and Evaluation (T&E) Support funds test infrastructure overhead 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; support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds overhead 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 test infrastructure overhead supports operations for the largest complex of ground test facilities in the free 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). (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose test infrastructure overhead 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, and Electronic Warfare (EW) systems for DoD and allied forces. The AFFTC mission includes the United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC provides the test infrastructure and overhead 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 provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), AGM-130, 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.

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>		<b>DATE</b> February 2000
<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT</b>
<b>06 - Management and Support</b>	<b>0605807F Test and Evaluation Support</b>	<b>6606TS</b>
(U) <b><u>A. Mission Description Continued</u></b>		
(U) <b><u>FY 1999 (\$ in Thousands)</u></b>		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$101,188	Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, Joint Strike Fighter (JSF), B-1B, B-2, C-130, Advanced Medium Range Air to Air Missile (AMRAAM), Air Intercept Missile (AIM) 9X, Minuteman, Evolved Expandable Launch Vehicle (EELV), Titan IV, F-18, F404, F414, F119, and Tunnel 9).	
(U) \$13,436	T&E specific Base Operating Support (BOS) requirements.	
(U) \$16,376	Maintenance, repair and minor construction for test infrastructure requirements.	
(U) \$0		
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$96,009	Continued to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, Advanced Fighter Technology Integration (AFTI)/F-16, C-17, Avionics Test and Integration Complex (ATIC), Advanced Range Instrumentation Aircraft (ARIA), Electronic Combat Countermeasures (ECCM), EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.) and classified programs.	
(U) \$21,800	USAF Test Pilot School operating costs.	
(U) \$4,544	Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.	
(U) \$3,187	T&E specific BOS requirements.	
(U) \$1,460	Maintenance, repair and minor construction for test infrastructure requirements.	
(U) \$0		
(U) \$0	AIR ARMAMENT CENTER (AAC)	
(U) \$62,931	Continued test infrastructure support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, Theater Missile Defense (TMD), JDAM, Joint Stand-Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface Stand-Off Missile (JASSM) etc.); C4I/Command and Control Consolidated Test Force (C2CTF) (JTIDS, Base and Installation Security System (BISS), TMD, Theater Battle Management Core System (TBMCS), and aircraft software upgrades (Air Force Mission Support System (AFMSS)).	
(U) \$2,384	Programmed Depot Maintenance and engine overhauls for aircraft assigned to AAC.	
(U) \$7,044	T&E specific BOS requirements.	
(U) \$1,639	Maintenance, repair and minor construction for test infrastructure requirements.	
(U) \$331,998	Total	
<p>Beginning in FY00, the justification narratives within each center have been modified to include standardized categories which better explain the nature of the test and evaluation infrastructure support activities.</p>		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>0605807F Test and Evaluation Support</b>	<b>6606TS</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$6,581	Continue test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV, F-18, F404, F414, F119, and Tunnel 9).	
(U) \$21,200	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$95,600	Contractor Services (in-house contract support activities).	
(U) \$11,954	T&E Civilian Pay.	
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 0603790F, NATO Cooperative R&D.	
(U) \$0		
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$28,137	Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs. Provide funds for deferred and current equipment requirements.	
(U) \$5,323	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$31,373	Contractor Services (in-house contract support activities).	
(U) \$60,185	T&E Civilian Pay.	
(U) \$21,954	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include deferred and projected programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL), increased depot level reparable (DLR) costs and related support. Global Hawk and F-22 workload increased.	
(U) \$0		
(U) \$0	AIR ARMAMENT CENTER (AAC)	
(U) \$6,870	Continue test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.	
(U) \$2,966	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$17,317	Contractor Services (in-house contract support activities).	
(U) \$40,148	T&E Civilian Pay.	
Project 6606TS	Page 8 of 11 Pages	Exhibit R-2A (PE 0605807F)

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>		DATE <b>February 2000</b>
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605807F Test and Evaluation Support</b> PROJECT <b>6606TS</b>	
(U) <b><u>A. Mission Description Continued</u></b>		
(U) <b><u>FY 2000 (\$ in Thousands) Continued</u></b>		
(U) \$10,326	Aircraft Support (Includes deferred and projected programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support). Fund proficiency flying to minimum levels allowing AAC to meet proficiency flying goals.	
(U) \$360,184	Total	
(U) <b><u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$6,698	Continue test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV, F-18, F404, F414, F119, and Tunnel 9).	
(U) \$21,743	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$97,800	Contractor Services (in-house contract support activities).	
(U) \$12,232	T&E Civilian Pay.	
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 06063790F, NATO Cooperative R&D.	
(U) \$0		
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$29,037	Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.	
(U) \$5,622	Utilities and maintenance and repair for test unique infrastructure; continuing to reduce backlog.	
(U) \$33,505	Contractor Services (in-house contract support activities) increased due to privatization efforts.	
(U) \$54,320	T&E Civilian Pay (adjusted due to reengineering and privatization efforts).	
(U) \$23,352	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL); and related support; includes POL and DLR increases.	
(U) \$0		
(U) \$0	AIR ARMAMENT CENTER (AAC)	
(U) \$7,543	Continue test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.	
(U) \$3,121	Utilities and maintenance and repair for test unique infrastructure.	
Project 6606TS	Page 9 of 11 Pages	Exhibit R-2A (PE 0605807F)



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT		
<b>06 - Management and Support</b>			<b>0605807F Test and Evaluation Support</b>				<b>6606TS</b>		
(U) <b><u>A. Mission Description Continued</u></b>									
(U) <u>FY 2001 (\$ in Thousands) Continued</u>									
(U)	\$20,548	Contractor Services (in-house contract support activities).							
(U)	\$39,717	T&E Civilian Pay.							
(U)	\$9,999	Aircraft Support (Includes programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support).							
(U)	\$365,487	Total							
(U) <b><u>B. Project Change Summary</u></b>									
(U) Significant Program Change: None									
(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) Related RDT&E:									
(U)	PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)	40,117	46,038	55,326	47,804	45,781	54,088	65,937	TBD
(U)	PE 0604256F, Threat Simulator Development	22,656	25,175	26,115	26,328	27,816	30,636	31,059	TBD
(U)	PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2001 through FY2005 are To Be Determined.	28,928	34,530						TBD
Project 6606TS									
Page 10 of 11 Pages									
Exhibit R-2A (PE 0605807F)									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE February 2000

BUDGET ACTIVITY  
06 - Management and Support

PE NUMBER AND TITLE  
0605807F Test and Evaluation Support

PROJECT  
6606TS

(U) D. Acquisition Strategy  
Not applicable.

(U) E. Schedule Profile

<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4

(U) N/A  
Most T&E test infrastructure overhead requirements are continuous and are not driven by discrete start/end dates.

**THIS PAGE INTENTIONALLY LEFT BLANK**

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605808F Development Planning</b>				PROJECT <b>663361</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
663361 Mission & System Planning	3,908	0	0	0	0	0	0	3,908	3,908
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
* PE terminated									
<p>(U) <b><u>A. Mission Description</u></b>            This Program Element (PE) supports the Air Force Modernization Planning Process (MPP), which receives front-end guidance from Air Force Strategic Planning. Consistent with DoD 5000 series direction, the PE enables rigorous identification and substantiation of current/future operational deficiencies and needed capability, as well as associated migration plans. Such modernization planning efforts can be categorized according to three phases. First, a 'strategies-to-task', Mission Area Assessment (MAA) is conducted to identify operational tasks. These operational tasks must relate directly to currently assigned or future Air Force roles and missions as derived from a number of sources including the Air Force Vision and Strategic Plan. Second, a Mission Needs Analysis (MNA) is conducted to assess current and programmed force capabilities against operational tasks and ultimately identify specific deficiencies and needs. The third phase of the MPP is Mission Solution Analysis (MSA), which identifies potential cost effective, non-materiel (i.e. doctrine, tactics, training) and materiel alternatives that address the deficiencies/needs, or simply represent new organizational, operational, and/or technological opportunities.</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>									
(U) \$443	Analyzed operational concepts and identify technology needs for future non-lethal Suppression of Enemy Air Defenses (SEAD)								
(U) \$470	Initiated effort to assess AF Special Operations Forces (SOF) Aircraft multi-spectral survivability for various SOF mission areas								
(U) \$579	Quantified the impact of Weapons of Mass Destruction on air mobility operations in contingencies								
(U) \$540	Conducted effort to analyze campaign and mission-level space force deficiency/capability through use and upgrade of detailed campaign models								
(U) \$289	Assessed the capabilities of existing and planned weather data collection sensors, and identify the most effective strategy to support warfighter								
(U) \$241	Initiated effort to improve Combat Forces Assessment Model for direct evaluation of SEAD effectiveness against Integrated Air Defenses								
(U) \$700	Initiated mission solution analysis, including campaign level analyses, for future long-range conventional strike aircraft								
(U) \$646	Initiated effort to develop and implement a common analytical framework and tool set to assess the military utility of air and space capabilities								
(U) \$3,908	Total								

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605808F Development Planning</b>	PROJECT <b>663361</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>* no appropriation</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>* PE terminated</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in budget activity 6, Management Support, because supported studies and analyses provide inputs for Air Force Mission Area and/or Support Plans and future Air Force investment decisions. However, Phase 0 concepts studies and Analysis of Alternatives (AOAs) are not normally conducted in this program element</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right; width: 10%;"><u>FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">4,053</td> <td style="text-align: right;">5,696</td> <td style="text-align: right;">5,751</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">4,075</td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-22</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-123</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-22</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: right;">-5,751</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: right;">3,908</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td></td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b>  FY00-no appropriation  Out years-PE terminated</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	4,053	5,696	5,751		(U) Appropriated Value	4,075	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-22				b. Small Business Innovative Research	-123				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions	-22				f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-5,751		(U) Current Budget Submit/FY 2001 PBR	3,908	0	0	
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	4,053	5,696	5,751																																																											
(U) Appropriated Value	4,075	0																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-22																																																													
b. Small Business Innovative Research	-123																																																													
c. Omnibus or Other Above Threshold Reprogram																																																														
d. Below Threshold Reprogram																																																														
e. Rescissions	-22																																																													
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			-5,751																																																											
(U) Current Budget Submit/FY 2001 PBR	3,908	0	0																																																											
Project 663361	Page 2 of 3 Pages	Exhibit R-2 (PE 0605808F)																																																												

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605808F Development Planning</b>	PROJECT <b>663361</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) **E. Acquisition Strategy**  
 Annually (in February), an Air Force-wide corporate board reviews, prioritizes, and screens proposed studies to definitize the program, ensuring relevance and no unnecessary duplication of effort.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) (U) Execute projects												
(U) - Conops and Technology for Future Non-lethal SEAD		X	X	X	X	X	X	X				
(U) - SOF Aircraft Multi-spectral Survivability		X	X	X	X							
(U) - WMD Impact on Air Mobility Ops		X	X	X	X	X						
(U) - Upgrade/use Detailed Campaign Model for Space Force Deficiency Analysis		X	X	X								
(U) - Weather Data Collection Study		X	X	X	X	X						
(U) - Improve Combat Forces Assessment Model		X	X	X	X	X						
(U) - Future Long-Range Conventional Strike Aircraft			X	X	X	X						
(U) - Common Analytical Framework for Air and Space Capability	X	X										
* Completed Event - Task Initiation												

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605854F Pollution Prevention</b>				PROJECT <b>661007</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
661007	Pollution Prevention	4,956	2,498	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

All funds were transferred from PE 65854F, Budget Activity 6 (Management & Support) to PE 63859F, Budget Activity 4 (Demonstration and Validation) beginning in FY01 to reflect the primary purpose of the funding profile.

(U) **A. Mission Description**  
 Beginning in FY99, all funds for Test Facility base operations support (RDT&E) were transferred to operations and maintenance. Remaining RDT&E funds were for development and test efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes, cross-cutting weapons systems pollution prevention tools, and management and support costs in direct support of development efforts to meet compliance problems.

FY00 funds target efforts that demonstrate and validate alternate aircraft painting/depainting, maintenance processes which reduce the compliance burden associated with National Emissions Standard for Hazardous Air Pollutants (NESHAP), Clean Air Act and other environmental 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 replacement for cadmium plating.

(U) **FY 1999 (\$ in Thousands)**

(U)	\$294	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste
(U)	\$75	Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste
(U)	\$294	Clean Air Act
(U)	\$100	Clean Water Act
(U)	\$621	Hazardous Material Reduction
(U)	\$223	Other
(U)	\$3,349	Dem/Val of Advanced Low Pollution Coating Technologies
(U)	\$4,956	Total

Project 661007 Page 1 of 3 Pages Exhibit R-2 (PE 0605854F)



UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																																									
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605854F Pollution Prevention</b>	PROJECT <b>661007</b>																																																																									
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr> <td style="width: 10%;">(U) \$505</td> <td>Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste</td> </tr> <tr> <td>(U) \$100</td> <td>Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste</td> </tr> <tr> <td>(U) \$899</td> <td>Clean Air Act</td> </tr> <tr> <td>(U) \$235</td> <td>Clean Water Act</td> </tr> <tr> <td>(U) \$549</td> <td>Hazardous Material Reduction</td> </tr> <tr> <td>(U) \$210</td> <td>Other</td> </tr> <tr> <td>(U) \$2,498</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr> <td style="width: 10%;">(U) \$0</td> <td>No Activity</td> </tr> <tr> <td>(U) \$0</td> <td>Total</td> </tr> </table> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in Budget Activity (BA) 6, Management and Support, because the majority of funding is directed toward support of test facilities required for general research and development use. Beginning in FY99, all O&amp;M funds for test facility operations were transferred to O&amp;M accounts. Action to change to BA 4, Demonstration and Validation, is complete and all remaining funds in this account were transferred to PE 63859F in FY01, as they are primarily for RDT&amp;E Dem/Val of pollution prevention technologies.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 55%;"></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">5,144</td> <td style="text-align: right;">2,553</td> <td></td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">5,173</td> <td style="text-align: right;">2,553</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-29</td> <td style="text-align: right;">-1</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-160</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: right;">-38</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-28</td> <td style="text-align: right;">-16</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> </tbody> </table>			(U) \$505	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste	(U) \$100	Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste	(U) \$899	Clean Air Act	(U) \$235	Clean Water Act	(U) \$549	Hazardous Material Reduction	(U) \$210	Other	(U) \$2,498	Total	(U) \$0	No Activity	(U) \$0	Total		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	5,144	2,553			(U) Appropriated Value	5,173	2,553			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-29	-1			b. Small Business Innovative Research	-160				c. Omnibus or Other Above Threshold Reprogram		-38			d. Below Threshold Reprogram					e. Rescissions	-28	-16			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR		0		
(U) \$505	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste																																																																										
(U) \$100	Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste																																																																										
(U) \$899	Clean Air Act																																																																										
(U) \$235	Clean Water Act																																																																										
(U) \$549	Hazardous Material Reduction																																																																										
(U) \$210	Other																																																																										
(U) \$2,498	Total																																																																										
(U) \$0	No Activity																																																																										
(U) \$0	Total																																																																										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																																							
(U) Previous President's Budget (FY 2000 PBR)	5,144	2,553																																																																									
(U) Appropriated Value	5,173	2,553																																																																									
(U) Adjustments to Appropriated Value																																																																											
a. Congressional/General Reductions	-29	-1																																																																									
b. Small Business Innovative Research	-160																																																																										
c. Omnibus or Other Above Threshold Reprogram		-38																																																																									
d. Below Threshold Reprogram																																																																											
e. Rescissions	-28	-16																																																																									
f. Other																																																																											
(U) Adjustments to Budget Years Since FY 2000 PBR		0																																																																									
Project 661007	Page 2 of 3 Pages	Exhibit R-2 (PE 0605854F)																																																																									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000	
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605854F Pollution Prevention</b>			PROJECT <b>661007</b>	
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>								
				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		<u>Total Cost</u>
(U)	Current Budget Submit/FY 2001 PBR			4,956	2,498			TBD
(U)	<u>Significant Program Changes:</u>							
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>								
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>Cost to Complete</u>
(U)	AF RDT&E							TBD
(U)	Other APPN							
	Not Applicable							
(U)	<b>E. Acquisition Strategy</b>							
	Not applicable							
(U)	<b>F. Schedule Profile</b>							
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
				1	2	3	4	1
								2
								3
								4
(U)	Contract Award of ALPCT Efforts							
					*			
(U)	Prototype Development					X		
(U)	Demonstration/Validation					X	X	
(U)	Contract Completion							X

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000			
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605860F Rocket Systems Launch Program (RSLP)</b>				PROJECT <b>661023</b>			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
661023	Rocket System Launch Program (RSLP)	14,235	7,732	7,906	8,015	8,158	8,321	8,486	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	
<p>(U) <b><u>A. Mission Description</u></b>            Rocket System Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&amp;E) launch vehicle support to DoD and other government agencies using excess ballistic missiles assets. RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposal, maintenance and logistics support for selected DoD RDT&amp;E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Ballistic Missile Defense Organization (BMDO), etc.). RSLP directly supports deactivation of Minuteman II by providing storage of these and other assets. RSLP performs research and development support operations required for general rocket system launch research and development use.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$6,023 Continued storage and refurbishment of deactivated Minuteman and other missile flight test assets.            (U) \$1,649 Continued to perform aging surveillance-related activities on stored motors; continued to perform analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.            (U) \$6,563 Performed Advanced Solid Axial Stage (ASAS) development and related activities.            (U) \$0 Continued to provide launch assets and technical assistance for DoD RDT&amp;E launches. (Funded by users.)            (U) \$14,235 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$6,157 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.            (U) \$1,575 Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.            (U) \$0 Continue providing launch assets and technical assistance for DoD RDT&amp;E launches. (Funded by users.)            (U) \$7,732 Total</p>											
Project 661023				Page 1 of 3 Pages				Exhibit R-2 (PE 0605860F)			

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605860F Rocket Systems Launch Program (RSLP)</b>	PROJECT <b>661023</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$6,228 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.</p> <p>(U) \$1,678 Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.</p> <p>(U) \$0 Continue providing launch assets and technical assistance for DoD RDT&amp;E launches. (Funded by users.)</p> <p>(U) \$7,906 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b>          This program is in Budget Activity 6 - Management and Support because RSLP provides research and development effort and/or operations support for general research and development use.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 55%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 15%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">14,496</td> <td style="text-align: center;">7,913</td> <td style="text-align: center;">7,976</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">14,865</td> <td style="text-align: center;">7,913</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: center;">-369</td> <td style="text-align: center;">-1</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: center;">-118</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-119</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: center;">-63</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: center;">-80</td> <td style="text-align: center;">-61</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: center;">-70</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">14,235</td> <td style="text-align: center;">7,732</td> <td style="text-align: center;">7,906</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b>          Due to scheduling conflicts, the two Advanced Solid Axial Stage (ASAS) experiments have been delayed until 2nd and 3rd Qtr FY00 respectively; however as these are piggyback experiments, no additional costs above those already budgeted will be incurred. No other changes to either content or cost. FY01 adjustment funded higher Air Force priorities.</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	14,496	7,913	7,976	TBD	(U) Appropriated Value	14,865	7,913			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-369	-1			b. Small Business Innovative Research	-118				c. Omnibus or Other Above Threshold Reprogram		-119			d. Below Threshold Reprogram	-63				e. Rescissions	-80	-61			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-70		(U) Current Budget Submit/FY 2001 PBR	14,235	7,732	7,906	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	14,496	7,913	7,976	TBD																																																										
(U) Appropriated Value	14,865	7,913																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-369	-1																																																												
b. Small Business Innovative Research	-118																																																													
c. Omnibus or Other Above Threshold Reprogram		-119																																																												
d. Below Threshold Reprogram	-63																																																													
e. Rescissions	-80	-61																																																												
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			-70																																																											
(U) Current Budget Submit/FY 2001 PBR	14,235	7,732	7,906	TBD																																																										
Project 661023	Page 2 of 3 Pages	Exhibit R-2 (PE 0605860F)																																																												

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>06 - Management and Support</b>	<b>PE NUMBER AND TITLE</b> <b>0605860F Rocket Systems Launch Program (RSLP)</b>	<b>PROJECT</b> <b>661023</b>
--	--	---------------------------------

<b>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></b>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										
<b>(U) <u>E. Acquisition Strategy</u></b> Not Applicable.										
<b>(U) <u>F. Schedule Profile</u></b>										
				<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3	4
(U) Storage/Refurbishment (On-Going)										
(U) Aging Surveillance (On-Going)										
(U) Flight Tests (ait Project)			*			*				
(U) ASAS Experiments (2 planned)							X	X		
* - Completed Event X - Planned Event										

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>0605864F Space Test Program</b>				PROJECT <b>662617</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
662617	Free-Flyer Spacecraft Missions	40,397	50,402	46,476	50,576	53,683	54,254	55,827	Continuing	0
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

(U) The Space Test Program (STP) conducts space test missions to fly the maximum number of DoD experiments consistent with priority, opportunity, and funding. STP supports the DoD space research community by centrally financing acquisition of a host satellite or launch vehicle, the launch, and initial operations costs for experiments with military relevance whose scope ranges from basic research to advanced development. STP missions are the most cost effective way to flight test new space systems technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Develop the knowledge base from which to plan new and improved operational systems and system upgrades
- Develop and test advanced small launch vehicle technology and capabilities

(U) This DoD program provides the primary spaceflight capability to perform fly-before-buy, risk-reducing demonstrations of advanced technologies in operational space environments. The Secretary of Defense issued a policy statement in November 1995 reaffirming STP's role as the primary provider of spaceflight for the entire DoD space research community. The Air Force requires a stable funding level and the flexibility necessary to take advantage of whatever means of spaceflight is deemed to be most cost effective for a given experiment or complement of experiments. This flexibility is essential to take advantage of inexpensive 'target of opportunity' space hardware, including operational spacecraft, where margin is usually firmly identified during the later stages of spacecraft development. This assures that the greatest amount of DoD space research is accomplished with the limited funds available. This funding provides DoD's most successful and cost-effective capability to launch and test new technologies prior to their incorporation into our nation's very expensive and demanding operational space systems. Insufficient funding would force each of the Services and DoD agencies to create individual launch capabilities in an attempt to duplicate STP's current low-cost, risk-mitigating capability. Such a redundancy would result in the loss of the contractual economy of scale that a single space test organization provides, as well as the filtering function of the DoD Space Experiments Review Board in assuring quality experiments and minimum duplication.



## UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY <b>06 - Management and Support</b>		February 2000
PE NUMBER AND TITLE <b>0605864F Space Test Program</b>		PROJECT <b>662617</b>
(U)	<b><u>A. Mission Description Continued</u></b>	
(U)	<u>FY 1999 (\$ in Thousands)</u>	
(U)	\$8,600	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support
(U)	\$2,439	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support
(U)	\$12,857	Initiated experiment missions from 1998 Space Experiments Review Board (SERB) list - MightySat II.1, Coriolis, reusable upper stage/bus development
(U)	\$16,501	Continued current missions - Tri-Service Space Experiment 5 (TSX-5), Multi-spectral Thermal Imager (MTI), and Advanced Research and Global Observation Satellite (ARGOS) launch/operations
(U)	\$40,397	Total
(U)	<u>FY 2000 (\$ in Thousands)</u>	
(U)	\$13,305	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support
(U)	\$3,150	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support
(U)	\$5,346	Initiate experiment missions from 1999 SERB list, such as Communication/Navigation Outage Forecasting System (C/NOFS)
(U)	\$28,601	Continue current missions - Coriolis, launch MTI, operations for ARGOS, launch/operations for TSX-5, MightySat II.1
(U)	\$50,402	Total
(U)	<u>FY 2001 (\$ in Thousands)</u>	
(U)	\$10,945	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support
(U)	\$3,200	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support
(U)	\$17,346	Initiate experiment missions from 1999 and 2000 SERB lists, such as Super Transmission/Remote Atmospheric Ionospheric Detection System Integrated Polar Experiment (STRIPE) and Coronal Mass Ejection Warning System (CMEWS)
(U)	\$14,985	Continue current missions - C/NOFS; operations for TSX-5 and MightySat II.1
(U)	\$46,476	Total
	Note: New missions and funding priorities evolve as spaceflight opportunities, budget, and DoD experiment rankings change.	
(U)	<b><u>B. Budget Activity Justification</u></b>	
	STP is in Budget Activity 6, RDT&E Management and Support, because it supports RDT&E satellite launches.	
Project 662617		Exhibit R-2 (PE 0605864F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
<b>06 - Management and Support</b>				<b>0605864F Space Test Program</b>			<b>662617</b>			
<b>(U) <u>C. Program Change Summary (\$ in Thousands)</u></b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>		
(U)	Previous President's Budget (FY 2000 PBR)		45,439	51,658	49,389					
(U)	Appropriated Value		45,933	51,658						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-494	-81						
	b. Small Business Innovative Research		-1,399							
	c. Omnibus or Other Above Threshold Reprogram			-772						
	d. Below Threshold Reprogram		-3,417							
	e. Rescissions		-226	-403						
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR				-2,913					
(U)	Current Budget Submit/FY 2001 PBR		40,397	50,402	46,476					
(U)	<u>Significant Program Changes:</u>									
	Space Test Program (Space) is funded in PE 0605864F starting in FY99. Prior year funding is in PE 0603402F. FY01 reductions support higher AF priorities.									
<b>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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:									
(U)	PE 0305119F, Medium Launch Vehicles									
(U)	PE 0305144F, Titan Space Boosters									
(U)	PE 0305953F, Evolved Expendable Launch Vehicle									
					75,000					
	Experiments are funded by many Science and Technology (S&T) PEs in Air Force, Army, Navy, DARPA, BMDO, DoE, NASA, and other programs.									

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605864F Space Test Program</b>	PROJECT <b>662617</b>
---	---	--------------------------

**(U) E. Acquisition Strategy**

Various service laboratories and DoD agencies justify, develop, finance, and deliver the space research experiments supported by STP. These experiments have a common goal to improve DoD's current and future operational space systems' performance. The DoD Space Experiments Review Board (SERB), an independent board composed of Air Force, Army, Navy, Joint Staff, NRO, BMDO, and other representatives, annually prioritizes experiments for spaceflight. The SERB gives the prioritized list of experiments to STP, which then seeks out the most cost-effective means of spaceflight to maximize the number of experiments flown within the constraints of priority, opportunity and available funding. The most common spaceflight opportunities include piggybacking on military or commercial satellites and using the various payload modes of the Space Shuttle and International Space Station. For experiments with requirements that cannot be satisfied with these 'secondary' opportunities, STP procures dedicated spacecraft and launch vehicle hardware within the constraints of available funding and according to experiment requirements. These include small and medium satellite busses, as well as small launch vehicle-class boosters (such as Pegasus XL, Taurus, and Athena). Medium launch vehicle-class boosters from PE 35119F (MLV), PE 35144F (Titan), and PE 35953F (EELV) provide medium launch as required. If a service fails to adequately fund a particular experiment, if STP deems the experiment impractical to fly, or if the appropriate spaceflight opportunity becomes unavailable, STP shifts remaining resources to provide spaceflight support for the next highest priority experiment.

**(U) F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) STS-88 - MightySat 1, SIMPLEX	*											
(U) STS-95 CRYOTSU, MSX, MEMS, CCM-A, PANSAT, SIMPLEX, TASBE	*											
(U) ARGOS(DeltaII)-ESEX,USA,GIMI,CERTO,SPADUS,HIRAAS, HTSSE,EUVIP,CIV (P91-1)												
(U) STS-93 STL-B, CCM-C, MSX, LFSAH, SIMPLEX, MEMS				*								
(U) POGS-II (DMSP-15) (S92-1)					*							
(U) CHAWS-LD (OSP) (S99-2)								*				
(U) CEASE, CERTO PLUS (STRV1 C/D) (S97-1, S97-2)								X				
(U) MTI/HXRS (Taurus) (P97-3)								X				
(U) TSX-5 (Pegasus XL)-STRV II, CEASE (P95-2)									X			
(U) SINDRI/MightySat II.1 (OSP) (P99-1)									X			
(U) STS-100** (ISS-6A) MACE										X		
(U) PICOSat (TBD LV)- PBEX, IOX, CERTO, OPPEX (P97-1)										X		
(U) STS-107** ACSBIRS, STW/AR, CCM-C											X	

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>0605864F Space Test Program</b>	PROJECT <b>662617</b>
---	---	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) STS-109** (ISS UF-2) MEMS-ER												X
(U) Coriolis (Titan II) (P98-2) 1QFY02												
(U) C/NOFS (TBD LV) (P00-a) 2QFY03												
(U) * = completed event												
(U) **New spaceflight opportunity since FY00PB												
(U) X = planned launch												

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>06 - Management and Support</b>				PE NUMBER AND TITLE <b>1001004F International Activities</b>				PROJECT <b>664645</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
664645 International Cooperative Research & Development	3,543	3,660	3,773	3,825	3,862	3,939	4,017	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.</p> <p>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 funds the Department of the Air Force to support, 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 domestic and international technology assessment teams; specialized working groups; long-term technology project developments; support for cooperative opportunity assessments; developing, processing, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&amp;D) projects; overseas R&amp;D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds USAF participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$100 NATO C3 Agency (NC3A) - Funded the US R&amp;D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative research and development activities assigned to the NC3A.</p> <p>(U) \$243 Engineer and Scientist Exchange Program (ESEP) - Funded the Air Force execution and the management oversight of ESEP. Funded approximately nine field level military and civilian scientists from Air Force Research Laboratory, for two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are in place with 16 countries.</p> <p>(U) \$1,256 International Cooperative Research and Development (ICR&amp;D) - Funded USAF overseas R&amp;D liaison offices. Funded management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&amp;D Program. Funded USAF participation at the NATO Four-Power Council, NATO Air Force Armaments Group (NAFAG), and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&amp;D programs. Funded USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funded expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern</p>									
Project 664645			Page 1 of 8 Pages				Exhibit R-2 (PE 1001004F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY <b>06 - Management and Support</b>		PROJECT <b>664645</b>
PE NUMBER AND TITLE <b>1001004F International Activities</b>		
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 1999 (\$ in Thousands) Continued</u>		
(U) \$269	<p>Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&amp;D programs. Funded preliminary and negotiation costs associated with USAF AWACS NATO cooperative R&amp;D funded programs and support for the NATO AWACS Board of Directors. Funded International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.</p> <p>Air Force International Program Support Office (AFIPSO) - Funded AFIPSO to process ICR&amp;D Agreements. The following is a partial list of agreements that were either signed or under development in FY99: Argentina: Seismic and Infrasonic Monitoring; Australia: Clutter Mitigation for Over the Horizon Radar, High Altitude Endurance UAV, Virtual Air Commander; Bolivia: Seismic Monitoring; Brazil: Seismic Monitoring, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research; Canada: Space Based Surveillance and Space Systems, ground and Space Radiation Effects of Quantum Well Infrared Photometer Sensors, TRDP; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Four-Powers: Distributed Simulation Technologies, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies; France: Effects of Ionosphere on Communications and Surveillance; Germany: ESEP, Geoscience Space Mission, Non-Linear Optics; Israel: Nonlinear Frequency Conversion Materials, Thulium Holium Energy Transfer Modeling; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: ESEP; Korea: Seismic Monitoring, 3D Integrated Circuits, Modeling and Simulation of C3I Systems; LTTP: Coalition Command Control and Communications Demonstration Environment; NATO/Multilateral: C-130 Integrated Data Environment, Joint Airborne Navigation and Attack (JOANNA) II, Laser Radiation and Material Interaction; Netherlands: Vacuum and Solid State Electronics and high Voltage/ Current Power Supply; Norway: ESEP, Toxic Effects of Jet Fuels; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: Vista Warrior, Nessie Trial/Demonstration, PIOS Phase II/III, Joint Development and Evaluation of Electro-Optic Protection Measures, Space Based Surveillance System Concept Studies, Experiments and Trials.</p>	
(U) \$250	<p>NATO Research and Technology Organization (RTO) - Funded USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY99 program of work consisted of studies, technical exchanges, and reports in the following areas: (1) Computational Unsteady Aerodynamic Codes, (2) Multi-facility Wind Tunnel Testing for CFD Validation, (3) Deterministic Spectral Gust Methods, (4) Screening Protocol for Aeromedical Medications, (5) Human Consequences of Superagility, (6) Aeromedical Lessons from Acceleration and Positive Pressure Breathing Research, (7) Aircraft Weapon Compatibility, (8) Flight Control Law Development, (9) Ice Accretion and Simulation Evaluation test, (10) Nonlinear Stability and Transition of Swept-Wing Boundary Layers, (11) Sensor Data Fusion and Integration of Human Element, (12) Integrated Mission Systems Concepts, (13) Gas Turbine Engine Combustion, Emissions and Alternative Fuels, (14) Aging and Surveillance of Solid Gun Propellants, (15) Frequency Assignment, Sparing and Conservation. Continued Partnership for Peace initiatives through the R&amp;T outreach program with scientists and engineers from the Former Soviet Union and Central Europe.</p>	
Project 664645	Page 2 of 8 Pages	Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>1001004F International Activities</b>	<b>February 2000</b> <b>664645</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 1999 (\$ in Thousands) Continued</u>		
(U) \$1,425	AFMC - Fully funded Air Force Materiel Command activities to identify, assess, develop and report International Cooperative Agreements as required by statute for new and existing projects. Supported Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funded USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funded periodic bilateral meetings to define new areas of possible cooperation, and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funded the project engineers at centers and Air Force Research Laboratory (AFRL) in identifying, creating and staffing new international cooperative agreements. Funded MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funded support for the Air force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program funded the support, management and documentation of these ICR&D efforts.	
(U) \$3,543	Total	
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$100	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.	
(U) \$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately ten field level military and civilian scientists from Air Force Research Laboratory, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding expected to be in place with 18 countries.	
(U) \$1,317	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-Power Council, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.	
(U) \$250	AFIPSO - Fully funds AFIPSO to process proposals for ICR&D Agreements. The following is a partial list of agreements that will be either signed or developed in FY00: Australia: APEP, Refractive Turbulence, Precision Location and Identification, Small Smart Bomb, Scintillation	
Project 664645	Page 3 of 8 Pages	Exhibit R-2 (PE 1001004F)



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>06 - Management and Support</b>	<b>1001004F International Activities</b>	<b>664645</b>
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	Impacts on Communications and Navigation Systems; Bolivia: Seismic Monitoring; Brazil: Atmospheric, Ionospheric and Magnetospheric, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research, Infrasonic Monitoring; Canada: Distributed Mission Training Technologies; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Germany: APEP, Observations and Modeling for Space Weather, Head Mounted Display; Israel: Aircraft and Battle Damage Repair; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: Fiber-reinforced Ceramic Matrix Composites, ESEP; Korea: ESEP, Seismic Monitoring; Norway: Low Cost Autonomous Attack System Advanced Technology Demonstration, Global Positioning System Handheld Equipment; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: Human Centered Controls and Displays, ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: International Collaboration on Space Radiation Sensors, Chemical Agent Monitors; Multi-lateral: Refraction and Propagation Modeling, LTTP: Aging Aircraft, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies.	
(U) \$225	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY00 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Application of Unmanned Air Vehicles, (2) System Concepts for Targets and Camouflage and Decoys, (3) High Power Microwaves, (4) Electronic Warfare Warning Systems, (5) Flight Test Measurement Techniques, (6) Electromagnetic Compatibility, (7) Hypersonic Propulsion, (8) Wind Tunnel Technology, (9) Screening for Aero Medical Medications, (10) Human Factors in Virtual Reality Applications. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.	
(U) \$1,525	AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of The Technical Cooperation Program, Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.	
(U) \$3,660	Total	
Project 664645	Page 4 of 8 Pages	Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>06 - Management and Support</b>	<b>1001004F International Activities</b>	<b>February 2000</b> <b>664645</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 2001 (\$ in Thousands)</u>	
(U)	\$110	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.
(U)	\$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately eight field level military and civilian scientists from Air Force Research Laboratory, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are expected to be in place with 20 countries.
(U)	\$1,399	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.
(U)	\$276	AFIPSO - Fully funds AFIPSO to process the rapidly increasing number of proposals for ICR&D Agreements. Work will continue on agreements developed, but not signed, during FY00 and work will be initiated in the following areas of interest and others resulting from prior year technology assessments: Asia: Unmanned Aerial Vehicles, Early Warning Systems, Theater Missile Defense, Satellites, Command, Control, Communication, Computer, Information and Intelligence, Effects on Global Positioning Systems; Europe: Distributed Simulation Technology, Unmanned Aerial Vehicles, Aging Aircraft, Programmable Integrated Ordinance Suite, Agent Defeat Weapon, Joint Targeting Tool, Satellites, Space, Environmental Issues; Middle East: Intelligence, Sensors, Monitoring of Chemical/Biological Warfare; Central and South America: Monitoring of Chemical/Biological Warfare, Satellites, Space, Environmental Issues.
(U)	\$200	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY01 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Operational and Technical Studies and Analysis, (2) Modeling and Simulation, (3) Advanced System Concepts, Integration and Engineering Techniques Across the Spectrum of Platforms and Operating Environments, (4) Affordable Electronics, (5) Active and Passive Sensors, (6) Information Warfare Systems, (7) Communication and Networks, (8) Improved Performance, Affordability, and Safety of Vehicle, Platform, Propulsion, and Power Systems, (9) Optimize Performance, Health, Well Being and Safety of the Human in Operational Environments with consideration of Affordability. Continues Partnership for Peace
Project 664645		Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
<b>06 - Management and Support</b>		<b>1001004F International Activities</b>		<b>664645</b>	
(U)	<b><u>A. Mission Description Continued</u></b>				
(U)	<b><u>FY 2001 (\$ in Thousands) Continued</u></b>				
(U)	\$1,545	initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.			
(U)		AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of The Technical Cooperation Program, Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.			
(U)	\$3,773	Total			
(U)	<b><u>B. Budget Activity Justification</u></b>				
(U)	This program is in Budget Activity 6, Management and Support, because it provides for general Research & Development Management support for all aspects of International Research & Development in the USAF.				
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	3,598	3,750	3,807	
(U)	Appropriated Value	3,752	3,750		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-154	-10		
	b. Small Business Innovative Research	-35			
	c. Omnibus or Other Above Threshold Reprogram		-56		
	d. Below Threshold Reprogram				
	e. Rescissions	-20	-24		
	f. Other				
(U)	Adjustments to Budget Years Since FY 2000 PBR			-34	
(U)	Current Budget Submit/FY 2001 PBR	3,543	3,660	3,773	TBD
Project 664645		Page 6 of 8 Pages		Exhibit R-2 (PE 1001004F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2000			
BUDGET ACTIVITY <b>06 - Management and Support</b>					PE NUMBER AND TITLE <b>1001004F International Activities</b>					PROJECT <b>664645</b>			
(U) <b><u>C. Program Change Summary (\$ in Thousands) Continued</u></b>													
(U) <u>Significant Program Changes:</u> N/A													
(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b>													
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) <b><u>E. 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 US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, rationalize 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 funded in their own program elements.													
(U) <b><u>F. Schedule Profile</u></b>													
		<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	-NATO C3 Agency Program Review				*				X				X
(U)	-NATO Research & Technology Board	*		*		X		X		X		X	
(U)	-Bilateral Technology R&D Projects MOUs	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Cooperative R&D Projects	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Foreign Comparative Testing Prioritization Board			*			X			X			
(U)	-NATO Cooperative R&D Prioritization Board			*				X				X	
(U)	-R&D Loans of Defense Equipment	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Systems & Technology Forum (JA)	*		*		X		X		X		X	
(U)	-Other Bilateral forums (CA, BZ, IS, SW, FR)	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Data/Information Exchange Annexes	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Engineer and Scientist Exchanges		*		*		X		X		X		X
Project 664645					Page 7 of 8 Pages				Exhibit R-2 (PE 1001004F)				

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>06 - Management and Support</b>	PE NUMBER AND TITLE <b>1001004F International Activities</b>	PROJECT <b>664645</b>
---	---	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) -NATO Air Force Armaments Group	*		*		X		X		X		X	
(U) -Four-Power Air Senior National Representatives	*		*		X		X		X		X	
(U) -Four-Power Long-Term Technology Working Group		*		*		X		X		X		X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0101113F B-52 SQUADRONS					
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6,042	39,658	50,787	48,776	17,842	9,678	24,141	Continuing	TBD
674370 Advanced Weapons Integrations (AWI)	3,320	0	0	0	0	0	0	0	9,393
674401 Air Force Mission Support System (AFMSS)	2,722	2,669	0	0	0	0	0	0	14,400
674810 Avionics Midlife Improvement (AMI)	0	29,033	38,787	31,276	17,842	0	0	0	134,400
674875 Situational Awareness Defensive Improvement	0	7,956	12,000	17,500	0	0	0	0	71,690
674876 B-52 Global Air Traffic Management (GATM)	0	0	0	0	0	9,678	24,141	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: RDT&E articles are not separately priced

(U) **A. Mission Description**  
 The B-52 is the primary nuclear roled bomber in the USAF inventory. It provides the only Air Launch Cruise Missile carriage in the USAF. The B-52 also provides theater CINCs with a long range strike capability. The B-52 is undergoing a Conventional Enhancement Modification which allows it to carry MIL-STD 1760 weapons. The current service life of the aircraft extends to 2040. The Advanced Weapons Integration (AWI) program supports the conventional enhancement of the B-52 through the addition of the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint Air-to-Surface Stand-off Missile (JASSM). The Air Force Mission Support System supports the Air Force movement of all mission planning to a common system. Electronic Countermeasures Improvement program improves supportability, increases memory, allows reprogrammability, and adds a new display for improved situational awareness and system control. The B-52's Avionics Midlife Improvement program is a new start that will replace insupportable mission critical parts of the Offensive Avionics System that control navigation and weapons delivery on the B-52. The B-52 program management is provided by Air Force Material Command's Oklahoma Air Logistics Center. The prime contractor for these projects is Boeing, McDonnell Defense in Wichita Kansas.

(U) **B. Budget Activity Justification**  
 This program is in budget activity 7 - Operational System Development, because it supports a currently operational system.

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

**07 - Operational System Development**

**0101113F B-52 SQUADRONS**

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	6,418	32,139	39,240	31,902
(U) Appropriated Value	6,436	40,139		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-161			
b. Small Business Innovative Research	-199			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions		0		
f. Other	-34	-15		TBD
(U) Adjustments to Budget Years Since FY 2000 PBR		-466	11,547	
(U) Current Budget Submit/FY 2001 PBR	6,042	39,658	50,787	TBD
\$466K reduction in FY00				

(U) **Significant Program Changes:**

(U) One new project initiated with this submission: Avionics Midlife Improvement (AMI) starting in FY00. See individual project description (Exhibits R-2/R-3) for details.

(U) Actual number to SPO \$5.986 total FY99 (\$3.433 AWI and \$2.553 for AFMSS)

(U) FY01 number includes \$12.0M for the Situational Awareness Defensive Improvement (SADI) program - program reduced by \$453K in support of other AF priorities. The EMD schedule will lengthen by at least three months.

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101113F B-52 SQUADRONS</b>	<b>PROJECT</b> <b>674370</b>
--	--	---------------------------------

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674370    Advanced Weapons Integrations (AWI)	3,320	0	0	0	0	0	0	0	9,393

- (U) **A. Mission Description**  
 The requirement exists for the integration of near precision and precision guided MIL-STD 1760 weapons on the B-52. This includes the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint-Air-to-Surface Stand-off Missile (JASSM). The B-52 is designated as the threshold bomber test platform for WCMD, JDAM, and JASSM with the objective of meeting aircraft integration and weapon testing requirements. To provide complete understanding of the program and its funding, the following schedule information in section C will reflect the money received from the WCMD, JDAM, and JASSM program elements for weapons integration on the B-52.
- (U) **FY 1999 (\$ in Thousands)**  
 (U) \$3,020                      Continued Software development for JSOW and JASSM  
 (U) \$300                         Flight/Ground Testing  
 (U) \$3,320                      Total
- (U) **FY 2000 (\$ in Thousands)**  
 (U) \$0                             No Activity  
 (U) \$0                             Total
- (U) **FY 2001 (\$ in Thousands)**  
 (U) \$0                             No Activity  
 (U) \$0                             Total
- (U) **B. Project Change Summary**  
 Not applicable



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>				PROJECT <b>674370</b>	
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 (PE 11113F)	671	479	964	250	0			0	2,364
(U) Related Activities									
(U) RDT&E (WCMD - PE 27600F)	0	0	0	0	0	0	0	0	0
(U) RDT&E (JDAM - PE 27583F)	0	0	0	0	0	0	0	0	0
(U) RDT&E (JASSM - PE 27160F)	3,457	6,420	1,775	0	0	0	0	0	11,652
(U) TDT&E (JSOW - PE27324F)	0	250	0	0	0	0	0	0	250
<b>(U) D. Acquisition Strategy</b>									
<p>The AWI program placed Boeing Military Programs - Wichita Division, on a Cost-Plus-Fixed-Fee contract as the Product Development Organization supported by OC-ALC/LH. Due to a short notice requirement, interface development and initial software requirements definition was accomplished under the B-52 fleet support contract; a time and materials contract. AWI development is in two phases. The first phase supports WCMD and JDAM Stores Management Overlay (SMO) development, interface hardware development and Development Test and Evaluation (DT&amp;E). The second phase supports JSOW and JASSM SMO development and DT&amp;E. Due to the need for early Required Assets Availability and Initial Operational Capability, the Single Acquisition and Management Plan (SAMP) authorized concurrent development of software as the interface hardware (MIL-STD 1760 umbilicals and pylon attachments) transitioned to production. Although, development of SMOs for JSOW and JASSM will continue after the hardware design has been developed, the hardware design will be complete and compatible with all advance weapons.</p>									
<b>(U) E. Schedule Profile</b>									
			<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3
(U) JDAM/WCMD SMO						*	X		
(U) Software/hardware Req DT&E			*			*			
(U) Test Planning			*			*	X		
(U) Technical data development			*						
Project 674370	Page 4 of 20 Pages							Exhibit R-2A (PE 0101113F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2000			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
<b>07 - Operational System Development</b>					<b>0101113F B-52 SQUADRONS</b>					<b>674370</b>			
<b>(U) <u>E. Schedule Profile Continued</u></b>													
		<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Ground/flight testing	*			X								
(U)	AFMSS module DT&E	*			X	X							
(U)	Program office support	*	*	*	X	X							
(U)	JSOW/JASSM SMO												
(U)	Contractor Interface Development	*	*	*	X	X							
(U)	Software/hardware Req DT&E	*	*	*	X	X	X	X	X	X			
(U)	Test planning	*	*	*	X	X	X	X	X	X	X	X	
(U)	Technical data development		*	*	X	X						X	
(U)	Ground/flight testing			*	X	X	X	X	X	X	X	X	
(U)	AFMSS module DT&E		*	*	X	X	X	X	X	X	X	X	
(U)	Program support office	*	*	*	X	X	X	X	X	X	X	X	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT 674370		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Software/hardware requirements					3,014		0		0
(U)	Test					306				
(U)	Total					3,320		0		0
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Boeing - Wichita, KS	CPIF	4 Sep 97	5,603	5,603	2,822	2,868	0	0	0	5,690
88CG/SCCVO	Project Order	13 Mar 96	12	12	10	2	0	0	0	12
<u>Support and Management Organizations</u>										
OC-ALC/LH	PMA	1 Oct 96	266	266	216	50	0	0	0	266
OC-ALC/LAS	Project Order	16 Jul 97	1,350	1,350	1,350	0	0	0	0	1,350
AEDC/DOF	Project Order	3 Jun 97	48	48	48	0	0	0	0	48
PEO/PMA-201	MIPR		75	75	75		0	0	0	75
4 Sep 97										
<u>Test and Evaluation Organizations</u>										
419 CTF	Project Order	3/31/99	1,952	1,952	1,552	400				1,952
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development						2,832	2,870	0	0	5,702
Subtotal Support and Management						1,689	50	0	0	1,739
Subtotal Test and Evaluation						1,552	400			1,952
Total Project						6,073	3,320	0	0	9,393

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>				PROJECT <b>674401</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674401 Air Force Mission Support System (AFMSS)	2,722	2,669	0	0	0	0	0	0	14,400
Remark: Actual SPO FY99 dollars recieved = \$2.553.									
<p>(U) <b><u>A. Mission Description</u></b>            B-52 Air Force Mission Support System (AFMSS) was previously funded out of the AFMSS program element prior to FY98. The project develops aircraft/weapons/electronic (A/W/E) countermeasures modules to be used in conjunction with the core software modules to provide a Mission Planning Environment for planning B-52 missions. AFMSS is the replacement system for the current Mission Data Preparation System (MDPS), the legacy system used for B-52 SIOP capability. Block 1 provided the capability to plan conventional gravity missions at the unit level. Block 2 is Y2K compliant and provides the capability to plan JDAM and WCMD missions. It also adds IU/TRS capability. Block 3 adds planning capability for AGM-84 and AGM-86C. Block 4 provides TRICOMS mission data import capability and allows the retirement of MDPS. Plus, it includes capability to plan the AGM-142, JSOW and JASSM. Block 5 will enable migration of the mission planning capability to the Joint Mission Planning System (JMPS).</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>									
(U) \$412	Completed operational test and installation of Block 2 software								
(U) \$1,125	Initiated Block 4 operational requirements								
(U) \$1,185	Continued Block 3 operational software								
(U) \$2,722	Total								
<p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p>									
(U) \$569	Initiate Block 5 operational requirements for migration to JMPS								
(U) \$800	Complete Block 3 operational software test and installation								
(U) \$1,300	Complete Block 4 operational software test and installation								
(U) \$2,669	Total								
<p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p>									
(U) \$0	No Activity								
(U) \$0	Total								
<p>(U) <b><u>B. Project Change Summary</u></b> N/A</p>									
Project 674401			Page 7 of 20 Pages				Exhibit R-2A (PE 0101113F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>	PROJECT <b>674401</b>
---	---	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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

(U) **D. Acquisition Strategy**  
 The AFMSS program is organically conducted at OC-ALC/LAS. Previously funded by the AFMSS program element.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Complete Block 2 development												
(U) Software development Block 3												
(U) Contract award Block 4			X									
(U) Software development Block 4			X					X				
(U) Contract award Block 5								X				
(U) Software development Block 5								X				

The B-52 peculiar mission planning software development is accomplished and delivered incrementally. Each work package within a block build is treated as a mini-development with its own analysis, design, and test. The work package are integrated with one another and with the AFMSS core.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>			PROJECT <b>674401</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Software development					2,630		2,595			
(U)	System Program Office support					92		74			
(U)	Total					2,722		2,669			
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Oklahoma ALC/LAS	Project Order	26 Mar 97	10,786	0	5,616	2,630	2,595		0	10,841
<u>Support and Management Organizations</u>											
	OC-ALC/LH	Project Order	Oct 97	0	411	245	92	74		0	411
	OC-ALC/LAP	Project Order	Jun 97	3,053	0	3,053				0	3,053
<u>Test and Evaluation Organizations</u>											
	419th	DT&E	11 Dec 96	95	0	95				0	95
<b>(U) Government Furnished Property:</b>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
<u>Support and Management Property</u>											
<u>Test and Evaluation Property</u>											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2000		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>		<b>0101113F B-52 SQUADRONS</b>			<b>674401</b>	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		5,616	2,630	2,595		0
Subtotal Support and Management		3,298	92	74		0
Subtotal Test and Evaluation		95				0
Total Project		9,009	2,722	2,669		0
						14,400

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>				PROJECT <b>674810</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674810 Avionics Midlife Improvement (AMI)	0	29,033	38,787	31,276	17,842	0	0	66,580	134,400
<p>(U) <b><u>A. Mission Description</u></b>                      The current B-52H Offensive Avionics System (OAS) contains several subsystems which must be replaced. The Inertial Navigation System (INS) includes a spinning mass gyro based on 1960's technology which will soon be unsupportable. The Avionics Control Unit (ACU) is an aging computer system with limited processing capability and memory. The Data Transfer Unit Cartridges (DTUCs) are bulky, unreliable and also based on old technology. The AMI program will use existing technology to replace these systems and the associated software to significantly increase OAS reliability, maintainability, and supportability while increasing capability and reducing operating costs.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u>                      (U) \$0 No Activity                      (U) \$0 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u>                      (U) \$12,800 Design and development of Group A Hardware                      (U) \$16,233 Design and development of replacement software                      (U) \$29,033 Total                      \$2,062 OSD and AF withhold</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u>                      (U) \$37,000 Design and development of replacement software                      (U) \$1,787 Ground and flight test                      (U) \$38,787 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b>                      New start project beginning FY00.</p>									
Project 674810			Page 11 of 20 Pages				Exhibit R-2A (PE 0101113F)		



**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000								
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>			PROJECT <b>674810</b>								
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>															
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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															
(U) Aircraft Procurement (BP1100)				0	22,808	14,513	15,624	1,600	81,384						
<b>(U) D. Acquisition Strategy</b>															
The AMI program will contract with Boeing Wichita for aircraft hardware integration and software development of the Flight Management System and the Stores Management Overlays. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations.															
<b>(U) E. Schedule Profile</b>															
				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
				1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award									X						
(U) Interface Development									X	X					
(U) Software Development									X						
(U) Test Planning									X				X		
(U) Group A Design									X	X					
(U) Group A Fabrication										X			X		
(U) Trial Install													X		
(U) Flight Test													X		
(U) Program Office Support									X						

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
<b>07 - Operational System Development</b>				<b>0101113F B-52 SQUADRONS</b>				<b>674810</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	Prototype Hardware					0	4,500	0			
(U)	Non-recurring Engineering						23,955	28,490			
(U)	Ground/Flight Test						0	9,750			
(U)	System Program Office Support						1,000	1,000			
(U)	Miscellaneous Cuts						-422	-453			
(U)	Total					0	29,033	38,787			
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
<u>Contractor or</u>	<u>Contract</u>										
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>							
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Organizations</u>											
Boeing, McDonnell Defense	TBD	FY00	TBD				27,963	32,727	54,460	115,150	
<u>Support and Management Organizations</u>											
OC-ALC/LH	PMA	Oct 99	0	TBD			1,000	1,000	2,000	4,000	
WR/ALC	AF616	TBD	TBD				30	30	60	120	
HQ ACC/DRPB	AF616	TBD	TBD				30	30	60	120	
<u>Test and Evaluation Organizations</u>											
419 FLTS	Project Order	TBD	TBD				10	5,000	10,000	15,010	
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>	
<u>Subtotals</u>											
Subtotal Product Development								27,963	32,727	54,460	115,150
Subtotal Support and Management								1,060	1,060	2,120	4,240
Subtotal Test and Evaluation								10	5,000	10,000	15,010
Total Project								29,033	38,787	66,580	134,400

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>				PROJECT <b>674875</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674875	Situational Awareness Defensive Improvement	0	7,956	12,000	17,500	0	0	0	0	71,690
SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09										
<b>(U) A. Mission Description</b>										
The existing ALR-20A system provides the Electronic Warfare Officer (EWO) with the capability of simultaneously surveying, detecting, and displaying all radio frequency (RF) transmissions within its frequency range of coverage. It displays the detected signals in a spectrum analyzer like presentation (i.e., in an amplitude versus frequency format) to the EWO on a multi-trace cathode ray tube (CRT). The ALR-20A provides the EWO with two (2) capabilities. First, it is the main receiver used for providing early warning and situational awareness. Second, the analog signals displayed by the ALR-20A are required for the successful employment (i.e., jamming) of the following electronic countermeasures (ECM) systems: ALQ-122/ALQ-16A, ALT-32s, and all ALQ-155(V) systems. The present ALR-20A system was designed in the 1960's and is becoming increasingly unsupportable due to vanishing vendors and obsolete technology. SADI removes and replaces the ALR-20A Panoramic receiver system. Includes Group B System and Group A Integrator Kit. SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09										
<b>(U) FY 1999 (\$ in Thousands)</b>										
(U) \$0		No Activity								
(U) \$0		Total								
<b>(U) FY 2000 (\$ in Thousands)</b>										
(U) \$6,000		Group A (antennas) NRE, Group B (LRUs) NRE								
(U) \$1,000		Software								
(U) \$956		Program Management								
(U) \$7,956		Total								
<b>(U) FY 2001 (\$ in Thousands)</b>										
(U) \$3,000		Group A kit and NRE								
(U) \$3,700		Group B kit and NRE								
(U) \$3,600		Software								
(U) \$1,700		Program Management								
(U) \$12,000		Total								
Project 674875				Page 14 of 20 Pages				Exhibit R-2A (PE 0101113F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>	PROJECT <b>674875</b>
---	---	--------------------------

(U) **B. Project Change Summary**  
 SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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		0	0	0					
(U) Other APPN				0	0	0	0		
N/A									

(U) **D. Acquisition Strategy**  
 The present ALR-20A system was designed in the 1960's and is unsupported due to vanishing vendors and obsolete technology. The SADI program will remove and replace the ALR-20A and ALR-46 RWR. The SADI program will contract with Boeing Wichita for aircraft hardware integration. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award							X					
(U) Interface Development									X			
(U) Test Planning									X			
(U) Group A Design									X			
(U) Group A Fabrication												X
(U) Group B Design									X			
(U) Group B Fabrication												X
(U) DT ( 2 Qtr FY 02)												
(U) OT (2 Qtr FY03)												
(U) Program Office Support									X			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0101113F B-52 SQUADRONS			PROJECT 674875		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Hardware							6,000		6,700
(U)	Software							1,000		3,600
(U)	Program management							956		1,700
(U)	Total							7,956		12,000
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									<u>Total</u>
	Boeing Military Programs,	TBD	Jun 00	TBD				7,430	11,250	44,540
	Wichita Division									63,220
	<u>Support and Management Organizations</u>									
	OC-ALC/LH	PMA	Jun 00	TBD				500	700	1,134
	WR/ALC	TBD						10	20	30
	HQ ACC/XRA-52	TBD						10	20	30
	<u>Test and Evaluation Organizations</u>									
	419 FLTS	TBD						6	10	6,000
										6,016
(U) <b><u>Government Furnished Property:</u></b>										
		<u>Contract</u>								
		<u>Method/Type</u>	<u>Award or</u>							
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Property</u>									<u>Total</u>
	<u>Support and Management Property</u>									
	<u>Test and Evaluation Property</u>									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2000			
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT			
<b>07 - Operational System Development</b>			<b>0101113F B-52 SQUADRONS</b>		<b>674875</b>			
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
			<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>	
<u>Subtotals</u>								
Subtotal Product Development					7,430	11,250	44,540	63,220
Subtotal Support and Management					520	740	1,194	2,454
Subtotal Test and Evaluation					6	10	6,000	6,016
Total Project					7,956	12,000	51,734	71,690

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101113F B-52 SQUADRONS</b>	<b>PROJECT</b> <b>674876</b>
--	--	---------------------------------

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674876 B-52 Global Air Traffic Management (GATM)	0	0	0	0	0	9,678	24,141	Continuing	TBD

(U) **A. Mission Description**  
 Develop and install integrated Communication, Navigation, Surveillance and Air Traffic Management capability to guarantee unrestricted access to global air traffic operations in response to International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) requirements. Avionics upgrades will result in reduced airspace congestion, increased safety, and significant savings through more efficient flight routes and altitudes. This program is not executable under the current funding. There is significant concurrency in FY05/06 and the production funding is not adequate to modify 76 aircraft.

(U) **FY 1999 (\$ in Thousands)**  
 (U) \$0 No Activity  
 (U) \$0 Total

(U) **FY 2000 (\$ in Thousands)**  
 (U) \$0 No Activity  
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**  
 (U) \$0 No Activity  
 (U) \$0 Total

(U) **B. Project Change Summary**

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>	PROJECT <b>674876</b>
---	---	--------------------------

(U) **D. Acquisition Strategy**  
 Develop and install integrated Communication, Navigation, Surveillance and Air Traffic Management capability to guarantee unrestricted access to global air traffic operations in response to International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) requirements. The B-52 GATM program will contract with Boeing Wichita for aircraft hardware integration and software development. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations. This program is not fully executable under the current funding. There is significant concurrency in FY05/06 and the production funding is not adequate to modify 76 aircraft.

(U) **E. Schedule Profile**

<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award est 2QTR FY04	1	2	3	4	1	2	3	4	1	2	3	4



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2000		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>		<b>0101113F B-52 SQUADRONS</b>			<b>674876</b>	
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>						
		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Total					
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Subtotals</u>					<u>Total</u>
	Subtotal Product Development					
	Subtotal Support and Management					
	Subtotal Test and Evaluation					
	Total Project					TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101120F Advanced Cruise Missile</b>				PROJECT <b>674798</b>			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674798	Life Extension Study	0	0	4,182	972	776	677	580	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
<p>(U) <b><u>A. Mission Description</u></b>                      The Advanced Cruise Missile (ACM) is a low-observable air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. An ACM Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ACM service life to FY30. The ACM is designed for B-52H external carriage. Missile procurement is complete. The ACM fleet design service life expires between the years 2003 and 2008. The results of Service Life Extension Program (SLEP) studies will identify those components that cannot be sustained beyond the normal service life. This was reported in FY00 President's Budget (PB) as a New Start Program, but was deferred to FY01.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$750 Research/evaluate ACM components for age sensitivities. Research and develop modifications to existing Sensor components. Research and develop Automated Test Equipment (ATE) to support age sensitivity testing of Sensor components.                      (U) \$962 Develop process to rebuild composite structures and evaluate new Radar Cross Section (RCS)                      (U) \$2,470 Design special tooling and prototype support equipment for new/rebuilt composite structures. Develop Test and Evaluation criteria for new/rebuilt composite structures, develop process/procedures for testing new/rebuilt composite structures.                      (U) \$4,182 Total</p>											
Project 674798				Page 1 of 5 Pages				Exhibit R-2 (PE 0101120F)			

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>																																																													
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101120F Advanced Cruise Missile</b>			PROJECT <b>674798</b>																																																													
<p>(U) <b><u>B. Budget Activity Justification</u></b>                  These programs are in budget activity 7, Operational System Development. ACM has completed procurement, is fielded, and is undergoing modification to extend missile service life. AF Long Range Plan requires ACM to extend beyond design life (2003-2008). Service Life Extension Program (SLEP) requires studies to determine what components can be sustained or need to be replaced to extend life to 2030.</p>																																																																				
<p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">688</td> <td style="text-align: center;">785</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">3,397</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">4,182</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table>										<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	0	688	785	TBD	(U) Appropriated Value		0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR		0	3,397		(U) Current Budget Submit/FY 2001 PBR		0	4,182	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																																
(U) Previous President's Budget (FY 2000 PBR)	0	688	785	TBD																																																																
(U) Appropriated Value		0																																																																		
(U) Adjustments to Appropriated Value																																																																				
a. Congressional/General Reductions																																																																				
b. Small Business Innovative Research																																																																				
c. Omnibus or Other Above Threshold Reprogram																																																																				
d. Below Threshold Reprogram																																																																				
e. Rescissions																																																																				
f. Other																																																																				
(U) Adjustments to Budget Years Since FY 2000 PBR		0	3,397																																																																	
(U) Current Budget Submit/FY 2001 PBR		0	4,182	TBD																																																																
<p>(U) <b><u>Significant Program Changes:</u></b>                  Since funding for FY 2000 was reduced to zero, program start was deferred until FY 2001. New program start is based on AF Long Range Plan decision to maintain ACM beyond design life. The results of SLEP are required to determine other actions on critical components. The funding plus-up of \$3.397 in FY2001 is for development associated with the process of rebuilding composite structures and the evaluation of radar cross sections, and the design of special tooling and support equipment associated with the new/rebuilt composite structures.</p>																																																																				
<p>(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;"></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Missile Procurement, AF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Aeronautical Vehicle (BA2, PE 11120F, P-1#2)</td> <td style="text-align: center;">1,395</td> <td style="text-align: center;">1,039</td> <td style="text-align: center;">2,006</td> <td style="text-align: center;">2,022</td> <td style="text-align: center;">2,038</td> <td style="text-align: center;">2,031</td> <td style="text-align: center;">2,156</td> <td style="text-align: center;">Continuing</td> <td></td> </tr> <tr> <td>(U) Missile Modifications (BA3,</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,920</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3,777</td> <td style="text-align: center;">4,050</td> <td style="text-align: center;">4,324</td> <td style="text-align: center;">4,510</td> <td style="text-align: center;">Continuing</td> <td style="text-align: center;">Continuing</td> </tr> </tbody> </table>										<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										(U) Aeronautical Vehicle (BA2, PE 11120F, P-1#2)	1,395	1,039	2,006	2,022	2,038	2,031	2,156	Continuing		(U) Missile Modifications (BA3,	0	2,920	0	3,777	4,050	4,324	4,510	Continuing	Continuing										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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																																																																				
(U) Aeronautical Vehicle (BA2, PE 11120F, P-1#2)	1,395	1,039	2,006	2,022	2,038	2,031	2,156	Continuing																																																												
(U) Missile Modifications (BA3,	0	2,920	0	3,777	4,050	4,324	4,510	Continuing	Continuing																																																											
Project 674798			Page 2 of 5 Pages			Exhibit R-2 (PE 0101120F)																																																														

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0101120F Advanced Cruise Missile				PROJECT 674798		
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>		
PE 11120F, P-1#9)										
(U)	Replen Spares & Spares (BA4, PE 11120F, P-4#17)	0	315	321	330	347	355	365	Continuing	TBD
(U)	Mod Initial Spares (BA4, PE 11120F, P-1#17)	0	0	1,942	2,307	2,620	2,930	618	Continuing	TBD
FY00 Missile Modification funding moved to FY Replenishment Spares funding as of 1 Feb 00										
<b>(U) E. Acquisition Strategy</b>										
Development will be through the prime contractor, Raytheon. Contract is Time and Materials. Contract number: F34601-96-0775.										
<b>(U) F. Schedule Profile</b>										
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		
			1	2	3	4	1	2	3	4
(U)	Replacement Component Development									
(U)	Contract Award							X		
(U)	Engineering Investigation								X	X
(U)	PDR									X
(U)	CDR (2nd Qtr FY02)									
(U)	FQT (4th Qtr FY02)									
(U)	Test & Evaluation (1st Qtr FY03)									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0101120F Advanced Cruise Missile			PROJECT 674798			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Research/evaluate ACM components for age sensitivities. Research and develop modifications to existing Sensor components. Research and develop Automated Test Equipment (ATE) to support age sensitivity testing of Sensor components					0		0		750	
(U)	Develop process to rebuild composite structures and evaluate new Radar Cross Section					0		0		962	
(U)	Design special tooling and prototype support equipment for new/rebuilt composite structures. Develop Test and Evaluation criteria for new/rebuilt composite structures, develop process/procedures for testing new/rebuilt composite structures									2,470	
(U)	Total					0		0		4,182	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Raytheon	SS/CPT&M	Jan 01	4,182	4,182	0	0	0	4,182	Continuing	TBD
	<u>Support and Management Organizations</u>										
	N/A										
	<u>Test and Evaluation Organizations</u>										
	N/A										
<b>(U) Government Furnished Property:</b>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	<u>Support and Management Property</u>										

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101120F Advanced Cruise Missile</b>	PROJECT <b>674798</b>
---	--	--------------------------

(U) Government Furnished Property Continued:

Test and Evaluation Property

None

	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	0	0	0	4,182	TBD	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	0	0	0	4,182	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101122F Air Launched Cruise Missile</b>				PROJECT <b>674797</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674797	Flight Testing & Navigation Enhancement	0	5,281	6,457	6,353	5,333	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            (U) The Air Launched Cruise Missile (ALCM) AGM-86B is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage. Missile procurement is complete. An ALCM Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. Initial SLEP assessment requires acquisition of new Conventional Air Launched Cruise Missile/Air Launched Cruise Missile Test Instrumentation Kit (CATIK) payload doors, replacement of current obsolete navigation system, and replacement of Operational Test &amp; Evaluation (OT&amp;E) hardware and software. This was an ALCM new start program reported in the FY00 President's Budget (PB), based on the decision to maintain this weapon system beyond its current design life. CATIK flight test payload doors, containing range transponder and battery, are required to be replaced, due to Department of Energy (DOE) range safety requirements and lack of current payload door assets. The current navigation system has parts without spares or suppliers, and that are becoming obsolete, and has been identified as the ALCM item with largest number of unscheduled maintenance hours.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$0 No Activity            (U) \$0 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$2,700 - CATIK payload door Interface Design/Development, Operational Flight/Flight Termination Software Development, and Automated Test Equipment Development.            (U) \$472 - CATIK payload door Testing/Integration and Data Collection/Documentation.            (U) \$2,109 - Inertial Navigation Element (INE) Card Development, Start Nuclear Certification process, Operational Flight Software Development            (U) \$5,281 Total</p>										
Project 674797			Page 1 of 7 Pages				Exhibit R-2 (PE 0101122F)			



UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101122F Air Launched Cruise Missile</b>	PROJECT <b>674797</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <p>(U) \$1,857 - Finalize CATIK payload door Interface Design/Development, Operational Flight/Flight Termination Software Development, Automated Test Equipment Development</p> <p>(U) \$201 - INE Operational Flight Software Development Testing, Testing and Integration for INE.</p> <p>(U) \$4,399 - Continue Card Development, Operational Flight Software Development, and Nuclear Certification for the INE.</p> <p>(U) \$6,457 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>These programs are in budget activity 7, Operational System Development. ALCM has completed procurement, is fielded, and is undergoing modification to extend its Service Life.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td align="center">0</td> <td align="center">5,344</td> <td align="center">6,514</td> <td align="center">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td align="center">0</td> <td align="center">5,344</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td align="right">-29</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td></td> <td align="right">-34</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td align="right">-57</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td align="center">0</td> <td align="center">5,281</td> <td align="center">6,457</td> <td align="center">TBD</td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b> FY01 adjustment funded other AF priorities</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	0	5,344	6,514	TBD	(U) Appropriated Value	0	5,344			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram		-29			d. Below Threshold Reprogram					e. Rescissions		-34			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-57		(U) Current Budget Submit/FY 2001 PBR	0	5,281	6,457	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	0	5,344	6,514	TBD																																																										
(U) Appropriated Value	0	5,344																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions																																																														
b. Small Business Innovative Research																																																														
c. Omnibus or Other Above Threshold Reprogram		-29																																																												
d. Below Threshold Reprogram																																																														
e. Rescissions		-34																																																												
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			-57																																																											
(U) Current Budget Submit/FY 2001 PBR	0	5,281	6,457	TBD																																																										
Project 674797	Page 2 of 7 Pages	Exhibit R-2 (PE 0101122F)																																																												

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000						
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0101122F Air Launched Cruise Missile</b>				PROJECT <b>674797</b>						
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>														
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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														
(U) Missile Modifications (BA 3, PE 11122F, P-1#14)	0		4,066	8,650	14,991	23,403	23,847	27,232	102,189					
(U) Replenishment + Spares/Spare Parts (BA 4, PE 11122F, P-1#17)	92	213	255	255	261	266	272	Continuing	TBD					
(U) Modification Initial Spares (BA 3, PE 11122F, P-1#17)	0	0	0	0	1,582	1,736	182	Continuing	TBD					
(U) Other Procurement (BP83) Electronics and Telecommunications Equipment (BA 3, PE 11122F, P-1#51)	1,185	1,297	1,311	1,323	1,324	1,352	1,377	Continuing	TBD					
<b>(U) E. Acquisition Strategy</b>														
ALCM will use Boeing on a Sole Source contract for the SLEP MOD development and production. Engineering Assignments will be used for CATIK development and Cost Plus Incentive Fee contract type will be used for all SLEP MOD production and INE development. CATIK development will start in the 2nd quarter of FY00 with production contract award in May FY01. INE development contract award will be June FY00 and production contract award to be May FY03.														
<b>(U) F. Schedule Profile</b>														
			<u>FY 1999</u>				<u>FY 2000</u>			<u>FY 2001</u>				
			1	2	3	4	1	2	3	4	1	2	3	4
(U) CATIK Milestones														
(U) PDR							X							
(U) CDR									X					
(U) INE Milestones														
(U) PDR								X						
(U) CDR											X			
(U) Contract Milestones- Development														
Project 674797			Page 3 of 7 Pages				Exhibit R-2 (PE 0101122F)							

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0101122F Air Launched Cruise Missile</b>	PROJECT <b>674797</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award - CATIK						X						
(U) Contract Award - INE							X					
(U) Contract Milestones- Procurement												
(U) Contract Award - CATIK												X
(U) Contract Award - INE (3rd qtr FY03)												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0101122F Air Launched Cruise Missile</b>		PROJECT <b>674797</b>
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U)	CATIK:			
(U)	Hardware Development			
(U)	Interface Development	0	1,270	407
(U)	Testing/Integration	0	100	100
(U)	Software Development			
(U)	Operational Flight Software	0	890	785
(U)	Automated Test Equipment Development	0	444	423
(U)	Testing/Integration	0	252	142
(U)	Data Collection/Documentation	0	216	0
(U)	INE:			
(U)	Hardware Development			
(U)	Card Development	0	328	1,431
(U)	Nuclear Certification	0	221	205
(U)	Testing/Integration	0	0	212
(U)	Software Development			
(U)	Operational Flight Software	0	1,403	2,654
(U)	Nuclear Certification	0	144	0
(U)	Automated Test Equipment Development	0	0	0
(U)	Mission Planning	0	0	0
(U)	Testing/Integration	0	0	81
(U)	Flight Testing	0	13	17
(U)	Data Collection/Documentation	0	0	0
(U)	Total	0	5,281	6,457
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>				
<b>(U) Performing Organizations:</b>				

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0101122F Air Launched Cruise Missile			PROJECT 674797		
<b>(U) Performing Organizations Continued:</b>										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Development:										
Boeing - CATIK	Eng Asgn	Mar 00	5,329	5,329	0	0	3,172	1,857	Continuing	TBD
Boeing - INE	SS/CPIF	Jun 00	14,816	14,816	0	0	2,109	4,600	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
Utah Test Range	MIPR	May 02	N/A	N/A	0	0	0	0	3,000	3,000
49th Test Wing	MIPR	May 02	N/A	N/A	0	0	0	0	500	500
<b>(U) Government Furnished Property:</b>										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>										
N/A										
N/A										
<u>Support and Management Property</u>										
N/A										
N/A										
<u>Test and Evaluation Property</u>										
None										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2000		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>		<b>0101122F Air Launched Cruise Missile</b>			<b>674797</b>	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development		0	0	5,281	6,457	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation		0	0	0	0	3,500
Total Project		0	0	5,281	6,457	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0102325F Joint Surveillance System</b>				PROJECT <b>672996</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672996	FAA/AF Radar Replacement (FARR)	1,582	0	0	0	0	0	0	0	22,845
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: Reprogramming request in process for \$300K for FY00 to complete turnover of final radar site.

(U) **A. Mission Description**  
 The Joint Surveillance System (JSS) provides command, control and communications (C3) capability in support of CINC NORAD's (North American Aerospace Defense) Atmospheric Tactical Warning and Attack Assessment (ATW/AA) air sovereignty, and air defense requirements. The FAA/Air Force Radar Replacement (FARR) program replaces 39 existing JSS radars and 1 log set radar with solid-state, three-dimensional Air Route Surveillance Radar (ARSR)-4 radars to improve mission performance and reduce operation and maintenance costs. The ARSR-4 radars provide three-dimensional (range, azimuth, and height) digital data on aircraft targets within a 200+ nautical mile radius.

(U) **FY 1999 (\$ in Thousands)**  
 (U) \$439 Provided program office support  
 (U) \$600 Continued test and system checkout  
 (U) \$543 Continued interoperability evaluations and commissioning support  
 (U) \$1,582 Total

(U) **FY 2000 (\$ in Thousands)**  
 (U) \$0 No further funding in this project  
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**  
 (U) \$0 No further funding in this project  
 (U) \$0 Total

(U) **B. Budget Activity Justification**  
 This program is in budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0102325F Joint Surveillance System</b>			PROJECT <b>672996</b>		
<b>(U) C. Program Change Summary (\$ in Thousands)</b>									
				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		<u>Total Cost</u>	
(U)	Previous President's Budget (FY 2000 PBR)			2,099				22,854	
(U)	Appropriated Value			2,175					
(U)	Adjustments to Appropriated Value								
	a. Congressional/General Reductions			-76					
	b. Small Business Innovative Research			-57					
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram			-451					
	e. Rescissions			-9					
	f. Other								
(U)	Adjustments to Budget Years Since FY 2000 PBR							-9	
(U)	Current Budget Submit/FY 2001 PBR			1,582				22,845	
(U)	<u>Significant Program Changes:</u>								
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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)	739	192	62	28	0	0	0		1,021
<b>(U) E. Acquisition Strategy</b>									
The Federal Aviation Administration (FAA) is the lead acquisition agency for the FAA/AF Radar Replacement Program in accordance with a 19 November 1984 sub-agreement (as amended by Amendment 1, dated 1 September 1988) to FAA/AF National Agreement (NAT) 711. The FAA and the Air Force have established a joint Program Office at HQ, FAA, Washington, DC for this procurement. Northrup Grumman Corporation, Linthicum, MD is the prime contractor for the FARR program.									
<b>(U) F. Schedule Profile</b>									
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102325F Joint Surveillance System</b>	PROJECT <b>672996</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) FARR last operational readiness date							X					
(U) FARR follow-on support including baselining/commissioning before FAA final									X			

Note: \* denotes completed event, X denotes planned event.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0102325F Joint Surveillance System			PROJECT 672996		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Systems engineering					600		0		0
(U)	Contractor engineering support					115		0		0
(U)	Installation/Test/Checkouts					428		0		0
(U)	Program Office support					439		0		0
(U)	Total					1,582		0		0
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									<u>Total</u>
	None									
	<u>Support and Management Organizations</u>									
	MITRE	Various		N/A	N/A	5,099	600	0		0
	TEMS	Various		N/A	N/A	1,669	115	0		0
	Martin Marietta	Various		N/A	N/A	6,339	0			0
	Program Office Support	Various		N/A	N/A	1,849	439	0		0
	<u>Test and Evaluation Organizations</u>									
	Various					6,307	428	0		0
(U) <b><u>Government Furnished Property:</u></b>										
		<u>Contract</u>								
		<u>Method/Type</u>	<u>Award or</u>							
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Property</u>									<u>Total</u>
	none									

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102325F Joint Surveillance System</b>	PROJECT <b>672996</b>
---	--	--------------------------

(U) **Government Furnished Property Continued:**

Support and Management Property

none

Test and Evaluation Property

none

	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development						
Subtotal Support and Management	14,956	1,154	0		0	16,110
Subtotal Test and Evaluation	6,307	428	0		0	6,735
Total Project	21,263	1,582	0		0	22,845

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0102326F Region/ Sector Operations Control Center</b>				PROJECT <b>674592</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674592	Region/Sector Operations Modernization Center (R/SAOC)	25,587	13,129	992	5,769	5,815	5,938	6,062	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

NOTE: Region/Sector Air Operations Center (R/SAOC) - USAF notified congress of the termination of contractor, Litton Data Systems, Agoura, CA. Contractor terminated 1 Oct 1999 because of excessive cost growth, schedule slips, and an improved understanding of requirements by both users and industry. Program being re-structured and Congress will be notified with more detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission.

The Region and Sector Air Operations Center (R/SAOC) Modernization Program will provide a modernized Command, Control, Communication, Computer and Intelligence (C4I) system with enhanced capability to integrate data from existing and future civil and military defense surveillance system into a comprehensive recognized air picture to enhance CINC NORAD's (North American Aerospace Defense Command) capability to conduct a peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain.

**(U) FY 1999 (\$ in Thousands)**

- (U) \$20,500** Continuation of Software Development/Modification for Core Operating Capability (COC) and Prepare for Install of New Equipment at First Site
- (U) \$1,600** Systems Engineering Support
- (U) \$2,566** Program Management and Technical Support
- (U) \$921** Program Office Support
- (U) \$25,587** Total

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102326F Region/ Sector Operations Control Center</b>	PROJECT <b>674592</b>
---	---	--------------------------

(U) **A. Mission Description Continued**

(U) FY 2000 (\$ in Thousands)

- (U) \$9,198 Close out of terminated contract with Litton Data Systems
- (U) \$3,276 Program Management and Technical Support
- (U) \$655 Program Office Support
- (U) \$13,129 Total

(U) FY 2001 (\$ in Thousands)

- (U) \$600 Program Management Technical Support
- (U) \$392 Program Office Support
- (U) \$992 Total

(U) **B. Budget Activity Justification**

This program is a budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	21,428	13,239	992	
(U) Appropriated Value	21,792	13,239		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-302			
b. Small Business Innovative Research	-688			
c. Omnibus or Other Above Threshold Reprogram	-143	-110		
d. Below Threshold Reprogram	4,990			
e. Rescissions	-62			
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR	25,587	13,129	992	TBD

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102326F Region/ Sector Operations Control Center</b>	PROJECT <b>674592</b>
---	---	--------------------------

(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**

NOTE: USAF notified congress of termination of contractor, Litton Data Systems, Agoura, CA - terminated 1 Oct 1999 for excessive cost growth, schedule slips and improved understanding of requirements by both users and industry. Program being re-structured and Congress will be notified with detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission. .

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	0	0	0	0	0	0	0		
(U) Other Procurement (3080)	0	2,871	0	4,756	4,955	5,060	5,174	Continuing	TBD
(U) Other APPN	0	0	0	0	0	0	0		

NOTE 1: Both Appropriations Committees zeroed out the FY99 procurement budget at the request of the AF. Due to program restructure in FY98, the procurement requirements were deferred from FY 1999 to FY 2000 and FY2001. Program has again undergone a restructuring in FY 1999. Procurement has been deferred from FY 2000 and FY 2001 to FY 2002 and FY 2003.

(U) **E. Acquisition Strategy**

Management for the R/SAOC Modernization is by ESC, AFMC, Hanscom AFB MA. The R/SAOC Modernization acquisition is being pursued through an evolutionary acquisition approach to develop a modular, open system architecture, Defense Information Infrastructure (DII) Command Operating Environment (COE) compliant system through incremental software release and periodic hardware and commercial software refresh. Initial development focuses on system to provide an initial capability designated as the Core Operating Capability (COC). Prime Contract was awarded in March 1997 to Litton Data Systems Division, Agoura Hills, CA.

Contractor terminated 1 Oct 1999. USAF notified congress of termination of contractor, Litton Data Systems, Agoura, CA - terminated 1 Oct 1999 for excessive cost growth, schedule slips and improved understanding of requirements by users and industry. Program being re-structured and Congress will be notified with detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Software Version 2.0b Complete		*										
(U) Contractor Terminated/Congress notified					*							

\*Denotes completed event



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
<b>07 - Operational System Development</b>					<b>0102326F Region/ Sector Operations Control Center</b>			<b>674592</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	System Engineering Support					1,600					
(U)	Program Office Support					921		655		392	
(U)	Program Management and Technical Support					2,566		3,276		600	
(U)	Development/Modification of Software for COC					20,500					
(U)	Contract Close due to termination of Litton Data Systems							9,198			
(U)	Total					25,587		13,129		992	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	LITTON*	CPAF	14 Mar 97	Continuing	Continuing	21,242	20,500	9,198	0	Continuing	TBD
	<u>Support and Management Organizations</u>										
	MITRE	Various	N/A	N/A	N/A	2,773	1,500	1,732	400	Continuing	TBD
	TEMS	Various	N/A	N/A	N/A	2,664	1,397	1,333	200	Continuing	TBD
	Program Office Support	Various	N/A	N/A	N/A	778	2,025	655	392	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	46th Test Wing/Other Test Act					215	165	211	0	Continuing	TBD
<b>(U) Government Furnished Property:</b>											
	<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
		<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102326F Region/ Sector Operations Control Center</b>	PROJECT <b>674592</b>
---	---	--------------------------

(U) **Government Furnished Property Continued:**

<u>Item</u> <u>Description</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u>	<u>Award or</u> <u>Obligation</u> <u>Date</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				21,242	20,500	9,198	0	TBD	TBD
Subtotal Support and Management				6,215	4,922	3,720	992	TBD	TBD
Subtotal Test and Evaluation				215	165	211	0	TBD	TBD
Total Project				27,672	25,587	13,129	992	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0102411F North Atlantic Defense System</b>				PROJECT <b>672980</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672980 North Atlantic Defense System (NADS)	537	0	0	0	0	0	0	0	61,699
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      This program provides improvements to command, control, and communications (C3) and air surveillance capabilities in Iceland. The Control Reporting Center (CRC) and air surveillance radars support air defense requirements in the strategically important Greenland-Iceland-Norwegian gap. The program is a joint program with NATO funding infrastructure while the US funds cryptographic capabilities, system engineering and integration activities. The Joint Formal Acceptance Inspection (JFAI), a NATO required technical inspection of the entire system, is complete. Both the JFAI and a NATO required financial audit are completed and the system has been turned over to NATO/Iceland.</p> <p>In Jul 99 NATO approved full program funding for implementation of a Link 16 capability for NADS in Iceland (approx \$28M). As the host nation in Iceland, the US will be responsible for funding the system engineering and intergration activities (approx \$11M over the FYDP).</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$256 Provided program office support                      (U) \$201 Provided systems engineering support for NADS                      (U) \$80 Provided systems integration activities for NADS                      (U) \$537 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project                      (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project                      (U) \$0 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b>                      The program is in Budget Activity 7 since it supports improvements to currently operational systems.</p>									
Project 672980			Page 1 of 5 Pages				Exhibit R-2 (PE 0102411F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0102411F North Atlantic Defense System</b>			PROJECT <b>672980</b>		
<b>(U) C. Program Change Summary (\$ in Thousands)</b>									
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			<u>Total Cost</u>	
(U)	Previous President's Budget (FY 2000 PBR)		569	0	0			61,702	
(U)	Appropriated Value		615						
(U)	Adjustments to Appropriated Value								
	a. Congressional/General Reductions		-46						
	b. Small Business Innovative Research		-17						
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram		-12						
	e. Rescissions		-3	0				0	
	f. Other			0					
(U)	Adjustments to Budget Years Since FY 2000 PBR								
(U)	Current Budget Submit/FY 2001 PBR		537	0	0			61,702	
(U)	<u>Significant Program Changes:</u>								
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>									
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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								
(U)	Other APPN								
<b>(U) E. Acquisition Strategy</b>									
The acquisition of hardware has been completed. Prior year funding provided engineering support during the NATO Operational Review known as the JFAI (Joint Formal Acceptance Inspection). The JFAI is a NATO technical and financial audit. Any discrepancies must be corrected to satisfy NATO.									
The anticipated three year contract will be funded under the NATO Infrastructure Program and will be conducted in accordance with NATO's document AC/4-D/2261, 'Infrastructure Committee The NATO Security Investment Programme Procedures for International Competitive Bidding (1996 Edition)'. As such, the contract type will be Firm Fixed Price (FFP). Additionally, the contract will direct that required changes to the NADS CRC software be accomplished through subcontract to Raytheon Integrated Systems Division, the OEM and owner of the software data rights.									
<b>(U) F. Schedule Profile</b>									
			<u>FY 1999</u>		<u>FY 2000</u>			<u>FY 2001</u>	
Project 672980									

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0102411F North Atlantic Defense System</b>	PROJECT <b>672980</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4	
(U) JFAI	*											
(U) NATO Financial Audit												
(U) Program residuals												

Note: \* denotes completed event, X denotes planned event.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0102411F North Atlantic Defense System</b>			PROJECT <b>672980</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Engineering Support					201		0		0
(U)	Intergation Activiy Support					80				
(U)	Program Support					256				
(U)	Total					537		0		0
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
<u>Support and Management Organizations</u>										
MITRE	Various	Oct 94	N/A	N/A	37,817	281	0	0	0	38,098
TEMS	Various	Jun 94	N/A	N/A	16,583	178	0	0	0	16,761
Program Office Support	Various		N/A	N/A	3,384	78	0	0	0	3,462
<u>Test and Evaluation Organizations</u>										
Various					3,378	0	0	0	0	3,378
GFP/GFE	None					0	0	0	0	0
<b>(U) Government Furnished Property:</b>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										

**UNCLASSIFIED**

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>		<b>DATE</b>						
<b>07 - Operational System Development</b>		<b>0102411F North Atlantic Defense System</b>			<b>February 2000</b>			
<u>BUDGET ACTIVITY</u>	<u>PE NUMBER AND TITLE</u>	<u>PROJECT</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
			<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>								
Subtotal Product Development			57,784	537	0	0	0	58,321
Subtotal Support and Management			3,378	0	0	0	0	3,378
Subtotal Test and Evaluation								
Total Project			61,162	537	0	0	0	61,699



**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>	
<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207027F Air Space Command &amp; Control Agency</b>				<b>PROJECT</b> <b>674814</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674814 Expenditary Force Experiment (EFX)	0	0	24,769	88,053	25,375	65,168	25,922	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>Note: JEFX 98, 99,00 have been planned and executed within existing command and control space programs.</p> <p>(U) <b><u>A. Mission Description</u></b>                      The Joint Expeditionary Force Experiments (JEFX) are large-scale warfighter experiments and are part of the total AF experimentation effort. They combine live-fly forces and simulations into an operationally representative warfighter environment. These experiments provide a vehicle for experimentation with operational concepts and attendant new technologies for enhancing capabilities of the 21st century aerospace force. They are part of a broader effort to implement the Joint Vision 2010, exploit the Revolution in Military Affairs, and demonstrate emerging Air Force capabilities to deploy and employ decisive aerospace power for the Joint Force Commander. JEFX 2000 will emphasize Agile Combat Support, but exploration will also occur in managing intelligence, surveillance, and reconnaissance assets; global mobility; and dynamic battle control. JEFX 2000 is planned and will be executed with reprogrammed funds and other Air Force funding from existing command and control, global power, global reach, and space Program Elements.</p> <p>In FY01, the Air Force moves to a biennial schedule for JEFX conducted in the even years. In addition, the Air Force begins the integration of proven initiatives into integrated Air Force/Joint/Coalition Command and Control providing integrated/interoperable fielded capabilities for warfighter use. Transition of selected technologies to the warfighter will be based on a rigorous, defined process which ensures interoperability with fielded programs and maximum return on investment. Specific weapon system development and procurement activities are funded in their own budget lines as applicable. A full-scale experiment as performed in FY99 and FY00 will be conducted in FY02. Integrated Air Force/Joint/Coalition Command and Control integration of new initiatives and legacy systems into an integrated Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) baseline will be an ongoing activity.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total</p>									
Project 674814			Page 1 of 5 Pages				Exhibit R-2 (PE 0207027F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207027F Air Space Command &amp; Control Agency</b>	PROJECT <b>674814</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <p>(U) \$2,559 Initiatives from government and industry, selection and prioritization of new and previously considered initiatives, C2 Center Communications and computer development upgrades</p> <p>(U) \$2,360 Development of systems architecture and integration, including engineering, for the experiment</p> <p>(U) \$1,850 Planning and coordination for the experiment</p> <p>(U) \$8,000 Implement JEFX 2000 architectural configuration, conduct M&amp;S, install infrastructure, install and test LAN configurations and communications, and test operational software</p> <p>(U) \$10,000 Integration of new initiatives and legacy systems into an integrated C2ISR baseline</p> <p>(U) \$24,769 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b> This effort is Budget Activity 7, Operational System Development, because the program will develop and implement software for operational computer applications.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td></td> <td style="text-align: center;">2,946</td> <td style="text-align: center;">20,000</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td style="text-align: center;">2,946</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td></td> <td style="text-align: center;">-2,946</td> <td></td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>    f. Other</td> <td></td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: center;">4,769</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">24,769</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)		2,946	20,000	TBD	(U) Appropriated Value		2,946			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions		-2,946		TBD	f. Other		0		TBD	(U) Adjustments to Budget Years Since FY 2000 PBR			4,769		(U) Current Budget Submit/FY 2001 PBR		0	24,769	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)		2,946	20,000	TBD																																																										
(U) Appropriated Value		2,946																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions																																																														
b. Small Business Innovative Research																																																														
c. Omnibus or Other Above Threshold Reprogram																																																														
d. Below Threshold Reprogram																																																														
e. Rescissions		-2,946		TBD																																																										
f. Other		0		TBD																																																										
(U) Adjustments to Budget Years Since FY 2000 PBR			4,769																																																											
(U) Current Budget Submit/FY 2001 PBR		0	24,769	TBD																																																										
Project 674814	Page 2 of 5 Pages	Exhibit R-2 (PE 0207027F)																																																												

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207027F Air Space Command &amp; Control Agency</b>	<b>PROJECT</b> <b>674814</b>
--	--	---------------------------------

**(U) D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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	6,000	2,186	0	0	0	0	0	Continuing	TBD
(U) Other APPN	29,500	35,900	0	0	0	0	0	Continuing	TBD

**(U) E. Acquisition Strategy**

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the acquisition and development process for the experimentation, integration, and fielding of selected technologies with legacy systems in an integrated C2ISR baseline. The spiral development system was created to field new and emerging technologies quickly. One of the tenets of the streamlined acquisition philosophy is to provide new capabilities through the integration of existing software components. JEFX periodically provides the opportunity to demonstrate new capabilities which provide decisive air and space power by identifying existing DII components and other software that can be integrated to further advance effectiveness. Research and development funding will be used to develop the integrating code for various systems ranging from communications, C2, computers, weapons, ISR and aerospace delivery vehicles. In addition, funds will be used to develop enhancements to existing capabilities necessary to demonstrate how emerging products can improve the warfighters' effectiveness. Spirals within the acquisition cycle allow deficiencies to be identified and considered for future spirals as well as the next experiment or applied to current capabilities. Selected technologies will be identified via a vigorous, defined process for integration with existing systems and transitioned to the field for warfighter use. Integration efforts will capitalize on the synergy between evolving technologies and on-going system program modifications to maximize the return on investment.

**(U) F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Call for Initiatives, JEFX 2000			*									
(U) Initiative Selection, JEFX 2000				*								
(U) Conduct Spiral I						X						
(U) Conduct Spiral II							X					
(U) Conduct Spiral III							X					
(U) Conduct JEFX 2000 Experiment									X			
(U) Perform Assessment, JEFX 2000 Experiments									X			
(U) Commence movement of selected initiatives to the field										X		
(U) Call for Initiatives, FY02 Focused Experiments										X		
(U) Initiative Selection, FY02 Focused Experiments											X	
(U) JEFX 2002 Architectural Development												X

Project 674814

Page 3 of 5 Pages

Exhibit R-2 (PE 0207027F)

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207027F Air Space Command &amp; Control Agency</b>	PROJECT <b>674814</b>
---	---	--------------------------

**(U) F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Small scale experiment (4QFY01)												
(U) Conduct Spiral I (1QFY02)												
(U) Conduct Spiral II (2QFY02)												
(U) Conduct Spiral III (2QFY02)												
(U) Conduct JEFX 2002 Experiments (4QFY02)												
(U) Perform Assessment, JEFX 2002 Experiments (1QFY03)												
(U) Commence integration of selected initiatives (1QFY03)												
(U) Call for Initiatives, JEFX 2004 (1QFY03)												
(U) Initiative Selection, JEFX 2004 (2QFY03)												

\* Denotes completed event  
X Denotes planned event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
<b>07 - Operational System Development</b>				<b>0207027F Air Space Command &amp; Control Agency</b>				<b>674814</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Initiatives from government and industry, selection and prioritization of new and previously considered initiatives, C2 Center Communications and Computer development upgrades									2,559	
(U)	Development of systems architecture and integration, including engineering, for the experiment									2,360	
(U)	Planning and coordination for the experiment									1,850	
(U)	Implement JEFX 2000 architectural configuration, conduct M&S, install infrastructure, install an test LAN configurations and communications, test operational software, conduct small -scale experimentation , and evaluate experiment results									8,000	
(U)	Integration of new initiatives and legacy systems into an integrated C2ISR baseline									10,000	
(U)	Total									24,769	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
ESC	various	various	N/A	N/A				24,769	Continuing	TBD	
<u>Support and Management Organizations</u>											
<u>Test and Evaluation Organizations</u>											
None											
					<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
<u>Subtotals</u>											
Subtotal Product Development								24,769	TBD	TBD	
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project								24,769	TBD	TBD	

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207131F A-10 SQUADRONS</b>				PROJECT <b>674809</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674809	A-10 Squadrons	2,170	8,013	8,615	8,933	10,189	44,416	9,172	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The primary mission of the A/OA-10 is to provide close air support (CAS) for friendly land forces and to act as the forward air controller (FAC) to coordinate and direct friendly air forces in support of land forces. The A/OA-10 has a secondary mission of supporting search and rescue (SAR) and special forces operations. It also possesses a limited capability to perform certain types of interdiction. All of these missions may take place in a high- or low-threat environment. The A-10 System Program Office (SPO) is directed to upgrade and modernize the A/OA-10 aircraft to enhance its ability to support CAS and interdiction mission requirements. The Integrated Flight and Fire Control Computer (IFFCC), formerly known as the Low Altitude Safety and Targeting Enhancement (LASTE) computer upgrade, will enhance the computer memory, throughput, and system architecture to allow the aircraft to integrate advanced weapons and accommodate a situational awareness display, a data-link capability, an Electronic Warfare Management System, and the Digital Terrain System.</p> <p>RDT&amp;E funds are executed in developing improved capability, maintenance, and safety modification development efforts. Without continuing avionics, airframe and weapon systems upgrades, the A/OA-10 will have difficulty adhering to the regional CINCs requirement for a Close Air Support platform.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$2,170 Development for Integrated Flight and Fire Control Computer (IFFCC)                      (U) \$0 - Software creation and debugging                      (U) \$0 - OFP updates to IFFCC software                      (U) \$2,170 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$4,181 Continue software update/conversion and hardware development for (IFFCC)                      (U) \$3,832 Initiate Common Data Link Solution                      (U) \$0 - Software development and integration solutions                      (U) \$8,013 Total</p>										
Project 674809			Page 1 of 5 Pages				Exhibit R-2 (PE 0207131F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>			PE NUMBER AND TITLE <b>0207131F A-10 SQUADRONS</b>			PROJECT <b>674809</b>				
(U) <b><u>A. Mission Description Continued</u></b>										
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U)	\$4,411	Complete hardware development and modification of the Integrated Flight and Fire Control Computer (IFFCC)								
(U)	\$4,204	Begin software and hardware development for the Digital Terrain System (DTS)								
(U)	\$8,615	Total								
(U) <b><u>B. Budget Activity Justification</u></b>										
The A/OA-10 RDT&E program is in budget activity 7 - Operational System Development because it supports an operational system.										
(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)		2,305	8,108	9,085	TBD				
(U)	Appropriated Value		2,312	8,108						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-7							
	b. Small Business Innovative Research		-96							
	c. Omnibus or Other Above Threshold Reprogram			-44						
	d. Below Threshold Reprogram		-27							
	e. Rescissions		-12	-51		TBD				
	f. Other					TBD				
(U)	Adjustments to Budget Years Since FY 2000 PBR				-470					
(U)	Current Budget Submit/FY 2001 PBR		2,170	8,013	8,615	TBD				
(U) <u>Significant Program Changes:</u>										
(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Aircraft Procurement, BP-11 (PE 27131F)	28,344	27,133	33,891	11,359	21,968	42,644	83,783		TBD

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207131F A-10 SQUADRONS</b>	PROJECT <b>674809</b>
---	---	--------------------------

(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 (PE 64270F)	2,200	3,000	2,000	1,000	0				15,678

(U) **E. Acquisition Strategy**  
 The Integrated Flight and Fire Control Computer (IFFCC), Digital Terrain System (DTS), On-Board Oxygen Generating System (OBOGS), Digital Data Link (DDL), Common Data Link, and 1760 BUS development will be conducted under the A-10 Prime Contract which was awarded in Dec 1997 on a full-and-open basis. CPAF contract awarded for specific modernization efforts.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Integrated Flight and Fire Control Computer (IFFCC) upgrade RDT&E		*										
(U) Digital Terrain System (DTS)									X			
(U) Common Data Link						X						

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207131F A-10 SQUADRONS			PROJECT 674809		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Integrated Flight and Fire Control Computer (IFFCC)					2,170		4,181		4,411
(U)	Digital Terrain System (DTS)					0		0		4,204
(U)	Common Data Link					0		3,832		0
(U)	Total					2,170		8,013		8,615
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Lockheed Martin	IFFCC	2Q99	10,000	10,762		2,170	4,181	4,411	0	10,762
Federal Systems	A-10 Prime									
	Contract/ CPAF									
Lockheed Martin Federal	Digital Terrain	2Q01	TBD	TBD	0	0	0	4,204	Continuing	TBD
Systems	System (DTS)									
	A-10 Prime									
	Contract									
	CPAF									
Lockheed Martin Federal	Onboard	2Q02	TBD	TBD	0	0	0	0	1,747	1,747
Systems	Oxygen									
	Generating									
	Systems									
	(OBOGS)									
LMFS	Digital Data	2Q03	TBD	49,998	0	0	0	0	Continuing	TBD
	Link (DDL)									
LMFS	1760 Bus	2Q04	TBD	12,000	0	0	0	0	Continuing	TBD
Project 674809										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
<b>07 - Operational System Development</b>				<b>0207131F A-10 SQUADRONS</b>				<b>674809</b>	
<b>(U) <u>Performing Organizations Continued:</u></b>									
<u>Product Development Organizations</u>									
LMFS	Common Data	2Q00	TBD	3,832	0	0	3,832	0	3,832
	Link Solution								
<u>Support and Management Organizations</u>									
<u>Test and Evaluation Organizations</u>									
<b>(U) <u>Government Furnished Property:</u></b>									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	2,170	8,013	8,615	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project				0	2,170	8,013	8,615	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207133F F-16 Squadrons				PROJECT 672671		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672671	F-16 Squadrons	120,389	114,162	124,903	84,465	76,082	65,704	97,215	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

The F-16 fighter aircraft program satisfies the need for modernization of the USAF and allied multimission tactical fighter forces. The F-16 is a single-engine, single-seat, multirole tactical fighter with full air-to-air and air-to-surface combat capabilities. The F-16 complements the F-15 in counter-air missions and is the primary aircraft in the surface attack role. The F-16C/D program develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

The F-16 program develops enhanced combat capability in both the air-to-ground and air-to-air role. Several modifications to improve the F-16's combat capabilities have been combined into a single modification known as the Common Configuration Integration Program (CCIP) to save significant costs during the production phase. CCIP will modify all Block 40 and Block 50 F-16 aircraft; Block 50 is the lead platform. CCIP integrates several programs under one umbrella and allows incorporation of AIM-9X onto the F-16:

- The main driver for CCIP will be the Link 16 program. Link 16 is a data link that connects main components of a battle arena to maintain awareness and to share battle management data. The Link 16 program designs the appropriate Group A (hardware mounted permanently on aircraft) to incorporate existing Group B (hardware that is easily removed from airplane) developed by the Multifunctional Information Distribution System (MIDS) Office and adapted for use on the F-16.
- To enhance the display of the Link 16 data, the current black and white display will be changed out with the Color Multifunction Display (CMFD) used by the European Participating Air Force's (EPAF) F-16s.
- To have sufficient computing power in the Block 40/50 aircraft to operate Link16 and to allow the cost savings by using a common Operational Flight Program, the General Avionics Computer (GAC) must be replaced with the Modular Mission Computer (MMC). The MMC is an upgraded version of the computer that was developed for the EPAF Mid-life Update program. The Block 50 F-16 is developing the MMC for USAF requirements. The MMC will extend the cost effective life of the F-16 through replacement of three Line Replaceable Units and the addition of significant memory and processing growth provisions.
- The Joint Helmet Mounted Cueing System (JHMCS) incorporates a man-mounted, ejection capable helmet mounted display system, with the capability to cue and verify cueing of high off-axis sensors and weapons. The F-16 JHMCS program will integrate the following government furnished equipment with the F-16: flight helmet with display optics, image source, helmet tracker transducer w/attached cable, graphics processor/video hardware and software to drive the display, helmet tracker hardware and software. The integration will interface with aircraft computers, weapons and sensor hardware and will provide software to integrate the JHMCS functions with other onboard systems.

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																					
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207133F F-16 Squadrons</b>	PROJECT <b>672671</b>																					
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>Other modifications which are being or will be developed during the FYDP:</p> <p>a. Advanced Weapons Integration will integrate Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW) and Wind Corrected Munition Dispenser (WCMD) smart weapons into the Block 40 and Block 50 F-16.</p> <p>b. Global Positioning System (GPS) Integration adds GPS capability to the Block 30 and supports testing of GPS changes to other F-16 Blocks. The F-16C/D development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades and flight tests.</p> <p>c. Integrate a targeting pod on the Block 50/52 and transition the HARM Targeting System (HTS) pod to the left inlet hardpoint. This will allow the F-16 Block 50 to perform the SEAD/DEAD mission.</p> <p>d. The Mark XII IFF system (Air-to-Air Interrogator) consists of a single unit interrogator/transponder, a beam forming network, fuselage-mounted array antenna elements, and a lower interrogator antenna. The system provides a higher reliability rate and increases performance over present systems. Initial capabilities include coverage of + or - 60 degrees azimuth and elevation coverage with a + or - 2 degree accuracy, a range accuracy of 152 meters and range of 100 nmi. 32 in beam targets can be handled. Modes 1, 2, 3/A, C, S, and 4 are available.</p> <p>e. Structural analysis from the on-going Structural Integrity Program (SIP) has indicated that the F-16 is experiencing structural fatigue that may impact the ability of the airframes to reach their 8,000 hrs service life. RDT&amp;E funds are required to design the required structural modifications, as appropriate for each F-16 Block of aircraft. This program, Falcon Star, (RDT&amp;E only) will be cost shared with the Multi-National Fighter Program (MNFP) countries.</p> <p>f. The Auto Ground Collision Avoidance System (AGCAS) program is presently a Air Force Research Laboratory (AFRL) led flight test program. The funds allocated in FY01 is required to begin the transition of the program to Engineering Manufacturing &amp; Development (EMD). The funds will be used for risk reduction efforts which included continued flight testing of the capability available from the research program and initial design and trade studies for potential hardware and software solutions for an automatic ground collision avoidance system.</p> <p>The F-16, which received Milestone III approval in FY 1977, is an operational aircraft.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U)</td> <td style="width: 15%;">\$20,085</td> <td>Continued Link 16 Block 40/50</td> </tr> <tr> <td>(U)</td> <td>\$6,255</td> <td>Continued Joint Helmet Mounted Cueing System (JHMCS) Block 40/50 (formerly AIM-9X development)</td> </tr> <tr> <td>(U)</td> <td>\$3,655</td> <td>Continued Block 40 Color Display Development/Integration</td> </tr> <tr> <td>(U)</td> <td>\$10,300</td> <td>Continued Modular-Mission Computer (MMC) Block 40</td> </tr> <tr> <td>(U)</td> <td>\$3,928</td> <td>Continued Training Devices (Unit Only)</td> </tr> <tr> <td>(U)</td> <td>\$43,279</td> <td>Continued OFP Updates</td> </tr> <tr> <td>(U)</td> <td>\$1,215</td> <td>Completed Smart Weapons Integration</td> </tr> </table>			(U)	\$20,085	Continued Link 16 Block 40/50	(U)	\$6,255	Continued Joint Helmet Mounted Cueing System (JHMCS) Block 40/50 (formerly AIM-9X development)	(U)	\$3,655	Continued Block 40 Color Display Development/Integration	(U)	\$10,300	Continued Modular-Mission Computer (MMC) Block 40	(U)	\$3,928	Continued Training Devices (Unit Only)	(U)	\$43,279	Continued OFP Updates	(U)	\$1,215	Completed Smart Weapons Integration
(U)	\$20,085	Continued Link 16 Block 40/50																					
(U)	\$6,255	Continued Joint Helmet Mounted Cueing System (JHMCS) Block 40/50 (formerly AIM-9X development)																					
(U)	\$3,655	Continued Block 40 Color Display Development/Integration																					
(U)	\$10,300	Continued Modular-Mission Computer (MMC) Block 40																					
(U)	\$3,928	Continued Training Devices (Unit Only)																					
(U)	\$43,279	Continued OFP Updates																					
(U)	\$1,215	Completed Smart Weapons Integration																					
Project 672671	Page 2 of 8 Pages	Exhibit R-2 (PE 0207133F)																					

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>07 - Operational System Development</b>	<b>0207133F F-16 Squadrons</b>	<b>February 2000</b> <b>672671</b>
<b>(U) <u>A. Mission Description Continued</u></b>		
<b>(U) <u>FY 1999 (\$ in Thousands) Continued</u></b>		
(U) \$2,431	Continued Block 30 GPS Integration Activities	
(U) \$27,841	Continued Flight Tests DT&E	
(U) \$1,400	Completed ALE-50 - Congressional Kosovo Plus Up	
(U) \$120,389	Total	
<b>(U) <u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$14,472	Complete Block 50 Link 16, Continue Block 40	
(U) \$9,770	Complete Block 50 JHMCS, Continue Block 40	
(U) \$586	Continue Block 40 Color Display Development/Integration	
(U) \$8,286	Continue Block 40 MMC	
(U) \$2,450	Continue Training Devices (Unit Only)	
(U) \$46,653	Continue OFP Updates	
(U) \$888	Complete Block 30 GPS Integration Activities	
(U) \$31,057	Continue Flight Tests DT&E	
(U) \$114,162	Total	
<b>(U) <u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$5,000	Continue Block 40 Link 16	
(U) \$4,300	Continue Block 40 JHMCS	
(U) \$1,500	Continue Block 40 Color Display Development/Integration	
(U) \$5,000	Continue Block 40 MMC	
(U) \$11,351	Continue Training Devices (Unit and Maintenance)	
(U) \$54,955	Continue OFP Updates	
(U) \$32,447	Continue Flight Tests DT&E	
(U) \$600	Initiate Joint Tactical Combat Training System (JTCTS)	
(U) \$3,250	Initiate Block 50 HTS/TGP Capability (Software development, design, test assets)	
(U) \$1,500	Initiate Falcon Star (Structural analysis and design)	
(U) \$5,000	Initiate Auto GCAS (Risk reduction)	
(U) \$124,903	Total	
Project 672671	Page 3 of 8 Pages	Exhibit R-2 (PE 0207133F)



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
							February 2000			
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT			
<b>07 - Operational System Development</b>	<b>0207133F F-16 Squadrons</b>						<b>672671</b>			
<b>(U) <u>B. Budget Activity Justification</u></b>										
Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity 7.										
<b>(U) <u>C. Program Change Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				<u>Total Cost</u>		
(U) Previous President's Budget (FY 2000 PBR)		139,631	112,520	93,058				TBD		
(U) Appropriated Value		140,076	115,520							
(U) Adjustments to Appropriated Value										
a. Congressional/General Reductions		-49	-10							
b. Small Business Innovative Research		-4,274								
c. Omnibus or Other Above Threshold Reprogram		-12,186	-627							
d. Below Threshold Reprogram		-2,109								
e. Rescissions		-1,069	-721							
f. Other								TBD		
(U) Adjustments to Budget Years Since FY 2000 PBR					31,845					
(U) Current Budget Submit/FY 2001 PBR		120,389	114,162	124,903				TBD		
Note: \$600 of the BTR amount of \$2,109 used to pay canceled year bill										
<b>(U) <u>Significant Program Changes:</u></b>										
FY99: 'Omnibus or Other Above Threshold Reprogram' includes transfer of \$14.486M to BP10 for advance procurement for 10 aircraft in FY 00 and receipt of the \$2.3M from the emergency supplemental fund (\$1.4M of 3600 funds for ALE-50 flight test, \$.9M exchanged for 3400 funds for ALE-50 OFP development.)										
FY 00: \$3,000 Congressional plus up for Air to Air Interrogator development for Block 50 Aircraft.										
FY01: \$31,845 increase to 'Adjustments to Budget Years Since FY2000 PBR' is for AAI, Blk 50 HTS/TGP capability, Falcon STAR, and Auto GCAS.										
<b>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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		41,109	262,182	0	0	165,975	198,365	203,049		
(3010F), Line Item 5; F-16										
C/D (MYP)*										
(U) Aircraft Procurement		256,402	283,060	248,830	255,311	246,082	240,827	193,072		
TBD										

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207133F F-16 Squadrons</b>	PROJECT <b>672671</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>	
(3010F), Line Item 34, F-16 Mods									
(U) Aircraft Procurement (3010F), Line Item 73, Post Production Support	36,634	43,932	25,464	15,500	15,705	13,861	14,340		TBD

\* 3010F, Line Item 5 Program Funding for FY00, FY03-05, is for force structure aircraft, 10 A/C in FY 00, 6 A/C in FY 03, FY 04-FY 05 7 A/C in each respective year.

(U) **E. Acquisition Strategy**  
 The procurement of 30 additional Blk 50/52 aircraft, 10 FY00/6 FY03/7 FY03/7 FY04, for the active force will enable the AF to replace the Blk 10/15 F-16 A/B aircraft of two Air National Guard (ANG) Air Defense Fighter (ADF) squadrons with newer, more capable Blk 30 F-16 C/D aircraft from the active fleet. RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. The approach to contracting varies by individual project. Lockheed Martin Tactical Aircraft Systems (LMTAS) is the prime contractor on all systems except the simulator/trainer (Hughes Co.), the 110 Engines (General Electric), and the 229 Engines (Pratt & Whitney ). Contract types are CPIF, CPFF, FFP.

(U) **F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) CONTRACT MILESTONES												
(U) Blk 30 GPS Integration Activities										X		
(U) Advanced Weapons Integration Dev				X								
(U) LANTIRN BDA				*								
(U) Block 50 HTS/TGP Capability											X	
(U) Falcon Star											X	
(U) Auto GCAS												X
(U) JTCTS						X					X	
(U) AAI											X	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0207133F F-16 Squadrons</b>			PROJECT <b>672671</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
					<u>FY 1999</u>	<u>FY 2000</u>			<u>FY 2001</u>	
(U)	Link 16 Block 50				14,633	9,186			0	
(U)	Link 16 Block 40				5,452	5,286			5,000	
(U)	MMC Block 40				10,300	8,286			5,000	
(U)	Color Display Block 40				3,655	586			1,500	
(U)	JHMCS Block 50				4,500	4,885			0	
(U)	JHMCS Block 40				1,755	4,885			4,300	
(U)	Training Devices				3,928	2,450			11,351	
(U)	Smart Weapons Integration				1,215	0			0	
(U)	Block 30 GPS Integration				2,431	888			0	
(U)	OPF Updates (Includes AAI)				42,549	46,653			54,955	
(U)	Block 42 IDM Integration				630	0			0	
(U)	Flight Tests DT&E				27,841	31,057			32,447	
(U)	Joint Tactical Combat Training System				0	0			600	
(U)	LANTIRN BDA				100	0			0	
(U)	Block 50 HTS/TGP Capability (Software development, design, test assets)				0	0			3,250	
(U)	Falcon Star (Structural analysis and design)				0	0			1,500	
(U)	Auto GCAS (Risk reduction)				0	0			5,000	
(U)	ALE-50				1,400					
(U)	Total				120,389	114,162			124,903	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 2000	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
<b>07 - Operational System Development</b>					<b>0207133F F-16 Squadrons</b>					<b>672671</b>	
<b>(U) <u>Performing Organizations Continued:</u></b>											
<u>Product Development Organizations</u>											
CCIP	T&M	Feb 97	5,384	5,384	5,384				0	5,384	
(LMTAS)											
Link 16 Blk 50 (LMTAS)	SS/CPIF	Apr 98	29,446	29,446	5,627	14,633	9,186		0	29,446	
Link 16 Blk 40 (LMTAS)	SS/CPIF	Apr 98	17,538	17,538	1,800	5,452	5,286	5,000	0	17,538	
MMC Blk 50 (LMTAS)	SS/CPIF	Jan 92	172,530	172,530	172,530				0	172,530	
MMC Blk 40 (LMTAS)	SS/CPIF	Apr 98	26,086	26,086	2,500	10,300	8,286	5,000	0	26,086	
Color Display Blk 50	SS/CPIF	Apr 98	650	650	650				0	650	
(LMTAS)											
Color Display Blk 40	SS/CPIF	Apr 98	7,541	7,541	1,800	3,655	586	1,500	0	7,541	
(LMTAS)											
JHMCS Blk 50 (LMTAS)	SS/CPIF	Apr 98	10,385	10,385	750	4,500	4,885		0	10,135	
JHMCS Blk 40 (LMTAS)	SS/CPIF	Apr 98	11,940	11,940	750	1,755	4,885	4,300	0	11,690	
JHMCS Int Study (LMTAS)	SS/CPFF	Apr 98	4,458	4,458	4,458				0	4,458	
AIM/9X	CPAF	Apr 98	115	115	115				0	115	
(LMTAS)											
AAI Blk 50 (LMTAS)	SS/CPIF	Aug 99	6,590	6,590	0	2,990	5,691			8,681	
Trainers	FFP	Apr 97	44,979	44,979	14,663	3,928	2,450	11,351	0	32,392	
(Hughes)											
Smart Wpns (LMTAS)	CPIF	Dec 95	TBD	TBD	8,700	1,215			0	9,915	
GPS Integration (Various)	Various	Jul 97	20,200	20,200	15,231	2,431	888		0	18,550	
OFP Updates (LMTAS)	CPIF/T&M	Dec 95	TBD	TBD	114,007	39,292	40,544	54,955	Continuing	TBD	
IDM Blk 42 (LMTAS)	FP	Nov 98	670	670	0	630			0	630	
JTCTS	TBD	TBD	TBD	TBD				600	1,200	1,800	
(TBD)											
F-16 A/B SLEP	TBD	TBD	TBD	TBD		0			0	0	
LANTIRN BDA						100				100	
Block 50 HTS/TGP								3,250		3,250	
Capability											
Falcon Star								1,500		1,500	
Project 672671					Page 7 of 8 Pages					Exhibit R-3 (PE 0207133F)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>				<b>0207133F F-16 Squadrons</b>			<b>672671</b>	
<b>(U) <u>Performing Organizations Continued:</u></b>								
<u>Product Development Organizations</u>								
Auto GCAS							5,000	5,000
ALE-50				1,400				1,400
<u>Support and Management Organizations</u>								
ALR-56M Support			447	267	418	0	Continuing	TBD
Radar Eval			280				0	280
Halon Eval			40				0	40
<u>Test and Evaluation Organizations</u>								
600 Gallon Tank				2,296			0	2,296
Flight Tests	Continuing	Continuing	122,991	27,841	31,057	32,447	Continuing	TBD
F-16 Y2K Demo	Continuing	Continuing	850					850
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
			<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>								
Rescission								
Subtotal Product Development			348,965	92,281	82,687	92,456	TBD	TBD
Subtotal Support and Management			767	267	418	0	TBD	TBD
Subtotal Test and Evaluation			126,137	27,841	31,057	32,447	TBD	TBD
Total Project			475,869	120,389	114,162	124,903	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207134F F-15E SQUADRONS</b>				PROJECT <b>670131</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
670131	Initial Operational Test and Evaluation	100,974	126,172	61,260	100,865	68,582	94,367	87,859	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The F-15E is the most versatile fighter in the world today. Configured with conformal fuel tanks (CFTs), the F-15E can deploy worldwide with minimal tanker support and arrive combat-ready. The F-15E retains air superiority capability and adds systems, such as Low Altitude Navigation Targeting Infrared for Night (LANTIRN), to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat into the next century. The threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. Avionics updates (exploiting proven technological advances) will be incorporated into the F-15E providing expanded capability and supporting an updated and fully integrated electronic warfare suite. This will increase the offensive and defensive capability and survivability of the F-15E. The F-15E PE also funds RDT&amp;E activities for PE 0207130F, F-15A-D.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$43,746           Continued OFP development efforts.</p> <p>(U) \$581              Completed development and improvements of the APG-63 radar</p> <p>(U) \$21,106          Continued flight test of the OFP and flight testing of improvements initiated in prior years.</p> <p>(U) \$4,800           Completed development of the Link-16 Data Link for the F-15E.</p> <p>(U) \$7,540           Continued development of the ALQ-135 Band 1.5.</p> <p>(U) \$4,695           Continued development attributed to DMS (Obsolete Parts)</p> <p>(U) \$6,070           Continued development of the Combat ID System</p> <p>(U) \$5,343           Continued development of the JHMCS.</p> <p>(U) \$2,846           Initiated development of the Air Data Processor (ADP) Upgrade.</p> <p>(U) \$3,507           Continued integration of Smart Weapons (formerly PACS upgrade) capability into F-15E</p> <p>(U) \$740              Continued TISS Computer Upgrade</p> <p>(U) \$100,974        Total</p>										
Project 670131				Page 1 of 7 Pages				Exhibit R-2 (PE 0207134F)		

## UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>07 - Operational System Development</b>		<b>February 2000</b>
PE NUMBER AND TITLE		PROJECT
<b>0207134F F-15E SQUADRONS</b>		<b>670131</b>
<b>(U) <u>A. Mission Description Continued</u></b>		
<b>(U) <u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$37,022	Continue OFP development efforts.	
(U) \$20,849	Continue flight test of the OFP and flight testing of improvements initiated in prior years.	
(U) \$18,405	Continue development of Advanced Display Core Processor (ADCP)(formerly OFP effort)	
(U) \$15,810	Continue integration of the Smart Weapons [formerly PACS upgrade].	
(U) \$7,092	Continue developments attributed to DMS. (Obsolete Parts)	
(U) \$4,469	Continue development of the Combat ID System.	
(U) \$1,875	Continue integration of the JHMCS.	
(U) \$1,510	Complete upgrade of the Air Data Processor (ADP).	
(U) \$196	Continue TISS Computer Upgrade	
(U) \$15,000	Initiate development of Electronic Counter-countermeasures (ECCM) - 3 year project fully funded with FY 2000 congressional add	
(U) \$3,944	Continue development of the ALQ-135 Band 1.5	
(U) \$126,172	Total	
<b>(U) <u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$20,616	Continue OFP development efforts.	
(U) \$12,834	Continue flight test of the OFP and flight testing of improvements initiated in prior years.	
(U) \$20,030	Continue integration of the Smart Weapons.	
(U) \$6,000	Continue developments attributed to DMS. (Obsolete Parts)	
(U) \$1,780	Continue development of the Combat ID System.	
(U) \$61,260	Total	
<b>(U) <u>B. Budget Activity Justification</u></b>		
The F-15E, which received contract award approval in FY84, is an operational aircraft and therefore the development activities in the Program Element are included in Budget Activity 7, Operational Systems Development.		
Project 670131		Exhibit R-2 (PE 0207134F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
<b>07 - Operational System Development</b>			<b>0207134F F-15E SQUADRONS</b>				<b>670131</b>			
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)		103,857	112,670	100,330					
(U)	Appropriated Value		104,207	127,670						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-56	-10						
	b. Small Business Innovative Research		-4,115							
	c. Omnibus or Other Above Threshold Reprogram			-693						
	d. Below Threshold Reprogram		1,797							
	e. Rescissions		-859	-795						
	f. Other							TBD		
(U)	Adjustments to Budget Years Since FY 2000 PBR				-39,070					
(U)	Current Budget Submit/FY 2001 PBR		100,974	126,172	61,260			TBD		
<b>(U) Significant Program Changes:</b>										
Funding (FY00):										
Smart Weapons \$15,810 - In FY00 the Smart Weapons/PACS will develop and complete the design for the Smart Weapons software. Scheduled milestones during this period are Preliminary Design Review and Critical Design Review.										
Advance Display Core Processor (ADCP) \$18,405 - ADCP development funding for FY00 will fund initial contract award of ADCP box. Previous RDOCS submissions combined ADCP-associated OFP effort in the ADCP line; this submission moves the OFP effort to the OFP funding line.										
Electronic Counter-Countermeasures (ECCM) \$15,000 - Congressional add; one year of funding for three (3) year Study Phase and EMD effort.										
ALQ-135 Band 1.5 \$3,944 -Program restructure extends program into FY00										
Funding (FY01):										
ADCP program restructured to address higher Air Force priorities.										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Aircraft Procurement (3010F), Line Item 5, F-15E		291,607							
Project 670131		Page 3 of 7 Pages					Exhibit R-2 (PE 0207134F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207134F F-15E SQUADRONS				PROJECT 670131	
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 (PE27134F) [BP 10]	233,832	308,907	258,247	249,136	258,529	263,179	103,263	Continuing	
(U) Aircraft Procurement (3010F), Line Item 27, F-15A-E (PEs 27130F and 27134F) [BP 11]	0	0	0	32	21,069	21,713	22,193	Continuing	
(U) Aircraft Procurement (3010F), Line Item 27, F-15 (PE27442F) [IDECM]	6,871	7,184	7,267	7,349	7,561	7,787	7,959	Continuing	
(U) Aircraft Procurement (3010F), Line Item 66, F-15A-E [BP 13]									
<b>(U) E. Acquisition Strategy</b>									
Program is a continuation of effort which includes the development of all F-15 models. Funds are executed organically in support of equipment improvement, study, analysis, and test.									
<b>(U) F. Schedule Profile</b>									
			<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3
(U) JHMCS Operational Testing start					*				
(U) Smart Weapons EMD start					*				
(U) Smart Weapons DT&E start									X
(U) OFP Suite 4 complete									X
(U) OFP Suite 4 VHSIC Central Computer Critical Design Review					*				
(U) OFP Suite 5 Phase I complete									X
(U) OFP Suite 5 Phase II complete									X
(U) ADCP COSSI tasks complete							X		
(U) ADCP EMD start							X		
(U) APG-63 IOT&E complete						*			
Project 670131	Page 4 of 7 Pages								Exhibit R-2 (PE 0207134F)

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207134F F-15E SQUADRONS</b>	PROJECT <b>670131</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) APG-63 OT flight test complete						X						
(U) Link-16 flight test start		*										
(U) Link-16 flight test complete						X						
(U) Combat ID DT start		*										
(U) ALQ-135, Band 1.5 OT start		*										
(U) ALQ-135, Band 1.5 DT start						X						
(U) ALQ-135, Band 1.5 DT/OT start						X						
(U) TISS Computer Upgrade EMD complete												X
(U) Air Data Processor EMD start		*										
(U) Air Data Processor EMD complete							X					
(U) ECCM Study Phase start						X						
(U) ECCM Study Phase complete										X		
(U) ECCM EMD start										X		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207134F F-15E SQUADRONS			PROJECT 670131		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	Flight Test					21,106	20,849	12,834		
(U)	OFF					43,746	37,022	20,616		
(U)	Link-16 Data Link					4,800	0	0		
(U)	APG-63(V)1					581	0	0		
(U)	Joint Helmet Mounted Cueing System					5,343	1,875	0		
(U)	DMS (Parts Obsolescence)					4,695	7,092	6,000		
(U)	Smart Weapons					3,507	15,810	20,030		
(U)	Advance Display Core Processor (ADCP)					0	18,405	0		
(U)	Combat ID					6,070	4,469	1,780		
(U)	ALQ-135 Band 1.5					7,540	3,944	0		
(U)	Air Data Processor					2,846	1,510	0		
(U)	TISS Computer Upgrade					740	196	0		
(U)	ECCM					0	15,000	0		
(U)	Total					100,974	126,172	61,260		
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
P&W (-229 Eng)	CPAF	Sep 94	6,520	6,520	6,520	0	0	0	0	6,520
GE (-129 Eng)	CPAF	Feb 95	7,130	7,130	7,130	0	0	0	0	7,130
Boeing (GFE/GFP)	FFP	Dec 93	1,975	1,975	1,975	0	0	0	0	1,975
OFF Suite 4/5/6 Development	CPAF	May 98	339,808	339,808	104,551	43,746	37,022	20,616	Continuing	TBD
Boeing APG63 (Feasibility Study)	CPFF	Feb 94	778	778	778	0	0	0	0	778
(Risk Reduction)	CPFF	Feb 94	9,892	9,892	9,892	0	0	0	0	9,892
Project 670131					Page 6 of 7 Pages	Exhibit R-3 (PE 0207134F)				

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>07 - Operational System Development</b>				<b>0207134F F-15E SQUADRONS</b>				<b>670131</b>		
<b>(U) Performing Organizations Continued:</b>										
<u>Product Development Organizations</u>										
(EMD)	CPAF	Sep 94	223,033	223,033	222,452	581	0	0	0	223,033
Boeing (JHMCS A-D)	CPAF		11,358	11,358	4,140	5,343	1,875	0	0	11,358
PACS Upgrade	CPAF	May 95	28,343	28,343	28,343	0	0	0	0	28,343
Wright Lab (DMS)	MIPR/PRs	Sep 94	81,348	81,348	24,311	4,695	7,092	6,000	Continuing	TBD
Smart Weapons Integration	CPAF	Feb 99	51,607	51,607	0	3,507	15,810	20,030	Continuing	TBD
ADP(E)	CPAF	Jan 99	4,356	4,356	0	2,846	1,510	0	0	4,356
ADCP(E)	CPAF	Jan 00	108,522	108,522	0	0	18,405	0	Continuing	TBD
NGA (ALQ-135 Band 1.5)	FFP	May 97	39,384	39,384	27,900	7,540	3,944	0	0	39,384
Link-16 Data Link	CPAF	Apr 98	19,400	19,400	14,600	4,800	0	0	0	19,400
Combat ID	CPAF	May 98	14,109	14,109	1,790	6,070	4,469	1,780	Continuing	TBD
TISS Replacement	CPFF	Aug 97	4,896	4,896	3,560	740	196	0	400	4,896
Boeing/Raytheon ECCM	CPAF	Jan 00	15,000	15,000	0	0	15,000	0	0	15,000
<u>Support and Management Organizations</u>										
(Msn Spt) Misc.					16,708	0	0	0	0	16,708
<u>Test and Evaluation Organizations</u>										
Boeing (Flt Test)	FFP	Oct 96	123,434	123,434	51,815	9,000	11,140	7,479	Continuing	TBD
Edwards (OFP)	PO	Oct 96	91,048	91,048	41,562	12,106	7,590	4,017	Continuing	TBD
Eglin (Flt Test)	PO	Oct 96	21,667	21,667	12,210	0	2,119	1,338	Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development					457,942	79,868	105,323	48,426	TBD	TBD
Subtotal Support and Management					16,708	0	0	0	0	16,708
Subtotal Test and Evaluation					105,587	21,106	20,849	12,834	TBD	TBD
Total Project					580,237	100,974	126,172	61,260	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>				PROJECT <b>674595</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674595	F-16 HARM Targeting System (HTS)	1,663	3,363	14,670	22,113	23,789	14,559	9,597	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            The overall Manned Destructive Suppression (MDS) program funds the development, procurement, and sustainment of the Air Force's lethal Suppression of Enemy Air Defenses (SEAD) capability. The program provides F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 HARM Targeting System (HTS). F-16 HTS is the only currently programmed reactive SEAD capability and enables targeting the HARM missile in the most lethal 'range known' mode. This RDT&amp;E effort continues HTS preplanned product improvement (P3I). In FY00 the HTS P3I program began development of the HTS Revision 7 (R7) upgrade. In FY01 effort will begin to develop HTS engineering changes needed to permit the F-16 to carry both an HTS pod and an advanced targeting pod (TGP). These HTS improvements represent the Air Force's near-term solution (until replaced by JSF) for Destruction of Enemy Air Defenses (DEAD) mission. R7/alternate/dual carriage will allow targeting of the Joint Standoff Weapon (JSOW) and potentially targeting of other precision guided munitions (PGMs) needed to destroy fixed and mobile enemy air defense system elements. R7 derived coordinates of threat emitters will be available to all Joint Forces via Link-16.</p>										
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$513 Complete HTS R6 development (includes Air Force Mission Support System (AFMSS) modifications)</p> <p>(U) \$1,117 Continued HTS Test and Evaluation</p> <p>(U) \$33 Continued Mission Support</p> <p>(U) \$1,663 Total</p>										
<p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p> <p>(U) \$2,661 Initiate HTS R7 Geolocation Upgrade Program Definition study &amp; Risk Reduction (PDRR)</p> <p>(U) \$702 Continue Mission Support</p> <p>(U) \$3,363 Total</p>										
<p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <p>(U) \$1,300 Complete HTS R7 Geolocation Upgrade Program Definition study &amp; Risk Reduction (PDRR)</p> <p>(U) \$11,520 Continue R7 Geolocation Development (Includes HTS/TGP Dual Carriage)</p> <p>(U) \$150 Initiate R7 Upgrade Test and Evaluation</p> <p>(U) \$1,700 Continue Mission Support</p>										
Project 674595		Page 1 of 5 Pages							Exhibit R-2 (PE 0207136F)	

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>			DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>		PROJECT <b>674595</b>	
(U) <b><u>A. Mission Description Continued</u></b>					
(U) <u>FY 2001 (\$ in Thousands) Continued</u>					
(U) \$14,670 Total					
(U) <b><u>B. Budget Activity Justification</u></b>					
This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS, a fielded system.					
(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b>					
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	2,392	5,402	1,472	67,370
(U)	Appropriated Value	2,443	3,402		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-44			
	b. Small Business Innovative Research	-5			
	c. Omnibus or Other Above Threshold Reprogram		-18		
	d. Below Threshold Reprogram	-715			
	e. Rescissions	-16	-21		
	f. Other				
(U)	Adjustments to Budget Years Since FY 2000 PBR			13,198	
(U)	Current Budget Submit/FY 2001 PBR	1,663	3,363	14,670	TBD
(U) <b><u>Significant Program Changes:</u></b>					
Funding was added in FY 2001 (\$13.2M) and in out-years to continue R7 upgrade development. R7 effort will focus on developing a HTS precision geolocation targeting capability and moving HTS pod location to allow carriage of advanced targeting pods on the F-16 Block 50/52 aircraft along with HTS. R7 will provide coordinates of threat emitters to the Joint Forces, enabling destruction of enemy air defense elements using JSOW or other precision guided munitions. Completion of R6 upgrade development and intital deployment has slipped into FY2000 due to software problems discovered during testing.					
Project 674595		Page 2 of 5 Pages	Exhibit R-2 (PE 0207136F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>	PROJECT <b>674595</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) HTS Aircraft Procurement (BP11)AF PE 0207136F	1,723					10,447	9,878	Continuing	
(U) HTS Aircraft Procurement (BP19)AF PE 0207136F	12,180		13,653		3,547			Continuing	

(U) **E. Acquisition Strategy**  
 The HTS program objective is to develop precision geolocation capability that significantly improves speed and accuracy of emitter targeting solutions on F-16 Block 50/52 aircraft. Precision geolocation capability will permit targeting of PGMs such as JSOW, in addition to the HARM missile, against mobile and fixed sites. The objective will be accomplished through study, risk reduction, and EMD efforts that significantly upgrade and increase the F-16's and Joint Forces real-time Destruction of Enemy Air Defenses (DEAD) capabilities.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Complete F-16 HTS R6 Upgrade Development						X						
(U) Continue F-16 HTS R7 Development					*							
(U) Award Contract for R7 PDRR						X						
(U) New Buy Lot 2 Contract Award	*											
(U) New Buy Lot 2 Pod Deliveries (16 Pods)									X	X		
(U) New Buy Lot 3 Contract Award				*								
(U) New Buy Lot 3 Pod Deliveries (13 Pods)										X	X	
(U) R6 Fielding								X		X		

\* = Completed Event      X = Planned Event



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>				PROJECT <b>674595</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	HTS R7 Program Definition study and Risk Reduction (PDRR)							2,661		1,300
(U)	R7 Geolocation Dev (Includes HTS/TGP Dual Carriage)									11,520
(U)	Test & Evaluation					1,117				150
(U)	HTS R6 (Includes AFMSS)					513				
(U)	Mission Support					33		702		1,700
(U)	Total					1,663		3,363		14,670
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Raytheon Systems Co.	SS/Various	Various	6,808	6,808	6,808	0	2,661	12,820	Continuing	TBD
Raytheon Systems Co.	SS/CPAF	Feb 96	30,931	30,931	30,931	400	0	0	0	31,331
AFMSS	SS/CPIF	Various			1,772	113	0	0	0	1,885
Lockheed/Ft Worth	SS/FFP	Various	2,400	2,400	2,400	0	0	0	0	2,400
<u>Support and Management Organizations</u>										
Prog. Mgt. and Mission Support	Various	Various			3,950	33	702	1,700	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Eglin	PO	Various			1,867	308	0	0	Continuing	TBD
Edwards	PO	Various			3,585	809	0	150	Continuing	TBD
Light Defender		Various			922	0	0	0	0	922

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207136F Manned Destructive Suppression			PROJECT 674595	
(U) <u>Government Furnished Property:</u>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Product Development Property</u>								
Not Applicable								
<u>Support and Management Property</u>								
Not Applicable								
<u>Test and Evaluation Property</u>								
Not Applicable								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
Subtotal Product Development				41,911	513	2,661	12,820	TBD
Subtotal Support and Management				3,950	33	702	1,700	TBD
Subtotal Test and Evaluation				6,374	1,117	0	150	TBD
Total Project				52,235	1,663	3,363	14,670	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207141F F-117A Squadron</b>				PROJECT <b>673956</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673956 F-117A Stealth Fighter	10,305	11,659	3,912	2,292	3,530	10,063	7,145	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The F-117 is the world's first operational low-observable (LO) combat aircraft. Its combination of stealth and precision weapons delivery capability allows the United States Air Force to hold even the most highly defended targets at risk. The program completed production in Jul 1990 with the delivery of the final F-117 (number 59). The single operational F-117 unit is the 49th Fighter Wing stationed at Holloman AFB, NM. The program is now primarily engaged in sustainment activities for the F-117 which is projected to remain in service through at least 2018. This program provides funds to develop improved systems to enhance combat capability while maintaining a safe, reliable and supportable aircraft.</p> <p>This project provides research and development for multiple modifications to the F-117 weapons system. The MIL-STD-1760 Stores Management Processor (SMP) modification, which is expected to complete development in FY00, is an essential prerequisite for integration of advanced weapons on the F-117. Development efforts continue for Smart Weapons Integration, providing limited Joint Direct Attack Munition (JDAM) capability on the F-117. The original program plan included JDAM and Wind Corrected Munitions Dispenser (WCMD) capability, however, the current limited JDAM program will be pursued as a result of increased contractor estimates for the full 2-weapon capability. The addition of a limited integrated Enhanced GBU-27 capability with Pilot/Vehicle Interface (PVI) will be incorporated into the Smart Weapons Integration program and will begin development in FY01. Block Cycle 3 (BC3) will also begin Pre-EMD activities in FY00. BC3 Mid Life Upgrade replaces obsolete systems, establishes new vendors and improves reliability and maintainability to keep the F-117 operational through its service life.</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$6,565 Continued development work on Stores Management Processor (SMP)</p> <p>(U) \$3,740 Limited Enhanced GBU-27 development per Combat Mission Needs Statement</p> <p>(U) \$10,305 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p> <p>(U) \$2,212 Complete development work on SMP</p> <p>(U) \$2,447 Continue development work on Smart Weapons Integration (JDAM Risk Reduction)</p> <p>(U) \$7,000 Begin development work on Block Cycle 3 (Pre-EMD/PDRR)</p> <p>(U) \$11,659 Total</p>									
Project 673956			Page 1 of 5 Pages				Exhibit R-2 (PE 0207141F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207141F F-117A Squadron</b>	PROJECT <b>673956</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$3,912 Continue development work on Smart Weapons Integration (EMD for limited JDAM and EGBU-27)</p> <p>(U) \$3,912 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and the program is in its deployment phase.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">5,097</td> <td style="text-align: right;">4,807</td> <td style="text-align: right;">2,847</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">5,147</td> <td style="text-align: right;">11,807</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-35</td> <td style="text-align: right;">-10</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-213</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">3,740</td> <td style="text-align: right;">-64</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: right;">1,739</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-73</td> <td style="text-align: right;">-74</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: right;">1,065</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: right;">10,305</td> <td style="text-align: right;">11,659</td> <td style="text-align: right;">3,912</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>Note: \$-61 for CANX Bill included in the FY99 Below Threshold Reprogram total</p> <p>(U) <b><u>Significant Program Changes:</u></b></p> <p>FY99: The F-117 was directed through a Combat Mission Statement (CMNS) to provide an adverse weather delivery of a precision weapon, specifically the Enhanced GBU-27 (EGBU-27). \$1.8M was added to the Stores Management Processor (SMP) effort for software modification, integrating a minimum 1760 interface, which will provide power and GPS data to the EGBU-27; \$3.74M in FY99 Supplemental funds for CMNS limited EGBU-27 integration development.</p> <p>FY00: \$7M was added to fund Block Cycle 3 Pre-EMD</p> <p>FY01: \$1.1M was added to Smart Weapons Integration development effort to support JDAM testing through the use of Environmental Guided Test Vehicles.</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	5,097	4,807	2,847	TBD	(U) Appropriated Value	5,147	11,807			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-35	-10			b. Small Business Innovative Research	-213				c. Omnibus or Other Above Threshold Reprogram	3,740	-64			d. Below Threshold Reprogram	1,739				e. Rescissions	-73	-74			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			1,065		(U) Current Budget Submit/FY 2001 PBR	10,305	11,659	3,912	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	5,097	4,807	2,847	TBD																																																										
(U) Appropriated Value	5,147	11,807																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-35	-10																																																												
b. Small Business Innovative Research	-213																																																													
c. Omnibus or Other Above Threshold Reprogram	3,740	-64																																																												
d. Below Threshold Reprogram	1,739																																																													
e. Rescissions	-73	-74																																																												
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			1,065																																																											
(U) Current Budget Submit/FY 2001 PBR	10,305	11,659	3,912	TBD																																																										
Project 673956	Page 2 of 5 Pages	Exhibit R-2 (PE 0207141F)																																																												

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207141F F-117A Squadron</b>				PROJECT <b>673956</b>			
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>											
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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											
(U) Aircraft Procurement (BA-5), Appn 3010/BP1100, AF F117A Squadrons, PE 27141F	28,488	37,201	32,005	27,397	21,215	8,255	759	Continuing	TBD		
(U) Other Procurement, Appn 3080/BP8300, AF F117A Squadrons, PE 27141F			2,377						2,377		
<b>(U) E. Acquisition Strategy</b>											
RDT&E funds are executed to develop improved capability, reliability, maintenance and safety modification development efforts. Operational Flight Program (OFP) software is continuously updated as needed to support mod efforts to complement modification development efforts. The contracting approach varies by individual effort and involves Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF), and Cost Plus Award Fee (CPAF) contract types.											
<b>(U) F. Schedule Profile</b>											
				<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>		
				1	2	3	4	1	2	3	4
(U) Stores Management Processor (SMP) (RDT&E Started Jul 96, Finishes Mar 00)							X				
(U) Single Configuration Fleet (SCF) (RDT&E Started Apr 96, Finishes Jan 99)				*							
(U) Smart Weapons Integration--Limited JDAM (PDRR Starts Sep 98, Fi Sep 00)								X			
(U) Smart Weapons Integ--Limited JDAM & Full EGBU-27 (EMD Strt FY01, Fin FY06)									X		
(U) Block Cyce 3 Pre-EMD (RDT&E Starts FY 00, Finishes FY 01)							X				X
Project 673956											
Page 3 of 5 Pages											
Exhibit R-2 (PE 0207141F)											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207141F F-117A Squadron			PROJECT 673956			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Development work on SMP (MIL-STD-1760)					6,565		2,212			
(U)	Limited Enhanced GBU-27 CMNS Integration					3,740					
(U)	Smart Weapons Integration							2,447		3,912	
(U)	Block Cycle 3 Pre-EMD/PDRR							7,000			
(U)	Total					10,305		11,659		3,912	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	SMP (MIL-STD-1760 modification)										
	Lockheed Martin Skunk Works, Palmdale CA	CPAF	Jul 98	19,927	19,927	11,150	6,565	2,212	0	0	19,927
	Single Configuration Fleet (RAM Recoat Modification)						0	0	0	0	0
	Wright Laboratory, Signature technology office	AF 616	Apr 96	329	329	329	0	0	0	0	329
	Sandia Labs, Albuquerque NM	MIPR	Jan 98	4,751	4,751	4,751	0	0	0	0	4,751
	Lockheed Martin Skunk Works, Palmdale CA	T&M	Apr 98	5,590	5,590	5,590	0	0	0	0	5,590
	Ozone Depleting Chemical Modification	CPFF	Sep 97	2,139	2,139	2,139	0	0	0	0	2,139
	Lockheed Martin Skunk Works, Palmdale CA										
Project 673956						Page 4 of 5 Pages			Exhibit R-3 (PE 0207141F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
07 - Operational System Development										0207141F F-117A Squadron
										673956
(U) <b>Performing Organizations Continued:</b>										
<u>Product Development Organizations</u>										
Smart Wpn Integration	CPAF	Sep 98	TBD	TBD	350	0	2,447	3,912	Continuing	TBD
Lockheed Martin Skunk Works, Palmdale CA										
Limited Enhanced GBU-27	CPAF	Sep 99	3,740	3,740	0	3,740	0	0	0	3,740
Lockheed Martin Skunk Works, Palmdale CA										
Block Cycle 3 Pre-EMD	CPFF	Apr 00	7,000	7,000	0	0	7,000	0	0	7,000
Lockheed Martin Skunk Works, Palmdale CA										
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					24,309	10,305	11,659	3,912	TBD	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project					24,309	10,305	11,659	3,912	TBD	TBD



**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>				PROJECT <b>674132</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674132	AIM-9 Product Improvement	49,348	40,513	21,706	3,510	4,847	16,451	5,836	0	241,429
	Quantity of RDT&E Articles	1	5	6	11	0	0	0	0	23
<p>Note: The RDT&amp;E articles are deliverables under the Engineering and Manufacturing Development contract and are not separately priced. Quantities are delivered in the indicated Fiscal Years. Deliveries support restructured program.</p> <p>(U) <b><u>A. Mission Description</u></b>                      The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design. AIM-9X is an Acquisition Category ID (ACAT ID) joint-service program with Navy lead.</p> <p>Status: The program is on track to meet LRIP entry criteria in Aug 00. As of Jan 00, the AIM-9X test program has demonstrated capabilities beyond those of the currently fielded AIM-9M short range missile. USAF and USN warfighters have jointly emphasized the need to aggressively field the AIM-9X to counter the already fielded and superior threat air-to-air systems.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$31,505 Continued the manufacturing development contract and accept delivery of one test article                      (U) \$6,602 Continued providing aircraft interface support to the Engineering and Manufacturing Development (EMD) contractor, incorporate results of wind tunnel test for the F-15 and F-18                      (U) \$7,354 Continued Developmental Test IIB (DT-IIB), and start DT-IIC (Guided Launches), Operational Test IIA (OT-IIA) (Guided Launches), and conduct insensitive munitions tests at multiple test sites                      (U) \$831 Field engineering support for government flight test activities                      (U) \$2,518 Provided program office management support to include working capital funded personnel, supplies, and travel                      (U) \$538 Provided contractor services support to the program office                      (U) \$49,348 Total</p>										
Project 674132			Page 1 of 7 Pages				Exhibit R-2 (PE 0207161F)			

## UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PROJECT <b>674132</b>
PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>		
(U)	<b><u>A. Mission Description Continued</u></b>	
(U)	<b><u>FY 2000 (\$ in Thousands)</u></b>	
(U)	\$19,635	Continue the manufacturing development contract to include Technical Readiness Review (TRR), Production Readiness Review (PRR) leading to a Defense Acquisition Board Low Rate Initial Production (LRIP) decision in 4th Qtr FY00 with production option award in FY01, and delivery of five test articles. Continue flight testing (DT) and OT flight test support for Operational Assessment.
(U)	\$1,300	Continue providing aircraft interface data to the EMD contractor in support of OT-IIA and DT-IIC and complete OT-IIA
(U)	\$14,343	Continue providing government flight test support of ongoing activities defined in DT-IIB and Captive Carry Reliability Flight Program at multiple test sites
(U)	\$1,699	Field engineering support for government flight test activities
(U)	\$2,814	Provide program office management support to include working capital funded personnel, supplies, and travel
(U)	\$722	Provide for consulting services, technical engineering, and management support
(U)	\$40,513	Total
(U)	<b><u>FY 2001 (\$ in Thousands)</u></b>	
(U)	\$10,095	Continue the manufacturing development contract to include completion of DT-IIB/C and start of DT-IID Launches and delivery of six test articles
(U)	\$1,181	Continue providing aircraft interface support to the EMD contractor
(U)	\$8,183	Continue providing government flight test support of activities defined as DT-IID and DT Assist (with operational testers) at multiple test sites
(U)	\$602	Field engineering support for government flight test activities
(U)	\$1,422	Provide program office management support to include working capital funded personnel, supplies, and travel
(U)	\$223	Provide for consulting services, technical engineering, and management support
(U)	\$21,706	Total
(U)	<b><u>B. Budget Activity Justification</u></b>	
	This program is in budget activity 7 - Operational System Development, since the AIM-9X is a modification to the already fielded AIM-9M and a long term evolution of the AIM-9 series of air-to-air missiles.	
Project 674132		Exhibit R-2 (PE 0207161F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE
				February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
<b>07 - Operational System Development</b>	<b>0207161F Tactical AIM Missiles</b>			<b>674132</b>
(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b>				
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	52,604	41,007	17,399	240,212
(U) Appropriated Value	52,966	41,007		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-212	-15		
b. Small Business Innovative Research	-1,599			
c. Omnibus or Other Above Threshold Reprogram		-223		
d. Below Threshold Reprogram	-1,381			
e. Rescissions	-426	-256		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			4,307	
(U) Current Budget Submit/FY 2001 PBR	49,348	40,513	21,706	241,429
(U) <b><u>Significant Program Changes:</u></b>				
<p>General: The AIM-9X program has developed two restructuring efforts since the submission of the FY00 PB. The Jul 99 restructure resulted from the eight month delay in the flight test program and moved full rate production (MS III) from FY02 to FY03, changed the original FY02 full rate procurement (FRP) into a third LRIP, and adjusted completion of the OT-IIB period while maintaining a FY02 Required Assets Availability (RAA) date. The second restructure was due to the Appropriations Conference zeroing of FY00 procurement funding. This moves the LRIP 1 contract award into FY 01, slips FRP award into FY04 and the RAA date slips into FY03.</p> <p>Funding: The FY01 increase of \$4,307 is needed to support flight test activities. The delayed start of the flight test program moved test activities programmed in FY00 into FY01. Increased contractor and government support is required under the restructured program. The funding was available as a result of the program restructure, which reduced the number of missiles procured in FY01 and adjusted the procurement and RDT&amp;E funding. Out year RDT&amp;E funding will include an initiative to design launcher modifications to relocate older AIM-9M fin retention clips to accommodate AIM-9X (fin clips not needed and interfere with separation in high dynamic engagements) as well as P3I requirements.</p> <p>Schedule: The program is on track to meet LRIP entry criteria in Aug 00. It is important to note that the DAB will be held in 4QFY00 to ensure we are able to award the LRIP 1 production option in 1QFY01. The flight test program has completed three guided firings demonstrating improved capabilities over the fielded AIM-9M.</p>				
Project 674132	Page 3 of 7 Pages	Exhibit R-2 (PE 0207161F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>	PROJECT <b>674132</b>
---	--	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Missile Procurement, P-1 line item Tactical AIM Missile Modification	0	0	25,510	46,079	65,409	83,014	65,781	846,127	1,131,920
(U) SEEK EAGLE	0	0	2,918	5,331	1,944	0	4,266	Continuing	TBD

(U) **E. Acquisition Strategy**  
 After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile Systems Company (now Raytheon Systems Corp (RSC)) to complete missile system development and prepare for production. This EMD contract includes three Fixed Price Incentive Fee options for Low Rate Initial Production (LRIP) Lots 1, 2, and 3. These production options are planned to be exercised in FY01, FY02, and FY03. The EMD contract and production options provide strong incentives for the contractor to control costs, achieve reliability performance and deliver on schedule. The DAB will make the LRIP decision.

The Navy Acquisition Executive will make the Full Rate Production (FRP) decision with advice from the Air Force Acquisition Executive subsequent to the successful completion of the associated exit criteria. FRP Lots 4 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided if the contractor meets or beats his Procurement Price Commitment Curve (PPCC), a quantity price curve provided by RSC with the EMD proposal. Rewards or penalties are provided depending on RSC's performance relative to the PPCC. A Service review of RSC's Lot 4 through 7 proposals relative to the PPCC will be held prior to award of those contracts.

(U) **F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) DT-IIB Safe Separation Launches Start		*										
(U) DT-IIC Guided Launches Start			*									
(U) Conduct Insensitive Munitions Tests				*								
(U) OT-IIA (Guided Launches) Starts					*							
(U) PRR for LRIP									X			
(U) DT-IIID (Launches) Starts									X			
(U) LRIP DAB									X			
(U) LRIP 1 Award										X		
(U) DT Assist Starts												X

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>	PROJECT <b>674132</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4

\* Completed Events X Planned Events

Note: The above schedule profile reflects the Overarching IPT approved program adjusted to compensate for late start of the first AIM-9X separation flight test program. Since that time, the program has executed a total of eight separation flights and three guided tests between the Air Force and Navy to hold schedule. The fact-of-life Congressional decision to eliminate FY00 procurement funding moved the LRIP 1 contract award to 1QFY01. Other identified events remain the same.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>			PROJECT <b>674132</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Project Cost Categories									
(U)	a. Primary Hardware Development					31,505		19,635		10,095
(U)	b. Contractor Engineering Support (F-15 AIM-9X Aircraft Integration)					6,602		1,300		1,181
(U)	c. Development and Test Evaluation					7,354		14,343		8,183
(U)	d. Government Engineering Support					831		1,699		602
(U)	e. Program Management (PMA)					2,518		2,814		1,422
(U)	f. Contractor Services Support					538		722		223
(U)	Total					49,348		40,513		21,706
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Hughes	C/CPIF	Dec 94	5,694	5,694	5,694	0	0	0	0	5,694
Raytheon	C/CPIF	Dec 94	5,695	5,695	5,695	0	0	0	0	5,695
Raytheon	C/CPIF	Dec 96	136,930	136,930	52,350	31,505	19,635	10,095	17,372	130,957
Boeing	C/CPIF	Jan 96	20,397	20,397	9,505	6,602	1,300	1,181	1,809	20,397
Engineering Services	Various	Various	N/A	N/A	13,558	831	1,699	602	4,880	21,570
Program Management*	PO	Various	N/A	N/A	5,782	2,518	2,814	1,422	1,553	14,089
Note*: Based on a Memorandum of Agreement, RDT&E program costs includes Navy PMA working capital funded personnel funded at 50%/50% ratio per Service.										
<u>Support and Management Organizations</u>										
Various Contracts	FFP	Various	N/A	N/A	1,273	538	722	223	135	2,891
<u>Test and Evaluation Organizations</u>										
Field Activities	PO	Oct 96	N/A	N/A	5,138	7,354	14,343	8,183	5,118	40,136

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207161F Tactical AIM Missiles				PROJECT 674132	
<b>(U) Government Furnished Property:</b>									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>								
<u>Product Development Property</u>									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
<u>Support and Management Property</u>									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Property</u>									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				92,584	41,456	25,448	13,300	25,614	198,402
Subtotal Support and Management				1,273	538	722	223	135	2,891
Subtotal Test and Evaluation				5,138	7,354	14,343	8,183	5,118	40,136
Total Project				98,995	49,348	40,513	21,706	30,867	241,429



**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207163F Advanced Medium Range Air-to-Air Missile</b>				PROJECT <b>673777</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673777	AMRAAM	33,466	52,146	53,707	50,924	33,595	33,199	34,093	73,900	685,633
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against mid-1990's and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced EP capabilities; improved weapon effectiveness through improved warhead, fuzing, and guidance; and increased kinematics via a new 5-inch stretched rocket motor. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.</p>										
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>										
(U)	\$27,184	Initiated P3I Phase 3 EP and guidance EMD								
(U)	\$2,134	Continued mission support								
(U)	\$4,148	Continued test and evaluation								
(U)	\$33,466	Total								
<p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p>										
(U)	\$50,303	Continue P3I Phase 3 improved seeker and advanced EP updates								
(U)	\$1,769	Continue mission support								
(U)	\$74	Continue test and evaluation								
(U)	\$52,146	Total								
<p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p>										
(U)	\$51,569	Continue P3I Phase 3 improved seeker and advanced EP updates								
(U)	\$2,056	Continue mission support								
(U)	\$82	Continue test and evaluation								
(U)	\$53,707	Total								
<p>Project 673777</p>										

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207163F Advanced Medium Range Air-to-Air Missile</b>	<b>PROJECT</b> <b>673777</b>
--	--	---------------------------------

(U) **B. Budget Activity Justification**

This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	35,663	49,783	54,184	687,364
(U) Appropriated Value	36,078	52,783		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-415	-22		
b. Small Business Innovative Research	-1,050			
c. Omnibus or Other Above Threshold Reprogram		-286		
d. Below Threshold Reprogram	-960			
e. Rescissions	-187	-329		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			-477	
(U) Current Budget Submit/FY 2001 PBR	33,466	52,146	53,707	685,633

Note: \$408K cancelled year bill included in FY99 Below Threshold Reprogramming total.

(U) **Significant Program Changes:**  
None.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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, Budget Activity #2, PE 0207163F, P-1 Line Item, AMRAAM	89,714	89,670	98,075	115,384	109,564	110,846	112,426	241,780	6,814,123
(U) Replenishment Spares, BP25	5,196	327	234	240	238	195	281	400	60,036
(U) Initial Spares, BP26	725	192	138	119	124	123	123	400	63,653
(U) Seek Eagle	0	0	612	0	0	0	0	0	15,137

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207163F Advanced Medium Range Air-to-Air Missile</b>	PROJECT <b>673777</b>
---	---	--------------------------

(U) **E. Acquisition Strategy**

The AMRAAM Pre-Planned Product Improvement (P3I) program takes advantage of emerging technologies to update and expand the system capabilities to meet new user requirements. The Phase 1 missile, currently in production, allows carriage on the F-22 with clipped wings and fins as well as providing some software enhancements. The Phase 2 AIM-120 C4 missile adds a new warhead which increases lethality and the AIM-120 C5 missile has a +5 inch rocket motor for kinematic improvements. The first Phase 2 AIM-120 C4 missile was delivered in Aug of FY99. The AIM-120 C5 missiles will begin delivery in Jul of FY00. The Phase 3 missile is the first major upgrade to the seeker hardware and software to meet performance requirements for the 2003 time-period. A Cost Plus Award Fee EMD contract was awarded on 29 Oct 1999. This missile will begin deliveries in FY04. The second stage of Phase 3, beginning in FY04, will develop a new rocket motor to meet increased kinematic requirements.

(U) **F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>				
1	2	3	4	1	2	3	4	1	2	3	4
(U) P3I Phase 2 Tape 7B Flt Test Comp	*										
(U) P3I Phase 2 Shortened Control Actuation System (SCAS) FCA		*									
(U) P3I Phase 3 Seeker EMD Contract Award		*									
(U) P3I Phase 3 Seeker System Design Review (SDR)		*									
(U) P3I Phase 3 Fuzing Functional Configuration Audit (FCA)									X		
(U) P3I Phase 3 Seeker Preliminary Design Review (PDR)									X		
(U) P3I Phase 3 Seeker Critical Design Review (CDR)											X

Schedule Changes:  
The Fuzing FCA schedule slip was caused by an increase in the software development schedule associated with the Quadrant-sensing Target Detection Device (QTDD).

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
<b>07 - Operational System Development</b>					<b>0207163F Advanced Medium Range Air-to-Air Missile</b>			<b>673777</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	a.	Phase 3 EMD Improved Seeker and Advanced EP Updates				27,184	50,303	51,569		
(U)	b.	Gov Mission Support				2,134	1,769	2,056		
(U)	c.	Gov Test & Evaluation				4,148	74	82		
(U)		Total				33,466	52,146	53,707		
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Misc. Contracts	SS/FFP	Annual	N/A	N/A	8,470	232	1,308	855	6,521	17,386
F08635-90-C-0201 Hughes	SS/FFP	Aug 90	5,200	5,200	5,200	0	0	0	0	5,200
F08626-91-C-0034 Hughes	SS/CPIF	Mar 91	93,506	93,506	93,506	0	0	0	0	93,506
F08626-93-C-0044 (Phase 2) Hughes	SS/CPAF	Jun 94	117,558	117,558	117,558	0	0	0	0	117,558
Phase 3 Risk Reduction	SS/CPAF	Oct 95	24,484	24,484	24,484	0	0	0	0	24,484
Phase 3 Improved Fuzing Capability	SS/CPAF	Oct 99	5,287	5,287	0	5,287	0	0	0	5,287
Phase 3 Improved Seeker and Advanced EP	SS/CPAF	Oct 99	199,365	199,365	455	21,665	48,995	50,714	77,313	199,142
EMD Contract Phase 3 Follow on	SS/CPAF	Oct 04	128,707	128,707	0	0	0	0	128,707	128,707
*Note: Hughes became part of Raytheon Systems effective Dec 97										
<u>Support and Management Organizations</u>										
COEA	PO/MIPR	Jan 94	N/A	N/A	3,358	0	0	0	0	3,358
Contractor Support	REO/PR	Annual	N/A	N/A	14,719	1,467	1,229	1,420	8,024	26,859
JSP0 Operations	PR/IMPAC	Annual	N/A	N/A	17,671	667	540	636	3,720	23,234
Project 673777					Page 4 of 5 Pages			Exhibit R-3 (PE 0207163F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000			
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
<b>07 - Operational System Development</b>					<b>0207163F Advanced Medium Range Air-to-Air Missile</b>				<b>673777</b>		
<b>(U) <u>Performing Organizations Continued:</u></b>											
<u>Test and Evaluation Organizations</u>											
Government Test	REO/MIPR	Annual	N/A	N/A	32,802	4,148	74	82	1,426	38,532	
<b>(U) <u>Government Furnished Property:</u></b>											
	<u>Contract</u>										
	<u>Method/Type</u>	<u>Award or</u>									
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>											
Not Applicable											
<u>Support and Management Property</u>											
Not Applicable											
<u>Test and Evaluation Property</u>											
TM/ECM Pods	REO/MIPR	Annual			2,380	0	0	0	0	2,380	
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>	
<u>Subtotals</u>											
Subtotal Product Development					249,673	27,184	50,303	51,569	212,541	591,270	
Subtotal Support and Management					35,748	2,134	1,769	2,056	11,744	53,451	
Subtotal Test and Evaluation					35,182	4,148	74	82	1,426	40,912	
Total Project					320,603	33,466	52,146	53,707	225,711	685,633	

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>				PROJECT <b>670001</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
670001	Air Force TENCAP	6,003	12,929	9,826	10,779	10,497	10,707	10,919	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**  
 The Congressionally-mandated Air Force Tactical Exploitation of National Capabilities (AF TENCAP) program pursues seamless integration of space systems' capabilities into military operations for tactical use by warfighters. AF TENCAP expedites improvements to Air Force combat capabilities through rapid-prototyping projects that culminate in operational concept demonstrations. Although not a developmental program per normal acquisition guidelines, the program does support future operational systems development: successfully-demonstrated concepts are transitioned to users for fielding and deployment. Additionally, AF TENCAP-developed equipment is deployed in support of real-world contingency operations.

AF TENCAP leverages investments in space systems for tactical warfighter use in three ways, through six program branches denoted by the identifier 'TENCAP' (previously 'TALON'):

- 1) Exploiting existing space systems for tactical applications. AF TENCAP conceives and demonstrates capabilities to exploit these systems through rapid-prototyping projects in four program divisions:
  - TENCAP Command provides space systems with applications to enhance Theater Battle Management support for Command and Control (C2) systems
  - TENCAP Knight provides space system capabilities in tailored applications for use by Special Operations Forces
  - TENCAP Shooter gets time-critical intelligence obtained by space systems into aircraft cockpits and/or weapons to support weapons delivery
  - TENCAP Ready provides space systems products and applications for intelligence preparation of the battlefield through mission planning, preparation, rehearsal, and combat execution
- 2) TENCAP Vision influences the design and operation of new space systems for warfighters by advocating tactical applications and missions for them (in the form of analyses and integration of space systems into roadmaps and architectures for Air Force weapons/C4I systems)
- 3) TENCAP Warrior supports education and training of operational forces in emerging space and space-related technologies and concepts, as well as education of national providers about operational user requirements and environments, through participation in combat and contingency operations, exercises, and project demonstrations. TENCAP Warrior also supports RDT&E for and sustains (through Operations & Maintenance funds) specialized aerospace integration facilities that enhance such education and training.



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>		PROJECT <b>670001</b>	
(U)	<b><u>A. Mission Description Continued</u></b>				
(U)	<u>FY 1999 (\$ in Thousands)</u>				
(U)	\$5,065	Exploited existing space systems for tactical applications; influenced design of future space systems; supported RDT&E for training facilities			
(U)	\$767	Transitioned AF TENCAP concept demonstrations to field			
(U)	\$171	Program support			
(U)	\$6,003	Total			
(U)	<u>FY 2000 (\$ in Thousands)</u>				
(U)	\$8,291	Exploiting existing space systems for tactical applications; influencing design of future space systems; supporting RDT&E for training facilities			
(U)	\$3,000	Developing and testing hyperspectral imagery sensors and exploitation tools (per FY00 Congressional direction)			
(U)	\$1,098	Transitioning AF TENCAP concept demonstrations to field			
(U)	\$158	Contract bridge activities			
(U)	\$382	Program support			
(U)	\$12,929	Total			
(U)	<u>FY 2001 (\$ in Thousands)</u>				
(U)	\$9,141	Exploiting existing space systems for tactical applications; influencing design of future space systems			
(U)	\$100	Developing and testing hyperspectral imagery sensors and exploitation tools (completing FY00 Congressional direction)			
(U)	\$385	Transitioning AF TENCAP concept demonstrations to field			
(U)	\$200	Program support			
(U)	\$9,826	Total			
(U)	<b><u>B. Budget Activity Justification</u></b>				
	Since this effort supports fielded systems, it is in Budget Activity #7, 'Operational Systems Development'.				
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	6,328	10,102	9,914	TBD
(U)	Appropriated Value	6,447	13,102		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-119			
	b. Small Business Innovative Research	-206			
Project 670001		Page 2 of 6 Pages		Exhibit R-2 (PE 0207247F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>				PROJECT <b>670001</b>			
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>											
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>Total Cost</u>	
	c. Omnibus or Other Above Threshold Reprogram					-71					
	d. Below Threshold Reprogram			-85							
	e. Rescissions			-34		-102					
	f. Other									TBD	
(U)	Adjustments to Budget Years Since FY 2000 PBR							-88			
(U)	Current Budget Submit/FY 2001 PBR			6,003		12,929		9,826		TBD	
(U)	<u>Significant Program Changes:</u>										
	FY 1999: \$85K reprogrammed to support higher Air Force priorities										
	FY 2001: \$88K adjustment to fund higher Air Force priorities										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>											
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 funding in 'Intelligence Communications Equipment', WSC 832070			190	192	196	197	196	199	203	Continuing
<b>(U) E. Acquisition Strategy</b>											
	Cost plus award fee contract with a ceiling of hours available to AF TENCAP. Theater MAJCOM mission area plan (MAP) deficiencies provide the requirements for AF TENCAP development projects. Each project must correct a MAP deficiency or deficiencies and be approved by an AF TENCAP O-6 (Colonel) Review Group. In addition, theater MAJCOMs must be willing to assume future acquisition and logistics responsibilities, budgeting for projects in their Program Objective Memorandums.										
<b>(U) F. Schedule Profile</b>											
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>			
				1	2	3	4	1	2	3	
(U)	Contractor Proposals for FY00 Projects						*				
(U)	FY00 Project Evaluated and Approved						*				
(U)	FY00 Project Authority to Proceed							*			
(U)	FY01 Projects Identified										
(U)	Contractor Proposals for FY01 Projects								X		
Project 670001				Page 3 of 6 Pages				Exhibit R-2 (PE 0207247F)			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>	PROJECT <b>670001</b>
---	---	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) FY01 Projects Evaluated and Approved									X			
(U) FY01 Project Authority to Proceed										X		
(U) FY02 Projects Identified										X		
(U) Contractor Proposals for FY02 Projects												X
(U) FY02 Projects Evaluated and Approved												X

\* = Completed Event  
X = Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207247F Air Force TENCAP			PROJECT 670001		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
					<u>FY 1999</u>		<u>FY 2000</u>			<u>FY 2001</u>
(U)	Exploiting existing space systems for tactical applications				3,613		7,114			7,867
(U)	Influencing design of future space systems				974		880			1,274
(U)	Supporting RDT&E for aerospace integration facilities				478		297			0
(U)	Developing/testing hyperspectral imagery sensors/exploitation (per FY00 Congressional direction)				0		3,000			100
(U)	Transitioning concept demonstrations to field				767		1,098			385
(U)	Contract Bridge Activities				0		158			0
(U)	Program Support				171		382			200
(U)	Total				6,003		12,929			9,826
*This section has been revised since the FY 2000 President's Budget submission to display costs by AF TENCAP mission rather than AF TENCAP division										
*AF TENCAP RDT&E-funded aerospace integration facility upgrade efforts complete in FY 2000, but facility sustainment efforts (financed by Operations & Maintenance appropriations) will continue.										
*Program support costs increase in FY 2000 to support transition of the AF TENCAP acquisition function from Schriever AFB to Peterson AFB										
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Not Applicable										
<u>Support and Management Organizations</u>										
Multiple	Various	Multiple			19,568	1,127	6,682	5,896	Continuing	TBD
Lockheed Martin	CPAF	Sept 95	Continuing	Continuing	31,559	4,876	6,070	0	0	42,505
Future Contract	TBD	Aug 00	TBD	Continuing	0	0	177	3,930	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Not Applicable										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207247F Air Force TENCAP			PROJECT 670001		
(U) <b>Government Furnished Property:</b>									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development									
Subtotal Support and Management				51,127	6,003	12,929	9,826	TBD	TBD
Subtotal Test and Evaluation									
Total Project				51,127	6,003	12,929	9,826	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207253F Compass Call</b>				PROJECT <b>674804</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674804 Compass Call	11,892	12,837	5,834	3,886	3,879	3,870	0	0	40,759
Quantity of RDT&E Articles	2	2	2	2	2	2	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      COMPASS CALL is DoD's airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, preventing and managing his ability to effectively command and control his forces in the field. The Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) replaces the aging compressive receiver suite responsible for acquiring target systems with a digital, reprogrammable receiver that will enable COMPASS CALL to remain viable in countering the next generation of deployed threats. TRACS EMD and flight testing are urgently needed to complete TRACS development and enable the start of production to replace the COMPASS CALL fleet's aging receiver subsystem. The current receiver is late 1970's vintage and must be replaced to meet deployed threats and alleviate impending supportability problems. The reprogrammable nature of TRACS will allow it to remain viable for the extended future through software upgrades. These upgrades will be developed beginning in FY02 and continue throughout the life of the program, ensuring COMPASS CALL stays abreast of rapidly emerging threat technologies.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$11,433 Started non-recurring engineering (NRE) activities for TRACS-C production                      (U) \$200 Initiated flight test planning                      (U) \$259 Conducted TRACS-F technology trade study                      (U) \$11,892 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$4,200 Continue TRACS-C development and integration                      (U) \$453 Start flight test activities for TRACS-C                      (U) \$8,184 TRACS-F Development                      (U) \$12,837 Total</p>									
Project 674804			Page 1 of 4 Pages				Exhibit R-2 (PE 0207253F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>			PE NUMBER AND TITLE <b>0207253F Compass Call</b>			PROJECT <b>674804</b>				
(U) <b><u>A. Mission Description Continued</u></b>										
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U)	\$4,548	Complete TRACS-C development and integration								
(U)	\$986	Continue flight test for TRACS-C								
(U)	\$300	Conduct TRACS-F ground demonstration								
(U)	\$5,834	Total								
(U) <b><u>B. Budget Activity Justification</u></b>										
This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.										
(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>					
(U)	Previous President's Budget (FY 2000 PBR)	12,419	4,908	5,886	40,759					
(U)	Appropriated Value	12,500	12,908							
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions	-81								
	b. Small Business Innovative Research	-460								
	c. Omnibus or Other Above Threshold Reprogram		-71							
	d. Below Threshold Reprogram									
	e. Rescissions	-67								
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR			-52						
(U)	Current Budget Submit/FY 2001 PBR	11,892	12,837	5,834						
(U) <u>Significant Program Changes:</u>										
(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 0207253F, Aircraft Modification (3010)	7,205	9,260	16,729	23,039	31,447	17,650	8,341		TBD

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207253F Compass Call</b>	PROJECT <b>674804</b>
---	---	--------------------------

(U) **E. Acquisition Strategy**  
 CPAF contracting will be employed for both EMD and flight test in FY00 and 01. Upgrades for waveform development to preserve system viability for the remainder of the program will employ CPIF contracting.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TRACS-C EMD Starts			*									
(U) TRACS-C Production Long Lead Starts					*							
(U) TRACS-C Flight Test Begins						X						
(U) TRACS-C EMD Unit Deliveries Begin									X			

\* Denotes completed event  
 X Denotes planned event



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207253F Compass Call			PROJECT 674804			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Hardware/Software Development					11,892		12,384		4,848	
(U)	System Integration							453		986	
(U)	Total					11,892		12,837		5,834	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or</u>	<u>Contract</u>									
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
	<u>Product Development Organizations</u>										
	Sanders	CPAF/IF	FY99	TBD	TBD		11,892	12,384	4,848	10,196	
	<u>Support and Management Organizations</u>										
	None										
	<u>Test and Evaluation Organizations</u>										
	TBD	MIPR	FY00	TBD	TBD			453	986	0	
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
						<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
	<u>Subtotals</u>										
	Subtotal Product Development						11,892	12,384	4,848	10,196	39,320
	Subtotal Support and Management										
	Subtotal Test and Evaluation							453	986	0	1,439
	Total Project						11,892	12,837	5,834	10,196	40,759

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE <b>February 2000</b>				
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>				PROJECT <b>671012</b>			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
671012	Aircraft Engine Component Improvement Program	93,338	158,329	166,926	174,127	186,200	211,043	168,638	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	
<p>(U) <b><u>A. Mission Description</u></b></p> <p>The Aircraft Engine Component Improvement Program (CIP) provides critical sustaining engineering support (only source) for in-service Air Force engines throughout their service life. Aircraft Engine CIP corrects service revealed deficiencies and reduces total ownership costs (RTOC). The program's highest priority is to maintain flight safety, but also improves system Operational Readiness (OR) and Reliability and Maintainability (R&amp;M). Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use during deployment, production, and service, and Engine CIP provides the only funds to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. Engine CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, Engine CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. Engine CIP ensures continued improvements in engine R&amp;M factors, which reduce outyear support costs. Historically, R&amp;M related Engine CIP efforts reduce outyear Operations and Maintenance (O&amp;M) and spares costs by a ratio greater than 21 to 1. MAJCOMs assume a viable Engine CIP effort is in place when submitting their budget requests for O&amp;M and engine spares. Without the outyear cost avoidance provided by Engine CIP, outyear support funding would have to be increased drastically.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$80,215                      595 CIP tasks (233 redesign tasks, 293 repair development tasks, and 69 analysis tasks)</p> <p>(U) \$6,602                        4694 test hours</p> <p>(U) \$6,521                        Petroleum, oil, lubricants and other support costs</p> <p>(U) \$93,338                        Total</p>											
Project 671012				Page 1 of 5 Pages				Exhibit R-2 (PE 0207268F)			

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>	<b>PROJECT</b> <b>671012</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$121,438            774 CIP tasks (294 redesign tasks, 378 repair development tasks, and 102 analysis tasks)</p> <p>(U) \$24,301            10,500 test hours</p> <p>(U) \$12,590            Petroleum, oil, lubricants and other support costs</p> <p>(U) \$158,329            Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$130,810            785 CIP tasks (294 redesign tasks, 378 repair development tasks, and 113 analysis tasks)</p> <p>(U) \$22,600            12700 test hours</p> <p>(U) \$13,516            Petroleum, oil, lubricants and other support costs</p> <p>(U) \$166,926            Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in budget activity 7 - Operational System Development, Research Category 6.6 because all efforts support fielded systems.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">96,589</td> <td style="text-align: center;">160,212</td> <td style="text-align: center;">168,410</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">97,069</td> <td style="text-align: center;">160,212</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: center;">-206</td> <td style="text-align: center;">-15</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: center;">-3,229</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-870</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: center;">500</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: center;">-796</td> <td style="text-align: center;">-998</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: center;">-1,484</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">93,338</td> <td style="text-align: center;">158,329</td> <td style="text-align: center;">166,926</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	96,589	160,212	168,410	TBD	(U) Appropriated Value	97,069	160,212			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-206	-15			b. Small Business Innovative Research	-3,229				c. Omnibus or Other Above Threshold Reprogram		-870			d. Below Threshold Reprogram	500				e. Rescissions	-796	-998			f. Other				TBD	(U) Adjustments to Budget Years Since FY 2000 PBR			-1,484		(U) Current Budget Submit/FY 2001 PBR	93,338	158,329	166,926	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	96,589	160,212	168,410	TBD																																																										
(U) Appropriated Value	97,069	160,212																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-206	-15																																																												
b. Small Business Innovative Research	-3,229																																																													
c. Omnibus or Other Above Threshold Reprogram		-870																																																												
d. Below Threshold Reprogram	500																																																													
e. Rescissions	-796	-998																																																												
f. Other				TBD																																																										
(U) Adjustments to Budget Years Since FY 2000 PBR			-1,484																																																											
(U) Current Budget Submit/FY 2001 PBR	93,338	158,329	166,926	TBD																																																										
Project 671012	Page 2 of 5 Pages	Exhibit R-2 (PE 0207268F)																																																												

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>	<b>PROJECT</b> <b>671012</b>
--	---	---------------------------------

(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**  
 FY1999 & FY2000 increase in test hour cost is due to a greater number of engine test hours being performed in altitude facilities.  
 FY2001 President's Budget Request reflects \$1,484K downward adjustment for inflation.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									

RELATED ACTIVITIES:

- (U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years
- (U) - PEs # 0203752A and #0205633N, Army/Navy Aircraft Engine CIPs for FY96 and following years

(U) **E. Acquisition Strategy**

Contracts within this Program Element are awarded sole source to engine manufacturers. CIP tasks are generally assigned to original engine manufacturers. Tasks are assigned based on available funding and prioritization of candidate tasks.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
(U)	1	2	3	4	1	2	3	4	1	2	3	4

Not applicable. CIP is a level of effort program that funds 700+ separate engineering tasks per year.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
<b>07 - Operational System Development</b>					<b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>			<b>671012</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
					<u>FY 1999</u>		<u>FY 2000</u>			<u>FY 2001</u>
(U)	Contracted Tasks				80,215		121,438			130,810
(U)	AFFTC Flight Tests				886		192			1,700
(U)	AEDC Altitude Tests				5,716		24,109			20,900
(U)	Petroleum/Oil/Lubricants				3,328		10,000			12,016
(U)	Mission Support				3,193		2,590			1,500
(U)	Total				93,338		158,329			166,926
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
GE-Evandale, OH	CPAF	Jan 98	N/A	N/A	43,767	65,016	51,710	Continuing		TBD
Pratt & Whitney	CPAF	Jan 98	N/A	N/A	28,191	45,180	72,350	Continuing		TBD
GE-Lynn, MA	CPFF	Jan 98	N/A	N/A	4,129	4,825	2,900	Continuing		TBD
Allison	CPFF	Jan 98	N/A	N/A	949	900	1,400	Continuing		TBD
Teledyne	CPFF	Jan 98	N/A	N/A	1,979	4,061	1,200	Continuing		TBD
Allied Signal	CPFF	Jan 98	N/A	N/A	505	628	500	Continuing		TBD
Williams	CPFF	Jan 98	N/A	N/A	200	120	250	Continuing		TBD
Sundstrand	CPFF	Jan 98	N/A	N/A	495	708	500	Continuing		TBD
<u>Support and Management Organizations</u>										
In House Support					3,193	2,590	1,500	Continuing		TBD
Petroleum/Oil/Lubricants					3,328	10,000	12,016	Continuing		TBD

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>	PROJECT <b>671012</b>
---	--	--------------------------

(U) **Performing Organizations Continued:**

Test and Evaluation Organizations

AFFTC-Edwards AFB, CA	886	192	1,700	Continuing	TBD
AEDC-Arnold AFB, TN	5,716	24,109	20,900	Continuing	TBD
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Subtotals</u>					<u>Total</u>
Subtotal Product Development	80,215	121,438	130,810	TBD	TBD
Subtotal Support and Management	6,521	12,590	13,516	TBD	TBD
Subtotal Test and Evaluation	6,602	24,301	22,600	TBD	TBD
Total Project	93,338	158,329	166,926	TBD	TBD

Footnote: Total prior to FY 1999 is not reflected above because the program was funded in procurement through FY 1979. RDT&E funding began in FY 1980.

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207320F Sensor Fuzed Weapon (SFW)</b>				PROJECT <b>671016</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
671016    Sensor Fuzed Weapon	7,782	11,645	0	0	0	0	0	0	64,739
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	8
<p>(U) <b><u>A. Mission Description</u></b>            This project continues development of the Sensor Fuzed Weapon (SFW) Pre-Planned Product Improvement (P3I). The P3I improvements to the baseline SFW will enhance weapon performance against primary targets (land combat vehicles), targets with countermeasures, and potentially allow for use against alternative targets. All P3I improvements are at the BLU-108 submunition level. The P3I BLU-108 submunition will also be used in the anti-armor version of the Joint Standoff Weapon (JSOW). SFW is an ACAT 2 program.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$7,521            Continued the P3I development program with contractor test and evaluation            (U) \$261             Continued program management support, includes travel, program office supplies and equipment, training and technical engineering support            (U) \$7,782            Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$9,014            Complete the P3I development program; correct technical problems; complete contractor development testing; and support govt. qualification testing            (U) \$1,107            Continue program management support, includes travel, program office supplies and equipment, training and technical engineering support            (U) \$1,524            Conduct and complete subsystem level testing and Cluster Bomb Unit (CBU) flight testing            (U) \$11,645           Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>            (U) \$0                No Activity            (U) \$0                Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b>            This program is in budget activity 7 - Operational System Development, because this activity funds improvements to the SFW, which is currently in production. The SFW P3I is scheduled to cut-in the production program in FY01.</p>									
Project 671016			Page 1 of 5 Pages				Exhibit R-2 (PE 0207320F)		



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
<b>07 - Operational System Development</b>			<b>0207320F Sensor Fuzed Weapon (SFW)</b>				<b>671016</b>			
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)		7,504	11,785	0	64,601				
(U)	Appropriated Value		7,551	11,785						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-26	-2						
	b. Small Business Innovative Research		-127							
	c. Omnibus or Other Above Threshold Reprogram			-64						
	d. Below Threshold Reprogram		449							
	e. Rescissions		-65	-74						
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR									
(U)	Current Budget Submit/FY 2001 PBR		7,782	11,645	0	64,739				
(U)	<u>Significant Program Changes:</u>									
	None									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Procurement of Ammunition, AF P-1 Line Item 21	117,955	85,385	107,201	103,874	98,965	97,402	98,189	243,200	1,757,534
<b>(U) E. Acquisition Strategy</b>										
	The SFW Pre-Planned Product Improvements (P3I) program is a 58 month R&D effort to enhance the BLU-108 submunition and projectile. This is a sole source Cost-Plus Award Fee (CPAF) contract for P3I to the current SFW submunition design. The SFW P3I submunition (improved BLU-108) will also be used in the JSOW weapon system.									
<b>(U) F. Schedule Profile</b>										
		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>				
	Project 671016									

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207320F Sensor Fuzed Weapon (SFW)</b>	PROJECT <b>671016</b>
---	--	--------------------------

<b>(U) <u>F. Schedule Profile Continued</u></b>												
		<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Design and Development of P3I						X						
(U) Preliminary Design Review (PDR)				*								
(U) Detailed Design/Development Tests	*	*										
(U) Development Test Meeting		*										
(U) Critical Design Review (CDR)		*				X						
(U) Hardware Build/Qualification Tests		*	*	*	*	X	X					
(U) Subsystem Level Testing					*	X	X	X				
(U) System Level Testing						X	X	X	X			
* = Completed Events												
X = Planned Events												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207320F Sensor Fuzed Weapon (SFW)			PROJECT 671016			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Major Contracts					7,521		9,014		0	
(U)	Support Contracts					147		286			
(U)	Program Office Support					114		821			
(U)	Test and Evaluation					0		1,524			
(U)	Total					7,782		11,645		0	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Textron System Defense	SS/CPAF	Oct 99	51,891	51,891	35,356	7,521	9,014	0	0	51,891
<u>Support and Management Organizations</u>											
	ASC/YH	N/A	various	N/A	N/A	1,903	48	46	0	0	1,997
	Miscellaneous	various	various	N/A	N/A	1,161	213	1,061	0	0	2,435
<u>Test and Evaluation Organizations</u>											
	46 OG/OGML	REO	Mar 00	N/A	N/A	6,703	0	1,524	0	0	8,227
(U) <b><u>Government Furnished Property:</u></b>											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207320F Sensor Fuzed Weapon (SFW)			PROJECT 671016		
<b>(U) Government Furnished Property Continued:</b>									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>								
<u>Product Development Property</u>									
GFE (explosive)	MIPR	May 97	Oct 97	72	0	0	0	0	72
Army, Aberdeen									
GFE (RHA Plates) Army,	MIPR	Jun 96	Jul 96	117	0	0	0	0	117
Aberdeen									
<u>Support and Management Property</u>									
Not Applicable	N/A	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Property</u>									
Not Applicable	N/A	N/A	N/A	0	0	0	0	0	0
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				35,545	7,521	9,014	0	0	52,080
Subtotal Support and Management				3,064	261	1,107	0	0	4,432
Subtotal Test and Evaluation				6,703	0	1,524	0	0	8,227
Total Project				45,312	7,782	11,645	0	0	64,739

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207325F Joint Air-to-Surface Standoff Missile (JASSM)				PROJECT 674515		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674515	Joint Air-to-Surface Standoff Missile (JASSM)	121,146	164,425	120,281	68,795	37,188	9,135	5,988	0	879,051
	Quantity of RDT&E Articles	61	0	21	0	0	0	0	0	82
<p>(U) <b><u>A. Mission Description</u></b>            JASSM is a joint Air Force/Navy program with the Air Force as the lead service. This is an ACAT ID program to provide an affordable long range, conventional air-to-surface, autonomous, precision guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Initial integration efforts are for the B-52H and F-16 (Block 50). Objective aircraft include the B-1, B-2, F-15E, F-16 (Block 40), F-117, and F/A-18E/F. This descriptive summary reflects Air Force funding only.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$96,723 Initiated Engineering and Manufacturing Development (EMD).            (U) \$11,188 Continued flight test support, test aircraft modifications, live fire test support, target construction/rehab.            (U) \$5,255 Continued aircraft integration.            (U) \$1,350 Continued mission planning and intelligence systems integration.            (U) \$5,170 Continued program office support.            (U) \$1,460 Continued mission support.            (U) \$121,146 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$120,857 Continue EMD.            (U) \$19,004 Continue flight test support, test aircraft modifications, live fire test support, target construction/rehab.            (U) \$14,846 Continue aircraft integration.            (U) \$2,120 Continue mission planning and intelligence systems integration.            (U) \$321 Initiate manufacturing support.            (U) \$6,396 Continue program office support .            (U) \$881 Continue mission support.            (U) \$164,425 Total</p>										
Project 674515				Page 1 of 6 Pages				Exhibit R-2 (PE 0207325F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	<b>PROJECT</b> <b>674515</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$68,087 Continue EMD.</p> <p>(U) \$34,889 Continue flight test support, test aircraft modifications, live fire test support, target construction/rehab.</p> <p>(U) \$6,581 Continue aircraft integration.</p> <p>(U) \$2,809 Continue mission planning and intelligence systems integration.</p> <p>(U) \$323 Continue manufacturing support.</p> <p>(U) \$6,606 Continue program office support .</p> <p>(U) \$986 Continue mission support.</p> <p>(U) \$120,281 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is reflected in Budget Activity 7, Operational System Development, because production funds have been included in the DoD budget submission to begin Low Rate Initial Production (LRIP).</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: right;"><u>FY 1999</u></th> <th style="width: 10%; text-align: right;"><u>FY 2000</u></th> <th style="width: 10%; text-align: right;"><u>FY 2001</u></th> <th style="width: 10%; text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">128,796</td> <td style="text-align: right;">166,408</td> <td style="text-align: right;">71,022</td> <td style="text-align: right;">808,230</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">129,870</td> <td style="text-align: right;">166,408</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-707</td> <td style="text-align: right;">-43</td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-2,957</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: right;">-903</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: right;">-4,015</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-1,045</td> <td style="text-align: right;">-1,037</td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: right;">49,259</td> <td style="text-align: right;">70,821</td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: right;">121,146</td> <td style="text-align: right;">164,425</td> <td style="text-align: right;">120,281</td> <td style="text-align: right;">879,051</td> </tr> </tbody> </table>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	128,796	166,408	71,022	808,230	(U) Appropriated Value	129,870	166,408			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-707	-43			b. Small Business Innovative Research	-2,957				c. Omnibus or Other Above Threshold Reprogram		-903			d. Below Threshold Reprogram	-4,015				e. Rescissions	-1,045	-1,037			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			49,259	70,821	(U) Current Budget Submit/FY 2001 PBR	121,146	164,425	120,281	879,051
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	128,796	166,408	71,022	808,230																																																										
(U) Appropriated Value	129,870	166,408																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-707	-43																																																												
b. Small Business Innovative Research	-2,957																																																													
c. Omnibus or Other Above Threshold Reprogram		-903																																																												
d. Below Threshold Reprogram	-4,015																																																													
e. Rescissions	-1,045	-1,037																																																												
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			49,259	70,821																																																										
(U) Current Budget Submit/FY 2001 PBR	121,146	164,425	120,281	879,051																																																										
Project 674515		Page 2 of 6 Pages																																																												
		Exhibit R-2 (PE 0207325F)																																																												

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>07 - Operational System Development</b>	<b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	<b>674515</b>

(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**

FY01-02 funding adjustment reflects the JASSM program restructure. Restructure funds transferred from JASSM FY01 procurement fund.

Schedule: EMD schedule extended ten months. Restructure due to late subcontractor hardware deliveries.

Technical: None.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Missile Procurement (AF)			0	42,922	50,476	101,761	145,417	868,852	1,209,428
JASSM									
(U) SEEK EAGLE			0	744	2,896	3,607	2,882	0	10,129

(U) **E. Acquisition Strategy**

All major contracts within this Program Element were awarded through full and open competition. The EMD phase option for JASSM is Cost Plus Award Fee (CPAF). This contract type provides the government the flexibility to periodically evaluate contractor performance while motivating the contractor to execute a successful program with emphasis on cost, average unit procurement price (AUPP), schedule, and performance.

JASSM is an OSD flagship program under Cost as An Independent Variable (CAIV). This allows the contractor to have maximum trade space to develop an affordable missile that meets the three key performance parameters. Under CAIV, the program maintains a threshold AUPP of \$700,000 (BY95\$) and an objective AUPP of \$400,000 (BY95\$).

The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at downselect. The contractor assumes Total System Performance Responsibility (TSPR) as defined in the SPS and warrants system performance for 15 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the Development Test and Evaluation (DT&E) program to verify the missile system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds



<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	<b>PROJECT</b> <b>674515</b>
--	---	---------------------------------

(U) **E. Acquisition Strategy Continued**  
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 EMD contract.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milestone II Approval	*											
(U) EMD Contract Award	*											
(U) First Flight Test Vehicle Prototype Flight				*								
(U) First DT/OT Flight										X		
(U) LRIP Decision - 1st Qtr FY 2002												
(U) Last DT/OT Flight - 2nd Qtr FY 2002												
(U) LRIP Contract Award - 1st Qtr FY 2002												
(U) Begin IOT&E Flight Testing (AFOTEC) - 3rd Qtr FY 2002												
* = Completed Event												
X = Planned Event												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2000					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
<b>07 - Operational System Development</b>				<b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>			<b>674515</b>				
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Major Contracts					96,723		120,857		68,087	
(U)	Associated Contracts					5,255		14,846		6,581	
(U)	Support Contracts					6,520		8,837		9,738	
(U)	In-House					1,460		881		986	
(U)	Test Support					11,188		19,004		34,889	
(U)	Total					121,146		164,425		120,281	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
	MDA - PDRR I	C/CPFF	Jun 96	120,439	120,439	120,439	0	0	0	0	120,439
	LM - PDRR I& II	C/CPFF	Jun 96	153,382	153,382	153,382	0	0	0	0	153,382
	LM - EMD	C/CPAF	Nov 98	340,375	340,375	6,971	96,723	120,857	68,087	47,737	340,375
NOTE: Contractors are MDA - McDonnell Douglas Aircraft; LM - Lockheed Martin											
<u>Support and Management Organizations</u>											
	F-16 SPO	PO	Apr 96	N/A	N/A	6,045	3,716	7,869	3,310	11,728	32,668
	B-52 SPO	PO	Sep 96	N/A	N/A	17,658	1,539	6,915	3,234	1,070	30,416
	Other Acft Integ	PO	Various	N/A	N/A	3,462	0	62	37	0	3,561
	Sverdrup Inc.	C/CPAF	Jan 96	N/A	N/A	7,318	2,068	3,651	3,765	3,771	20,573
	Navy	MIPR	Jan 96	N/A	N/A	2,311	0	0	0	0	2,311
Project 674515				Page 5 of 6 Pages				Exhibit R-3 (PE 0207325F)			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
07 - Operational System Development										February 2000
PE NUMBER AND TITLE										PROJECT
0207325F Joint Air-to-Surface Standoff Missile (JASSM)										674515
(U) <b>Performing Organizations Continued:</b>										
<u>Support and Management Organizations</u>										
JASSM SPO/Other	Misc	Various	N/A	N/A	15,112	5,912	6,067	6,959	17,800	51,850
<u>Test and Evaluation Organizations</u>										
46TW	PO	Jan 96	N/A	N/A	19,395	11,188	19,004	34,889	39,000	123,476
(U) <b>Government Furnished Property:</b>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
Not Applicable										
<u>Support and Management Property</u>										
Not Applicable										
<u>Test and Evaluation Property</u>										
Not Applicable										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					280,792	96,723	120,857	68,087	47,737	614,196
Subtotal Support and Management					51,906	13,235	24,564	17,305	34,369	141,379
Subtotal Test and Evaluation					19,395	11,188	19,004	34,889	39,000	123,476
Total Project					352,093	121,146	164,425	120,281	121,106	879,051

**UNCLASSIFIED**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207412F Theater Air Control Systems</b>				<b>PROJECT</b> <b>67485L</b>	
<b>COST (\$ in Thousands)</b>	<b>FY 1999 Actual</b>	<b>FY 2000 Estimate</b>	<b>FY 2001 Estimate</b>	<b>FY 2002 Estimate</b>	<b>FY 2003 Estimate</b>	<b>FY 2004 Estimate</b>	<b>FY 2005 Estimate</b>	<b>Cost to Complete</b>	<b>Total Cost</b>
67485L Theater Air Control System Imp (TACSI)	402	6,432	19,873	27,206	27,185	30,440	48,455	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

Ground Theater Air Control System (GTACS): GTACS provides battle management resources and a Command and Control (C2) air operations picture through which the Expeditionary Aerospace Forces Joint Forces Air Component Commander and theater level commanders control assigned forces accomplishing assigned missions. GTACS elements execute battle management, force allocation, control of airborne assets (counter air, aerial refueling, interdiction, close air support, reconnaissance, airlift, special operations missions and others), surveillance, early warning, identification, and theater missile defense. The GTACS mission is to deploy a rapid reaction, self-sustaining if necessary, radar/data link capability into a deployed theater of operations. This support is provided to worldwide operations ranging from military operations other than war and peacetime contingencies, to projecting decisive force into a major regional conflict to support a strategic war. GTACS consists of a family of radar/communication/electronics components largely designed in the 1970/80s and is becoming logistically unsupportable. Without modernizing, GTACS will be unable to provide an accurate and reliable integrated air picture or conduct C2 theater operations in the future. Specifically, these upgrades will provide an open Defense Information Infrastructure Common Operating Environment (DII-COE) compliant architecture, reduce a large forward deployment/airlift requirement and move a large part of aerospace battle execution activities to the rear. Theater Air defense (TAD) Missile Tracking System (MTS)(formerly referred to as Expert Missile Tracker (EMT)) will provide the Combat Air Forces (CAF) with tactical capability to detect, track, predict launch and impact points, and classify tactical ballistic missiles (TBMs) by type. A fully modernized GTACS will evolve into the Battle Control System. The BCS is a theater asset that supports the Joint Force Commander (JFC)/Joint Force Air Component Commander (JFACC) requirement for theater battle management by performing the following core competencies: Theater Air Defense (TAD) (including Joint Theater Missile Defense (JTMD) and Time Critical Targeting (TCT), C2 Data Link Management, Surveillance, Combat Identification and Air Battle Management. Fully modernized RCCs will provide minimally manned remote control sensor capability with increased reliability and improved sensitivity and target detection range. Due to manpower and equipment drawdowns and part obsolescence, there is an immediate requirement to implement modernization changes between FY00 and FY05. GTACS to meet current and future mission taskings must be pre-positioned to transition into the next generation of battle management communications, hardware, and software. The GTACS program provides interoperability among numerous elements of the CAF that encompass Navy, Marine Corps, Army, and allied coalition C2 assets.

**(U) FY 1999 (\$ in Thousands)**

- (U) \$60** Developed/fielded interoperability upgrades to Modular Control Equipment (MCE) Pre-planned Product Improvement (P3I) systems
- (U) \$342** Program support, test, and other miscellaneous efforts
- (U) \$402** Total

Project 67485L

Page 1 of 5 Pages

Exhibit R-2 (PE 0207412F)

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207412F Theater Air Control Systems</b>	PROJECT <b>67485L</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$192                      Concept Definition/Development for Evolutionary Upgrades to the GTACS System</p> <p>(U) \$240                      Continue program support (i.e. travel, supplies, miscellaneous)</p> <p>(U) \$6,000                    Initiate Development of TAD MTS Upgrade for the Radar Sensors (includes TAD MTS SPO Support)</p> <p>(U) \$6,432                    Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$4,593                    Program Office Support to include Systems Engineering (Operational Safety, Suitability, and Effectiveness), Advanced Planning, Program Control, Travel, Supplies, Equipment and Miscellaneous</p> <p>(U) \$5,300                    Continue development of TAD MTS Upgrade for the Radar Sensors (Includes dedicated TAD MTS SPO Support)</p> <p>(U) \$9,980                    Continue Development of Evolutionary Upgrades to the GTACS (i.e. BCC/RCC Architecture)</p> <p>(U) \$19,873                   Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>The program is in Budget Activity 7 because GTACS is a fielded, operational system. Program will begin major modifications/upgrades in FY00.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">427</td> <td style="text-align: center;">467</td> <td style="text-align: center;">19,873</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">431</td> <td style="text-align: center;">467</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: center;">-3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: center;">-4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-35</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: center;">-19</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: center;">-3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td style="text-align: center;">6,000</td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">402</td> <td style="text-align: center;">6,432</td> <td style="text-align: center;">19,873</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	427	467	19,873	TBD	(U) Appropriated Value	431	467			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-3				b. Small Business Innovative Research	-4				c. Omnibus or Other Above Threshold Reprogram		-35			d. Below Threshold Reprogram	-19				e. Rescissions	-3				f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR		6,000			(U) Current Budget Submit/FY 2001 PBR	402	6,432	19,873	TBD
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	427	467	19,873	TBD																																																										
(U) Appropriated Value	431	467																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-3																																																													
b. Small Business Innovative Research	-4																																																													
c. Omnibus or Other Above Threshold Reprogram		-35																																																												
d. Below Threshold Reprogram	-19																																																													
e. Rescissions	-3																																																													
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR		6,000																																																												
(U) Current Budget Submit/FY 2001 PBR	402	6,432	19,873	TBD																																																										
Project 67485L	Page 2 of 5 Pages	Exhibit R-2 (PE 0207412F)																																																												

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207412F Theater Air Control Systems</b>				PROJECT <b>67485L</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>										
<b>(U) Significant Program Changes:</b>										
FY2000 includes \$6.0M of Congressional Reprogramming from OPAF to RDT&E for TAD MTS. FY2001 funding increased to continue TAD MTS development and to begin modernization (BCC/RCC). Funding of Program Office Support shifts from Production (3080) to RDT&E (3600) in conjunction with development of evolutionary upgrades to BCC/RCC architecture.										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement	14,961	15,040	2,048	5,092	18,189	20,078	24,934	Continuing	TBD	
(U) Other Procurement Air Force, WSC 838010, Comm Electronic Mods	1,932	4,072	790	788	592				TBD	
(U) Other Procurement Air Force, WSC 86190A, Initial Spares	3,314	1,521	1,260	1,065	421	385	88	Continuing	TBD	
<b>(U) E. Acquisition Strategy</b>										
Primary emphasis on this program shifts in FY00 from sustainment to modernization. ESC is analyzing potential acquisition approaches which will enhance interoperability and reduce total ownership costs. The intent is to reduce risk through the use of Commercial-Off-The-Shelf /Government-Off-The-Shelf (COTS/GOTS) and non-developmental hardware items to the fullest extent possible via an evolutionary acquisition approach(es).										
<b>(U) F. Schedule Profile</b>										
			<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>	
			1	2	3	4	1	2	3	4
(U) GTACS - TAD MTS								X		
(U) GTACS Modernization - BCC/RCC									X	
* Denotes completed event										
x Denotes planned event										
Project 67485L			Page 3 of 5 Pages				Exhibit R-2 (PE 0207412F)			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207412F Theater Air Control Systems</b>				PROJECT <b>67485L</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
					<u>FY 1999</u>		<u>FY 2000</u>			<u>FY 2001</u>
(U)	Developed/fielded interoperability upgrades to Modular Control Equipment (MCE) Pre-planned Product Improvement (P3I) systems				60					
(U)	Program Support (i.e. travel, supplies, and miscellaneous)				342		240			
(U)	Program Office Support to include Systems Engineering (Operational Safety, Suitability, and Effectiveness), Advanced Planning, Program Control, Travel, Supplies, Equipment and Miscellaneous									4,593
(U)	Concept Definition/Development for Evolutionary Upgrades to the GTACS						192			
(U)	Development of TAD MTS Upgrade for the Radar Sensors (includes dedicated TAD MTS SPO Support)						6,000			5,300
(U)	Development of Evolutionary Upgrades to GTACS (i.e. BCC/RCC Architecture)									9,980
(U)	Total				402		6,432			19,873
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Contractor TBD - TAD MTS	TBD	3QFY00	N/A	N/A			6,000	5,300		11,300
Contractor TBD -BCC/RCC	TBD	2QFY01	N/A	N/A				9,980	Continuing	TBD
Various Contractors MCE P3I	Various	Various	N/A	N/A	60				Continuing	TBD
<u>Support and Management Organizations</u>										
Miscellaneous program support (travel, supplies, etc.)	Various	Various	N/A	N/A		342	240			582
Program Office Support - includes ITSP/Mitre, etc.	Various	Various	N/A	N/A				4,593	Continuing	TBD
Various - Concept definition/development for	Various	Various	N/A	N/A			192			192
Project 67485L					Page 4 of 5 Pages			Exhibit R-3 (PE 0207412F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207412F Theater Air Control Systems			PROJECT 67485L		
(U) <b>Performing Organizations Continued:</b>									
<u>Support and Management Organizations</u>									
evolutionary upgrades to									
GTACS									
<u>Test and Evaluation Organizations</u>									
GFP/GFE: None									
(U) <b>Government Furnished Property:</b>									
<u>Contract</u>									
<u>Method/Type</u> <u>Award or</u>									
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					60	6,000	15,280	TBD	TBD
Subtotal Support and Management					342	432	4,593	TBD	TBD
Subtotal Test and Evaluation									
Total Project					402	6,432	19,873	TBD	TBD



**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207414F COMBAT INTELLIGENCE SYSTEM</b>				PROJECT <b>674773</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674773 Combat Intelligence System (CIS)	13,635	0	0	0	0	0	0	0	26,684
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: Starting in FY00 the RDT&E funding for CIS is transferred to PE 27438F under project 4790, TBMCS.

(U) **A. Mission Description**

Combat Intelligence System (CIS) is the Air Force's single, standard automated intelligence system optimizing both component and unit-level intelligence functions to provide warfighters with the most accurate and timely intelligence data available. CIS is the core capability for automating the receipt, correlation, and dissemination of intelligence information to a variety of intelligence and operational systems which support combat planning and execution. As the intelligence segment to Theater Battle Management Core Systems (TBMCS), it provides an automated capability at the component and unit levels to rapidly receive and process all-source intelligence data to support Contingency Theater Automated Planning System (CTAPS). CIS builds and maintains in-theater situational awareness during deployment to the theater and provides indications and warning support after arrival. CIS is electronically interoperable and compatible with other intelligence systems, providing an integrated network capable of intelligence support to decision makers, battle planners, mission planners, and warfighters.

(U) **FY 1999 (\$ in Thousands)**

(U) \$8,814 Continued TBMCS software version 1.0 development.

(U) \$808 Continued TBMCS v1.1 development.

(U) \$1,307 System engineering and support.

(U) \$2,706 Expeditionary Force Experiment

(U) \$13,635 Total

(U) **FY 2000 (\$ in Thousands)**

(U) \$0 No further funding in this project. Further evolution of this functionality continues under PE 0207438F, project 4790, TBMCS.

(U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**

(U) \$0 No further funding in this project. Further evolution of this functionality continues under PE 0207438F, project 4790, TBMCS.

(U) \$0 Total

Project 674773 Page 1 of 5 Pages Exhibit R-2 (PE 0207414F)

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>																																																													
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207414F COMBAT INTELLIGENCE SYSTEM</b>			PROJECT <b>674773</b>																																																													
<p>(U) <b><u>B. Budget Activity Justification</u></b>                  This program was in budget activity 5, Engineering and Manufacturing Development in FY98. In FY99, this program moved to budget activity 7, Operational Systems Development, because the TBMCS program is a post milestone III effort and because it incrementally upgrades and develops capabilities for currently operational systems.</p>																																																																				
<p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">9,635</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">9,802</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-167</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-273</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td style="text-align: right;">4,349</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-76</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: right;">13,635</td> <td></td> <td></td> <td style="text-align: right;">26,684</td> </tr> </tbody> </table>										<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	9,635				(U) Appropriated Value	9,802				(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-167				b. Small Business Innovative Research	-273				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	4,349				e. Rescissions	-76				f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR					(U) Current Budget Submit/FY 2001 PBR	13,635			26,684
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																																
(U) Previous President's Budget (FY 2000 PBR)	9,635																																																																			
(U) Appropriated Value	9,802																																																																			
(U) Adjustments to Appropriated Value																																																																				
a. Congressional/General Reductions	-167																																																																			
b. Small Business Innovative Research	-273																																																																			
c. Omnibus or Other Above Threshold Reprogram																																																																				
d. Below Threshold Reprogram	4,349																																																																			
e. Rescissions	-76																																																																			
f. Other																																																																				
(U) Adjustments to Budget Years Since FY 2000 PBR																																																																				
(U) Current Budget Submit/FY 2001 PBR	13,635			26,684																																																																
<p>(U) <b><u>Significant Program Changes:</u></b>                  Starting in FY00 the RDT&amp;E, AF funding for CIS will be transferred to PE 27438F under project 4790, TBMCS, where further evolution of TBM combat intelligence capability and interoperability will continue. CIS will be integrated with several other legacy systems in a single DII/COE compliant system and will be managed as a single project with the fielding of TBMCS 1.0 in FY00. In FY99, \$2.219M was added to support EFX'99 initiative where TBMCS (CIS portion) was the CORE Operating System. \$2.130M was also added in FY99 to support multi-level security and associated TBMCS software licenses.</p>																																																																				
<p>(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;"></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>Cost to</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&amp;E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other Procurement, AF, PE     0207414F, WSC 832010,</td> <td style="text-align: right;">12,826</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">26,937</td> </tr> </tbody> </table>										<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										(U) Other Procurement, AF, PE 0207414F, WSC 832010,	12,826	0	0	0	0	0	0	0	26,937										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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																																																																				
(U) Other Procurement, AF, PE 0207414F, WSC 832010,	12,826	0	0	0	0	0	0	0	26,937																																																											
Project 674773			Page 2 of 5 Pages			Exhibit R-2 (PE 0207414F)																																																														

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207414F COMBAT INTELLIGENCE SYSTEM</b>	<b>PROJECT</b> <b>674773</b>
--	--	---------------------------------

**(U) D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>	
Intel Data Handling System, CIS Portion									
(U) Other Procurement, AF, PE 0207431F, WSC 832010, Intel Data Handling System, CIS Portion	2,858	4,650	0	0	0	0	0		
(U) Other Procurement, PE 0207438F, WSC 832010, Intel Data Handling System	0	17,648	0	0	0	0	0		

Note: The other program funds associated with PEs 0207414F and 0207431F in FY99 and with PE 0207438F in FY00 to FY05 are reported both here and as other program funds under the descriptive summary for PE 0207438F, Theater Battle Management C4I, project 4790, TBMCS. However, only the Intel Data Handling System portion of procurement funds from PE 0207438F is shown here.

**(U) E. Acquisition Strategy**

Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including CIS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

**(U) F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS S/W Version 1.0												
(U) In-Plant Test				*								
(U) Version 1.0 Release						X						
(U) TBMCS Version 1.1												
(U) In-Plant Test									X			
(U) Version 1.1 Release										X		

Project 674773

Page 3 of 5 Pages

Exhibit R-2 (PE 0207414F)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207414F COMBAT INTELLIGENCE SYSTEM			PROJECT 674773			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Software Development					12,328		0		0	
(U)	Engineering Support					1,307					
(U)	Total					13,635		0		0	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or</u>	<u>Contract</u>									
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
										<u>Total</u>	
	<u>Product Development Organizations</u>										
	Lockheed Martin Mission Systems	SS/CPAF/PR	Oct 95	TBD	TBD	11,849	12,272			0	24,121
	<u>Support and Management Organizations</u>										
	TEMS	C/T&M	Various	N/A	N/A	647	888			0	1,535
	MITRE	SS/CPAF	Oct 94	N/A	N/A	508	419			0	927
	<u>Test and Evaluation Organizations</u>										
	Test Support	Project Order	Various	N/A	N/A	45	56			0	101
(U) <b><u>Government Furnished Property:</u></b>											
		<u>Contract</u>									
		<u>Method/Type</u>	<u>Award or</u>								
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
										<u>Total</u>	
	<u>Product Development Property</u>										
	<u>Support and Management Property</u>										
	<u>Test and Evaluation Property</u>										

**UNCLASSIFIED**

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>		<b>DATE</b>					
<b>07 - Operational System Development</b>		<b>0207414F COMBAT INTELLIGENCE SYSTEM</b>			<b>February 2000</b>		
<u>BUDGET ACTIVITY</u>	<u>PE NUMBER AND TITLE</u>	<u>PROJECT</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	
			<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	
						<u>Budget to</u>	
						<u>Complete</u>	
						<u>Total</u>	
						<u>Program</u>	
<u>Subtotals</u>							
Subtotal Product Development			11,849	12,272		0	24,121
Subtotal Support and Management			1,155	1,307		0	2,462
Subtotal Test and Evaluation			45	56		0	101
Total Project			13,049	13,635		0	26,684

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207417F Airborne Warning and Control System (AWACS)</b>				PROJECT <b>67411L</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
67411L	Airborne Warning & Control System (AWACS)	31,669	36,178	35,653	31,969	99,370	95,799	132,942	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b></p> <p>Develops and integrates system improvements to enable the E-3 AWACS to remain an effective, survivable airborne surveillance system for command and control of tactical forces and for strategic defense of the U.S.</p> <p>The Block 30/35 upgrade includes Electronic Support Measures, Central Computer Memory Upgrade, Joint Tactical Information Distribution System (JTIDS) Class 2H/TADIL J and NAVSTAR Global Positioning System Integrated Navigation System. The Block 30/35 upgrade is a production program.</p> <p>The Radar System Improvement Program (RSIP) will increase radar reliability and maintainability, improve E-3 surveillance capability against evolving threats posed by low radar cross section fighters and cruise missiles, improve electronic counter- countermeasures, and enhance man-machine interface for the Airborne Radar Technicians. RSIP is a production program.</p> <p>Block 40/45 Risk Reduction performs research and analysis of selected high-risk areas to the next major AWACS Mission System Computers and Displays upgrade. This essential modernization will improve the sensor-to-shooter capability, improve Combat ID, and open the existing architecture to enable cheaper and faster upgrades. To ensure the warfighter requirements are met, these risk reduction studies include concept exploration to obtain Track Quality 7, modeling/simulation of the Block 40/45 architecture, designing a COTS technology insertion process, and reducing the total ownership cost. Other research efforts focus on design alternatives for data fusion with Multi-Source Integration and Data Link Infrastructure timing constraints.</p> <p>The Command &amp; Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) System Architecture Improvements (formerly Offensive Counter Air Upgrades/Systems Architecture Improvements) are concept exploration and program definition/risk reduction efforts that implement a spiral development process allowing continuous improvements and implementation of the C2ISR roadmap for the Airborne Early Warning &amp; Control mission area. These efforts include AWACS augmentation with UAV surveillance sensors, AWACS weapon system integration with Integrated Command and Control System, development of and migration to Real-Time Defense Information Infrastructure Common Operating Environment, development and execution of Joint Expeditionary Force Experiment (JEFX) initiatives to be demonstrated on AWACS during JEFX live-fly experiments, rapid prototyping of 'plug and play' applications that provide significant situational awareness improvements to the Air Battle Manager in Offensive and Defensive Counter Air missions.</p> <p>Periodic Depot Maintenance/Airframe (PDMA) are modifications to the E-3 mission equipment and aircraft systems designed to keep the aircraft operational.</p> <p>The E-2/E-3 commonality effort focuses primarily on advanced receiver and processing technologies. This effort provides a forum to review all activities in the E-2 and E-3 AWACS programs and identify additional opportunities for technology and development exploitation.</p>										
Project 67411L			Page 1 of 6 Pages				Exhibit R-2 (PE 0207417F)			



UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																										
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207417F Airborne Warning and Control System (AWACS)</b>	PROJECT <b>67411L</b>																																										
<p>(U) <b><u>A. Mission Description Continued</u></b>          Test System 3 (TS-3)/AWACS Development and Production Test (ADAPT) support includes maintenance and operations of the government-owned/contractor-operated test aircraft and associated laboratory facilities located at Boeing in Seattle, Washington.          Cooperative Engagement Capability (CEC) funding in FY00 provides the initial design to integrate the Navy-developed CEC hardware with the AWACS mission system to support a Single Integrated Air Picture (SIAP) flight demonstration. This activity reduces the risk of a full development program to integrate and demonstrate the AWACS contribution to a tactical sensor network with CEC on AWACS.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U)</td> <td style="width: 15%;">\$6,451</td> <td style="width: 75%;">C2ISR System Architecture Improvements</td> </tr> <tr> <td>(U)</td> <td>\$6,946</td> <td>E-2/E-3 Commonality</td> </tr> <tr> <td>(U)</td> <td>\$3,958</td> <td>JTIDS DLI</td> </tr> <tr> <td>(U)</td> <td>\$14,314</td> <td>ADAPT support and program sustaining efforts</td> </tr> <tr> <td>(U)</td> <td>\$31,669</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U)</td> <td style="width: 15%;">\$6,900</td> <td style="width: 75%;">C2ISR System Architecture Improvements</td> </tr> <tr> <td>(U)</td> <td>\$7,796</td> <td>Test System-3/ADAPT support and program sustaining efforts</td> </tr> <tr> <td>(U)</td> <td>\$15,800</td> <td>Cooperative Engagement Capability (CEC) on TS-3</td> </tr> <tr> <td>(U)</td> <td>\$5,682</td> <td>Block 40/45 Risk Reduction (result of Congressional transfer from AWACS procurement)</td> </tr> <tr> <td>(U)</td> <td>\$36,178</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U)</td> <td style="width: 15%;">\$13,614</td> <td style="width: 75%;">C2ISR System Architecture Improvements</td> </tr> <tr> <td>(U)</td> <td>\$15,176</td> <td>Test System-3/ADAPT support and program sustaining efforts</td> </tr> <tr> <td>(U)</td> <td>\$6,863</td> <td>Block 40/45 Risk Reduction</td> </tr> <tr> <td>(U)</td> <td>\$35,653</td> <td>Total</td> </tr> </table> <p>(U) <b><u>B. Budget Activity Justification</u></b>          Operational Systems Development, Budget Activity 7. AWACS is a fielded, operational system currently undergoing major modifications/block upgrades and continuing sustainment activities.</p>			(U)	\$6,451	C2ISR System Architecture Improvements	(U)	\$6,946	E-2/E-3 Commonality	(U)	\$3,958	JTIDS DLI	(U)	\$14,314	ADAPT support and program sustaining efforts	(U)	\$31,669	Total	(U)	\$6,900	C2ISR System Architecture Improvements	(U)	\$7,796	Test System-3/ADAPT support and program sustaining efforts	(U)	\$15,800	Cooperative Engagement Capability (CEC) on TS-3	(U)	\$5,682	Block 40/45 Risk Reduction (result of Congressional transfer from AWACS procurement)	(U)	\$36,178	Total	(U)	\$13,614	C2ISR System Architecture Improvements	(U)	\$15,176	Test System-3/ADAPT support and program sustaining efforts	(U)	\$6,863	Block 40/45 Risk Reduction	(U)	\$35,653	Total
(U)	\$6,451	C2ISR System Architecture Improvements																																										
(U)	\$6,946	E-2/E-3 Commonality																																										
(U)	\$3,958	JTIDS DLI																																										
(U)	\$14,314	ADAPT support and program sustaining efforts																																										
(U)	\$31,669	Total																																										
(U)	\$6,900	C2ISR System Architecture Improvements																																										
(U)	\$7,796	Test System-3/ADAPT support and program sustaining efforts																																										
(U)	\$15,800	Cooperative Engagement Capability (CEC) on TS-3																																										
(U)	\$5,682	Block 40/45 Risk Reduction (result of Congressional transfer from AWACS procurement)																																										
(U)	\$36,178	Total																																										
(U)	\$13,614	C2ISR System Architecture Improvements																																										
(U)	\$15,176	Test System-3/ADAPT support and program sustaining efforts																																										
(U)	\$6,863	Block 40/45 Risk Reduction																																										
(U)	\$35,653	Total																																										
Project 67411L	Page 2 of 6 Pages	Exhibit R-2 (PE 0207417F)																																										

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
<b>07 - Operational System Development</b>			<b>0207417F Airborne Warning and Control System (AWACS)</b>				<b>67411L</b>			
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)		33,173	33,393	49,170	TBD				
(U)	Appropriated Value		34,189	36,393						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-1,016	-16						
	b. Small Business Innovative Research		-1,286							
	c. Omnibus or Other Above Threshold Reprogram			-199						
	d. Below Threshold Reprogram		-41							
	e. Rescissions		-177							
	f. Other					TBD				
(U)	Adjustments to Budget Years Since FY 2000 PBR				-13,517					
(U)	Current Budget Submit/FY 2001 PBR		31,669	36,178	35,653	TBD				
(U)	<u>Significant Program Changes:</u>									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Aircraft Procurement, AF, E-3 Mods	112,774	104,254	88,654	70,361	59,181	94,849	105,826		TBD
(U)	E-3 Initial Spares, AF	3,084	40,499	8,227	11,052	15,523	7,207	8,845		TBD
<b>(U) E. Acquisition Strategy</b>										
Block 30/35: The Electronic Support Measures (ESM) component of Block 30/35 is joint development program with NATO. The production contract utilizes a Fixed Price Incentive Fee (FPIF) plan with options to Boeing for ESM and other Block 30/35 Group A hardware. The contract with Lockheed for the CC-2E memory upgrade is a fixed price contact with follow-on options. JTIDS and Global Positioning System hardware is acquired via their respective program office-awarded contracts. The Radar System Improvement Program (RSIP) is a cooperative development program with NATO and the United Kingdom. Boeing is the prime integrating contractor; Northrop-Grumman is the subcontractor for radar component items. The RSIP production contract is Firm Fixed Price (FFP) with priced options through FY99 and is a										
Project 67411L			Page 3 of 6 Pages				Exhibit R-2 (PE 0207417F)			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207417F Airborne Warning and Control System (AWACS)</b>	<b>PROJECT</b> <b>67411L</b>
--	---	---------------------------------

(U) **E. Acquisition Strategy Continued**  
sole source to Boeing follow-on FY00 RSIP production contract. The PDMA acquisition strategy utilizes an approved contract structure that includes multiple contracts with multiple organizations with overlapping and continuous performance periods. The Program Office has the flexibility to quickly add specific PDMA tasks as funding is made available.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) RSIP Trial Install Start												
(U) RSIP Trial Install Complete												
(U) RSIP IOC 3QTR FY00								X				
(U) RSIP FOT&E Complete			*									
(U) RSIP KIT DELIVERY (#1)												
(U) RSIP KIT DELIVERY (#2)			*									
(U) RSIP KIT DELIVERY (#3)						X						
(U) RSIP KIT DELIVERY (#4)							X					
(U) RSIP KIT DELIVERY (#5)							X					
(U) RSIP KIT DELIVERY (#6)								X				
(U) RSIP KIT DELIVERY (#7)										X		
(U) RSIP KIT DELIVERIES (#8-9)										X		
(U) RSIP KIT DELIVERIES (#10-12)												X
(U) RSIP KIT DELIVERY (#13)												X
(U) BLK 30/35 RAA/IOC			*									
(U) LAST BLK 30/35 MOD INDUCTION										X		
(U) BLK 30/35 FOC 3QTR FY01											X	

\* Denotes completed events  
X Denotes planned events

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2000				
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT				
<b>07 - Operational System Development</b>			<b>0207417F Airborne Warning and Control System (AWACS)</b>			<b>67411L</b>				
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Contracts					26,601		32,686		32,748
(U)	MITRE/TEMS					4,343		2,429		2,200
(U)	Travel					412		763		405
(U)	Other					313		300		300
(U)	Total					31,669		36,178		35,653
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
(U)	Boeing (RSIP)**	C/FPIF	9/89	415,900	400,417	325,672			0	325,672
(U)	Boeing (Block 40/45)	FPIF/CPAF	N/A	0	0	0	0	5,682	6,863	110,297
(U)	Boeing (Blk 30/35)**	SS/FPIF	5/87	N/A	N/A	291,667			0	291,667
(U)	Boeing (PDMA)	Multiple	N/A	N/A	N/A	58,149	0	0	0	58,149
(U)	Boeing (C2ISR Sys Arch Imp)	FPIF/CPAF	N/A	N/A	N/A	950	6,451	6,900	13,614	45,670
(U)	Raytheon ( E-2/E-3 Commonality)	Multiple	N/A	N/A	N/A	12,752	6,946		0	19,698
(U)	Raytheon (CEC)	CPAF	11/99	42,000	42,000	0		15,800	0	3,000
* N/A based on PDMA Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods.										
** Total Program does not include NATO funds.										
<u>Support and Management Organizations</u>										
(U)	Support/TEMS	Multiple	N/A	N/A	N/A	557,271	5,068	3,492	2,905	Continuing
	MITRE, travel, other	contracts								TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>07 - Operational System Development</b>				<b>0207417F Airborne Warning and Control System (AWACS)</b>				<b>67411L</b>		
<b>(U) Performing Organizations Continued:</b>										
<u>Test and Evaluation Organizations</u>										
(U) Test System-3 ADAPT	Multiple	N/A	N/A	N/A	47,987	13,204	4,304	12,271	Continuing	TBD
Contract / Other test activities										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development					689,190	13,397	28,382	20,477	158,967	910,413
Subtotal Support and Management					557,271	5,068	3,492	2,905	TBD	TBD
Subtotal Test and Evaluation					47,987	13,204	4,304	12,271	TBD	TBD
Total Project					1,294,448	31,669	36,178	35,653	TBD	TBD

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

**February 2000**

BUDGET ACTIVITY

PE NUMBER AND TITLE

**07 - Operational System Development**

**0207423F Advanced Communications Systems**

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,527	0	2,867	2,907	2,954	3,013	3,074	Continuing	TBD
671013 Theater Deployable Communications (TDC)	1,964	0	2,649	2,907	2,954	3,013	3,074	Continuing	TBD
672982 Anti-Jam Radio Communications	3,563	0	218	0	0	0	0	0	23,139
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

The Advanced Communication Systems program procures commercially available ground communications equipment for deployment to theaters of operation; and develops and procures jam-resistant, ultra high frequency (UHF) and very high frequency (VHF) frequency-hopping tactical radios. The ANTI-JAM RADIO COMMUNICATIONS (HAVE QUICK) UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINCGARS (Single Channel Ground and Airborne Radio System) provides anti-jam, VHF frequency-hopping voice and data communications and is the primary means of ECCM communications between Air Force, Army, and USMC aircraft and ground units involved in close air support and joint battlefield operations. The Theater Deployable Communications (TDC) program provides funding for the research, development, test and evaluation for the modernization of operational deployable communications, and integration of commercial off the shelf (COTS) equipment that support tactical air operations in a combat environment. This includes the integration of deployable communications equipment for active duty, guard and reserve forces. Equipment will be fielded at wings, combat communications squadrons, Air Force Special Operations Command and Air Mobility Command communication units, and Theater Air Control System units. This funding also provides Systems Program Office (SPO) internal management, engineering and technical support for the continuing spiral development of (COTS) equipment and will examine appropriate emerging technologies. TDC equipment is composed of three components Lightweight Multi band Satellite Terminal (LMSTs), the Integrated Communications Access Packages (ICAP), and Network Management System/Base Information Protection (NMS/BIP). Together these three systems provide communications infrastructure in deployed bare base environments. FY99 funding was provided for EFX99 it is part of an annual war fighter experiment to demonstrate emerging Air Force capabilities to deploy and employ decisive air and space power for the Joint Force Commander through a Rapid Response Air Expeditionary Force (RAEF). The experiment is designed to meet Chief of Staff of the Air Force (CSAF) requirement to explore how advanced command and control capabilities and new operational processes enable modern aerospace forces to decisively halt an invading force anywhere in the world. It is a continuous spiral development process for the C2 Weapon System.

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>
---	--

- (U) **B. Budget Activity Justification**  
 This program is in budget activity 7, Operational System Development RDT&E, AF because it examines appropriate emerging technologies for the continuing spiral development of commercial off-the-shelf (COTS) equipment; provide software development; provides support for the the fielded HAVE QUICK family of radios; and determines and resolves integration issues pertaining to COTS equipment
- (U) **C. Program Change Summary (\$ in Thousands)**
- |   | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>Total Cost</u> |
|---|----------------|----------------|----------------|-------------------|
| (U) Previous President's Budget (FY 2000 PBR)     | 2,348          | 2,864          | 2,892          | TBD               |
| (U) Appropriated Value                            | 2,348          | 0              |                |                   |
| (U) Adjustments to Appropriated Value             |                |                |                |                   |
| a. Congressional/General Reductions               | -172           | 0              |                |                   |
| b. Small Business Innovative Research             | -67            | 0              |                |                   |
| c. Omnibus or Other Above Threshold Reprogram     |                |                |                |                   |
| d. Below Threshold Reprogram                      | 3,449          | 0              |                |                   |
| e. Rescissions                                    | -31            |                |                |                   |
| f. Other  |                | 0              |                | TBD               |
| (U) Adjustments to Budget Years Since FY 2000 PBR |                |                | -25            |                   |
| (U) Current Budget Submit/FY 2001 PBR             | 5,527          | 0              | 2,867          | TBD               |
- (U) **Significant Program Changes:**  
 FY99: Funds reprogrammed by SAF/AQI to support EFX initiatives within PE 672982 ANTI-JAM

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>				PROJECT <b>671013</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
671013	Theater Deployable Communications (TDC)	1,964	0	2,649	2,907	2,954	3,013	3,074	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>            As clearly demonstrated during Desert Shield/Desert Storm (DS/DS), 70's generation of deployable communications equipment is bulky, inflexible in design and does not meet today's projected airlift availability or interoperability standards. Air Force planning calls for initial communications assets to be in place prior to the arrival of flying forces. Deployment priorities for DS/DS did not allow timely arrival of communications assets. The Theater Deployable Communications (TDC) program emphasizes COTS equipment to augment existing assets or replace tactical communications packages. The resulting TDC packages have reduced airlift requirements and is designed to support a wide range of operational scenarios during deployment/employment, expansion and sustaining operations. Combat communications units equipped with TDC Integrated Communication Access Packages (ICAP) and Lightweight Multiband Satellite Terminals (LMST) were deployed to Bosnia and Kosovo in support of theater air operations and deployed tactical air and mobility wings. LMST provided the reach back from the forward battle area back to the National Command Center and backbone theater communications required to operate in an austere environment to expedite dissemination of critical war fighter information. Required interoperability testing is provided by Ft. Hauchua, AZ. TDC performance during these operations exceeded Air Force and CINC expectations.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$299 Continue communications architecture planning            (U) \$491 Continue development of automation tools            (U) \$885 Continue interoperability and integration activities            (U) \$289 Continue production improvement and interface development            (U) \$1,964 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$0 No Activity            (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>            (U) \$680 Prepare TDC roadmap and acquisition 'way ahead'            (U) \$1,857 Continue field interoperability and integration activities            (U) \$112 Program Management Activity (travel, supplies, etc)            (U) \$2,649 Total</p>										
Project 671013			Page 3 of 9 Pages				Exhibit R-2A (PE 0207423F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>				PROJECT <b>671013</b>			
<b>(U) B. Project Change Summary</b>											
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>											
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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											
(U) Other Procurement AF, Budget Activity 3, PE 0207423F	36,322	66,060	90,168	77,961	126,778	158,978	121,463	Continuing	TBD		
(U) O&M PE 0207422/0208010F	2,926	5,864	8,439	5,255	5,349	15,246	15,278	Continuing			
(U) Other Procurement AF, Budget Activity 5, Weapon System Code 86190A, PE 0207423F	1,888	1,891	3,048	98	97	99	101	Continuing	TBD		
<b>(U) D. Acquisition Strategy</b>											
There are three Firm Fixed Price (FFP) contracts for Theater Deployable Communications (TDC): Lightweight Multiband Satellite Terminals (LMST), the Integrated Communication Access Package (ICAP) and Network Management System/Base Information Protection (NMS/BIP). The TDC contracts were awarded after full and open competitions. (When restricted technologies are involved, foreign competition is not allowed.)											
<b>(U) E. Schedule Profile</b>											
				<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>		
				1	2	3	4	1	2	3	4
(U) ICAP Production Option exercise				*					X		
(U) ICAP Training Option exercise					*						
(U) Y2K Compliance						*					
(U) Acquisition Milestones (MS III ICAP)							X				
(U) Production LMST Deliveries Start								*			
(U) NMS/BIP Deliveries continuing											X
* denotes completed event											
X denotes planned event											
Project 671013			Page 4 of 9 Pages				Exhibit R-2A (PE 0207423F)				

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
07 - Operational System Development										671013
PE NUMBER AND TITLE										
0207423F Advanced Communications Systems										
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	Software Support					713	0	802		
(U)	Engineering Support					306	0	626		
(U)	Integration Activities					880	0	1,109		
(U)	Travel					55	0	100		
(U)	Miscellaneous					10	0	12		
(U)	Total					1,964	0	2,649		
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
	Various				4,323	610	0	813	Continuing	TBD
<u>Support and Management Organizations</u>										
MITRE	FFP	OCT 97	TBD	TBD	4,559	915	0	977	Continuing	TBD
In house contractor spt	FFP	Varies			1,459	439	0	859	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	Subtotals				4,323	610	0	813	TBD	TBD
	Subtotal Product Development				6,018	1,354	0	1,836	TBD	TBD
	Subtotal Support and Management									
	Subtotal Test and Evaluation				10,341	1,964	0	2,649	TBD	TBD
	Total Project									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>				PROJECT <b>672982</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672982 Anti-Jam Radio Communications	3,563	0	218	0	0	0	0	0	23,139
<p>(U) <b><u>A. Mission Description</u></b>                      The fast paced development of emerging communication technologies by potentially hostile nations dictates that the U.S. maintains a technological lead. Ultra high frequency (UHF) and Very High Frequency (VHF) frequency hopping voice and data radios are needed for jam resistant communications between tactical aircraft and airborne and ground control elements. The HAVE QUICK waveform used in these radios is a NATO standard for UHF anti-jam communications. The HAVE QUICK UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. The SINCGARS (Single Channel Ground and Airborne Radio System) waveform provides anti-jam, very high frequency (VHF) hopping voice and data communications and is the primary mode of ECCM communications between the Air Force, Army, and USMC. It is utilized during Close Air Support (CAS) for maneuver units and joint battlefield operations.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$96 Continue to investigate improvements in anti-jam performance and other anti-jam techniques                      (U) \$117 Continue to investigate decrease in air traffic control channel bandwidth and modulation techniques                      (U) \$3,350 EFX 99'                      (U) \$3,563 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No Activity                      (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$98 Software updates for resolution of GPS incompatibility (i.e. F-16, E-3, and A-10)                      (U) \$10 Required printing and reproduction of the HAVE QUICK updated technical orders for GPS                      (U) \$50 Support fielding of AN/ARC-222 and AFKDMS                      (U) \$10 PMA                      (U) \$50 Work with users to improve supportability for AN/ARC-164, AN/ARC-222 and AN/ARC-204 units                      (U) \$218 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b>                      FY00 zeroed out by Congress (Consolidation and Elimination of Small Programs)</p>									
Project 672982			Page 6 of 9 Pages				Exhibit R-2A (PE 0207423F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>				PROJECT <b>672982</b>	
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837102, PE 0207423F	0	13,309	22,169	23,628	24,003	12,777	9,703	Continuing	TBD
<b>(U) D. Acquisition Strategy</b>									
The Anti-Jam (SINCGARS) is a army lead program that was awarded after full open competition									
<b>(U) E. Schedule Profile</b>									
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3
(U) Investigate anti-jam improvements						*			
(U) Software updates								X	
(U) Improve supportability								X	
(U) Support fielding								X	
* denotes completed event									
X denotes planned event									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
<b>07 - Operational System Development</b>					<b>0207423F Advanced Communications Systems</b>			<b>672982</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Software Support					32		0		98	
(U)	Engineering Support					30		0		80	
(U)	Evaluation Analysis					40		0		20	
(U)	Test and Evaluation					15		0		0	
(U)	PMA					30		0		10	
(U)	Unreleased budget					12		0		0	
(U)	EFX 99'					3,370		0		0	
(U)	Miscellaneous					34		0		10	
(U)	Total					3,563		0		218	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
						4				4	
<u>Support and Management Organizations</u>											
								48		48	
						66		10		76	
MITRE	FFP	OCT 97	TBD	TBD	353	70	0	0	0	423	
ITSP/TEMS	FFP	Varies			19,005	41	0	160	0	19,206	
<u>Test and Evaluation Organizations</u>											
AFOTEC	N/A										
EFX 99'						3,382				3,382	

**UNCLASSIFIED**

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>		<b>DATE</b> February 2000				
<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>				<b>PROJECT</b>	
<b>07 - Operational System Development</b>	<b>0207423F Advanced Communications Systems</b>				<b>672982</b>	
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development		4				4
Subtotal Support and Management	19,358	177	0	218	0	19,753
Subtotal Test and Evaluation		3,382				3,382
Total Project	19,358	3,563	0	218	0	23,139
EFX 99 funding reflected in Budget FY 1999 as Subtotal Test and Evaluation						

**THIS PAGE INTENTIONALLY LEFT BLANK**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

**February 2000**

BUDGET ACTIVITY

PE NUMBER AND TITLE

**07 - Operational System Development**

**0207438F Theater Battle Management (TBM) C4I**

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	48,325	46,406	41,068	32,388	30,119	30,721	31,331	Continuing	TBD
673330 Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654
674287 Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634
674288 Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975
674790 Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD
674802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: Starting in FY00 the RDT&E funding for CTAPS (project 4287), WCCS (project 4288), and Combat Intelligence System (CIS) (PE 27414F, project 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single Defense Information Infrastructure Common Operating Environment (DII COE) compliant system and will be managed as a single project with the fielding of TBMCS 1.0 in FY00. DCAPES was previously funded in FY99 under PE 33150F.

**(U) A. Mission Description**

TBM C4I develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). Acquisition of these systems will allow the execution of TBM planning, intelligence, and operational functions of the Joint Forces Air Component Commander (JFACC), including generation and dissemination of the air tasking order (ATO). Projects included in this program are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), Theater Battle Management Core Systems (TBMCS), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES).



UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY

PE NUMBER AND TITLE

**07 - Operational System Development**

**0207438F Theater Battle Management (TBM) C4I**

(U) **B. Budget Activity Justification**

The TBMCS effort is post Milestone III effort, and is in Budget Activity 7, Operational Systems Development because it incrementally upgrades and develops capabilities for currently operational systems.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	30,254	43,727	41,433	TBD
(U) Appropriated Value	30,792	46,727		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-538	-130		
b. Small Business Innovative Research	-857			
c. Omnibus or Other Above Threshold Reprogram	14,228	-191		
d. Below Threshold Reprogram	4,971			
e. Rescissions				
f. Other	-271			TBD
(U) Adjustments to Budget Years Since FY 2000 PBR			-365	
(U) Current Budget Submit/FY 2001 PBR	48,325	46,406	41,068	TBD

(U) **Significant Program Changes:**

FY99: \$2.475M of the below threshold reprogramming action was for EFX'99 initiative where TBMCS is the CORE Operating System. \$.806M of the BTR was to mitigate TBMCS contract cost overruns. The \$14.228M ATR was for Y2K conversion activities.

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>673330</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673330 Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654
<p>(U) <b><u>A. Mission Description</u></b>                      The Command &amp; Control Information Processing System (C2IPS) project develops communications and information processing hardware and software for all echelons of the Air Mobility Command (AMC). C2IPS provides AMC the capability to monitor in real-time the operational airlift and tanker functions associated with mission execution worldwide. The integration of C2IPS computer resources and software with improved High Frequency (HF) equipment and other available communications media will result in a unified AMC C2 System.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$5,535 Completed C/S software and evaluation (3A/3B/3C)                      (U) \$4,198 Continued increment 4 (Detailed Planning &amp; Scheduling for integration of AMC Aircraft Schedules)                      (U) \$200 Started requirements planning for client server architecture                      (U) \$9,933 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$9,532 Continue Increment 4 (Detailed Planning &amp; Scheduling for integration of AMC Aircraft Schedules)                      (U) \$1,912 Start next level DII/COE integration                      (U) \$200 Continue requirements planning for future C2IPS architecture migration                      (U) \$11,644 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$7,175 Continue Increment 4 (Detailed Planning &amp; Scheduling for integration of AMC aircraft schedules)                      (U) \$1,900 Continue higher level integration of C2IPS in DII/COE                      (U) \$199 Continue requirements planning for future C2IPS architecture migration                      (U) \$9,274 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b>                      N/A</p>									
Project 673330			Page 3 of 20 Pages				Exhibit R-2A (PE 0207438F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT <b>673330</b>
---	--	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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

(U) **D. Acquisition Strategy**  
 The C2IPS will be developed and installed in four increments. A spiral development process is used to produce consecutive software releases within each increment. The first three increments were developed under contract with Computer Sciences Corporation. Increment 1 provided a digital data message handling capability at each Information Processing System (IPS) node and implements mission execution monitoring. Increment 2 builds on Increment 1 software to support mission planning and scheduling. Increment 3 will provide C2IPS with a client server architecture as part of the system migration efforts. Increment 4 continues the evolutionary acquisition process, using modular development through government wide agency contracts. It also lays the foundation for the migration strategy that will enhance interoperability of C2IPS with TBMCS and achieve required DII/COE integration.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 3 Completion Dates												
(U) Spiral A (Rel 3A)	*											
(U) Spiral B (Rel 3B Comm Proc)	*											
(U) Spiral C (Rel 3C Data Partitioning)		*										
(U) Increment 4 Completion Dates												
(U) Spiral A (Planning & Sched)									X			
(U) Spiral B (Plan & Sched, DII/COE)												X

Note: \* Denotes Completed Event; X Denotes Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 673330			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Major Product Development Contracts					7,281		9,100		7,424	
(U)	Support Contracts					2,161		2,013		1,657	
(U)	Program Management Support					491		531		193	
(U)	Total					9,933		11,644		9,274	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or</u>	<u>Contract</u>									
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
	<u>Product Development Organizations</u>									<u>Total</u>	
	CSC	FPIF	Dec 88	TBD	TBD	13,847	3,904	1,271		1,724	20,746
	Unisys	IDIQ	Dec 98	TBD	TBD	0	3,377	7,829	7,424	0	18,630
	<u>Support and Management Organizations</u>										
	MITRE	T&M	Oct 94	N/A	N/A	4,533	1,487	1,178	1,178	1,658	10,034
	TEMS/ITSP	Various	Various	N/A	N/A	966	674	835	479	725	3,679
	ESC (government organization)	n/a	n/a	N/A	N/A	1,048	491	531	193	302	2,565
	<u>Test and Evaluation Organizations</u>										
	N/A										
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	Subtotal Product Development					13,847	7,281	9,100	7,424	1,724	39,376
	Subtotal Support and Management					6,547	2,652	2,544	1,850	2,685	16,278
	Subtotal Test and Evaluation										
	Total Project					20,394	9,933	11,644	9,274	4,409	55,654

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674287</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674287 Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634
<p>Note: With the fielding of TBMCS 1.0.1 in FY00, CTAPS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TBMCS.</p> <p>(U) <b><u>A. Mission Description</u></b>                      The Contingency Theater Automated Planning System (CTAPS) program directly supports the Joint Forces Air Component Commander (JFACC) in the planning and execution of the theater air campaign down to the unit level. The system is designed to an open system standard, promoting interoperability among USAF, Services, and Allied command and control systems. The air tasking order generation and dissemination capabilities of CTAPS are the standard for all DoD command and control systems.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$27,033 Continued TBMCS software version 1.0.1 development.                      (U) \$2,722 Continued TBMCS v1.1 development.                      (U) \$1,100 Completed development of new ATO format.                      (U) \$1,425 System engineering and support.                      (U) \$2,265 Expeditionary Force Experiment                      (U) \$34,545 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.                      (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.                      (U) \$0 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b></p>									
Project 674287			Page 6 of 20 Pages				Exhibit R-2A (PE 0207438F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT <b>674287</b>
---	--	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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  
 See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.

(U) **D. Acquisition Strategy**  
 Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including CTAPS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software Version 1.0.1												
(U) In-Plant Test				*								
(U) Version 1.0.1 Release						X						
(U) TBMCS software Version 1.1												
(U) In-Plant Test									X			
(U) Version 1.1 Release											X	

Note: \* Denotes Completed Event; X Denotes Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674287			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	System Integration and Development					33,120		0		0	
(U)	System Engineering and Support					1,425		0		0	
(U)	Total					34,545		0		0	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or</u>	<u>Contract</u>									
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
										<u>Total</u>	
	<u>Product Development Organizations</u>										
	LMMS	CPAF	Oct 95	TBD	TBD	31,307	31,946			0	63,253
	SAIC (S/W INT) Hampton	CPFF	Mar 94	N/A	N/A	11,085				0	11,085
	VA										
	SAIC (ASOC/BSD) Hampton	CPFF	Feb 94	N/A	N/A	3,759				0	3,759
	VA, Anchorage AK										
	PARAMAX (APS) St Paul	CPFF	Mar 94	N/A	N/A	1,207				0	1,207
	MN										
	INEL (ASOC) Idaho Falls ID	CPFF	Oct 94	N/A	N/A	2,043				0	2,043
	Logicon, Inc San Pedro, CA	CPFF	Jun 94	N/A	N/A	6,160	1,100			0	7,260
	Miscellaneous	Various	Various	N/A	N/A	410				0	410
	<u>Support and Management Organizations</u>										
	MITRE	CPAF	Oct 94	N/A	N/A	6,948	502			0	7,450
	TEMS	T&M	Various	N/A	N/A	3,910	923			0	4,833
	Miscellaneous	Various	Various	N/A	N/A	2,978				0	2,978
	<u>Test and Evaluation Organizations</u>										
	46 TS	Project Order	Various	N/A	N/A	205	74			0	279
	JTIC	MIPR	Various	N/A	N/A	77				0	77

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT <b>674287</b>
---	--	--------------------------

	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	55,971	33,046			0	89,017
Subtotal Support and Management	13,836	1,425			0	15,261
Subtotal Test and Evaluation	282	74			0	356
Total Project	70,089	34,545			0	104,634



**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674288</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674288 Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975
<p>Note: With the fielding of TBMCS 1.0.1 in FY00, WCCS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TMBCS</p> <p>(U) <b><u>A. Mission Description</u></b>                      This project includes development of mission critical application software for WCCS operating on commercially available hardware and system software. Wing commanders require an accurate, composite picture of their wing's total resources to effectively command, control, and manage their forces in support of their combat sortie generation and reporting responsibilities. Key functional areas (operations, maintenance, mission planning, intelligence, weather, etc.) use WCCS to support the wing commander in the mission execution and reporting process by exchanging critical command and control and intelligence information with functional counterparts located throughout the wing. The introduction of increasingly sophisticated weapon systems - with their need for and ability to produce large amounts of data - require an automated C2 system to bring meaningful, consolidated information to the Commander in near real-time. At many wings not yet upgraded with WCCS this information is still relayed over secure and unsecured telephones, radios, and other communications devices, as well as by runners to update multi-user status displays (grease boards) or hand written logs. These techniques have not changed substantially since World War II, and are cumbersome, error-prone, are subject to security compromise, and involve duplication of effort. Disparate programs have led to the proliferation of stovepipe systems which can not provide interoperability and do not adequately meet the needs of today's air operations. The WCCS project designs, develops, and installs an automated, standard wing-level C2 system that will be tailored to meet unique organizational requirements, provide interoperability, and reduce training and maintenance costs.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$2,922 Continued TBMCS software version 1.0 development.                      (U) \$299 Continued TBMCS v1.1 development.                      (U) \$626 Systems engineering and support.                      (U) \$3,847 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.                      (U) \$0 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.                      (U) \$0 Total</p>									
<p>Project 674288 <span style="float: right;">Page 10 of 20 Pages <span style="float: right;">Exhibit R-2A (PE 0207438F)</span></span></p>									

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2000</b>																																																																																																																																																									
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674288</b>																																																																																																																																																								
<p>(U) <b><u>B. Project Change Summary</u></b></p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 1999</u></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&amp;E</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="10">See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.</td> </tr> </tbody> </table> <p>(U) <b><u>D. Acquisition Strategy</u></b> Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including WCCS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.</p> <p>(U) <b><u>E. Schedule Profile</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3"><u>FY 1999</u></th> <th colspan="3"><u>FY 2000</u></th> <th colspan="3"><u>FY 2001</u></th> </tr> <tr> <td></td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> <td align="center">1</td> <td align="center">2</td> <td align="center">3</td> <td align="center">4</td> </tr> </thead> <tbody> <tr> <td>(U) TBMCS software Version 1.0.1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) In-Plant Test</td> <td></td><td></td><td></td><td align="center">*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Version 1.0.1 Release</td> <td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) TBMCS software Version 1.1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) In-Plant Test</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td> </tr> <tr> <td>(U) Version 1.1 Release</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td> </tr> </tbody> </table> <p>Note: * Denotes Completed Event; X Denotes Planned Event</p>											<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.											<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) TBMCS software Version 1.0.1													(U) In-Plant Test				*									(U) Version 1.0.1 Release						X							(U) TBMCS software Version 1.1													(U) In-Plant Test									X				(U) Version 1.1 Release											X	
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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																																																																																																																																																																
See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.																																																																																																																																																																
	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>																																																																																																																																																									
	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																																																				
(U) TBMCS software Version 1.0.1																																																																																																																																																																
(U) In-Plant Test				*																																																																																																																																																												
(U) Version 1.0.1 Release						X																																																																																																																																																										
(U) TBMCS software Version 1.1																																																																																																																																																																
(U) In-Plant Test									X																																																																																																																																																							
(U) Version 1.1 Release											X																																																																																																																																																					
Project 674288			Page 11 of 20 Pages				Exhibit R-2A (PE 0207438F)																																																																																																																																																									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674288			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
					<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				
(U)	System Integration and Development				3,221	0	0				
(U)	Systems Engineering and Support				626	0	0				
(U)	Total				3,847	0	0				
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or</u>	<u>Contract</u>									
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	
										<u>Total</u>	
	<u>Product Development Organizations</u>										
	LMMS	CPAF	Oct 95	TBD	TBD	8,300	3,221			0	11,521
	SAIC	CPFF	Jan 94	N/A	N/A	5,000				0	5,000
	<u>Support and Management Organizations</u>										
	MITRE	CPAF	Oct 94	N/A	N/A	1,106	215			0	1,321
	TEMS & Misc	Various	Various	N/A	N/A	1,594	411			0	2,005
	<u>Test and Evaluation Organizations</u>										
	N/A										
(U) <b><u>Government Furnished Property:</u></b>											
		<u>Contract</u>									
		<u>Method/Type</u>	<u>Award or</u>								
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	<u>Product Development Property</u>										
	Local Purchase	Various	Various	Various		128				0	128
	<u>Support and Management Property</u>										
	N/A										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I			February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
N/A						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Total</u>
<u>Subtotals</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>
Subtotal Product Development		13,428	3,221		0	16,649
Subtotal Support and Management		2,700	626		0	3,326
Subtotal Test and Evaluation						
Total Project		16,128	3,847		0	19,975

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674790</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674790	Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD
<p>Note: Starting in FY00 the RDT&amp;E funding for CTAPS (4287), WCCS (4288), and CIS (27414F, 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single DII/COE compliant system and will be managed as a single project with the fielding of TBMCS 1.0.1 in FY00. NATO R&amp;D funding was also transferred to this project in FY00 and FY 01.</p> <p>(U) <b><u>A. Mission Description</u></b>                      The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). It links planning, intelligence and operations functions in an integrated battle management system for planning and executing the air war at the theater level. Functions supported include generation and dissemination of the air tasking order in support of the Joint Forces Air Component Commander (JFACC). Projects being integrated in TBMCS include the Contingency Theater Automated Planning System (CTAPS), Wing Command &amp; Control System (WCCS), and Combat Intelligence System (CIS). Funds were added in FY00 and FY01 for NATO R&amp;D to collectively enhance interoperability between the emerging NATO Air Command and Control System (ACCS) and TBMCS, and to share relevant research.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$0 Funds were reflected under CTAPS (4287), WCCS (4288), and CIS (PE 27414F, 4773)                      (U) \$0 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$4,700 TBMCS software version 1.0.2 development.                      (U) \$15,559 Continue TBMCS software version 1.1 development.                      (U) \$2,240 Start TBMCS software version 2.0 development                      (U) \$1,000 NATO R&amp;D                      (U) \$2,300 System Engineering                      (U) \$25,799 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$10,292 Complete TBMCS software version 1.1 development                      (U) \$6,166 Continue TBMCS software version 2.0 development                      (U) \$1,500 NATO R&amp;D                      (U) \$2,300 System Engineering</p>										
Project 674790		Page 14 of 20 Pages				Exhibit R-2A (PE 0207438F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674790</b>	
(U) <b><u>A. Mission Description Continued</u></b>									
(U) <u>FY 2001 (\$ in Thousands) Continued</u>									
(U) \$20,258 Total									
(U) <b><u>B. Project Change Summary</u></b>									
(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Other Procurement, AF, PE 27438F, WSC 832010	0	17,648							17,648
(U) Other Procurement, AF, PE 27438F, WSC 834520	79,882	47,150	51,844	55,600	54,704	55,880	56,896	Continuing	TBD
(U) RDT&E, AF PE 0207414F, CIS	13,635	0	0	0	0	0	0	0	21,754
(U) Other Procurement, AF, PE 0207414F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	12,439	0	0	0	0	0	0	0	23,610
(U) Other Procurement, AF, PE 0207431F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	2,858	4,650	0	0	0	0	0	Continuing	
<p>Note: This summary includes other program funding associated with CTAPS, WCCS, and CIS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program. Please note, the other program funds associated with PEs 0207414F and 0207431F in FY99 are reported both here and as other program funds under the descriptive summary for PE 0207414F, Combat Intelligence System.</p>									
Project 674790			Page 15 of 20 Pages				Exhibit R-2A (PE 0207438F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT <b>674790</b>
---	--	--------------------------

(U) **D. Acquisition Strategy**  
 Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software version 1.0.1												
(U) In-Plant Test				*								
(U) Version 1.0.1 Release						X						
(U) TBMCS software version 1.0.2												
(U) In-Plant Test								X				
(U) Version 1.0.2 Release									X			
(U) TBMCS software version 1.1												
(U) In-Plant Test										X		
(U) Version 1.1 Release												X

Note: \* Denotes Completed Event; X Denotes Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674790		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	System Integration and Development					0		23,499		17,958
(U)	System Engineering and Support					0		2,300		2,300
(U)	Total					0		25,799		20,258
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	LMMS	CPAF	Oct 95	TBD	TBD			23,369	17,828	Continuing
	<u>Support and Management Organizations</u>									
	MITRE	CPAF	Oct 94	N/A	N/A			2,300	2,300	Continuing
	<u>Test and Evaluation Organizations</u>									
	46TS	Project Order	Various	N/A	N/A			130	130	Continuing
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
						<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Subtotals</u>									
	Subtotal Product Development							23,369	17,828	TBD
	Subtotal Support and Management							2,300	2,300	TBD
	Subtotal Test and Evaluation							130	130	TBD
	Total Project							25,799	20,258	TBD



**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>				PROJECT <b>674802</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674802	Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD
DCAPES funding in FY99 was under PE 33150F, project 4667.										
<b>(U) A. Mission Description</b>										
Deliberate and Crisis Action Planning and Execution Segments (DCAPES) are being developed as the next generation AF interface to the Joint Operational Planning and Execution System (JOPES). This effort is an evolutionary follow on to the Contingency Operations Mobility Planning and Execution System (COMPES), which is currently the Air Force interface to JOPES. COMPES is the legacy system ported from WWMCCS to GCCS in 1996 as a stop gap measure. DCAPES will replace the functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated C2. DCAPES is intended to be more tightly coupled with the range of planning support systems to provide a more effective crisis action planning capability for a wider range of operational scenarios. DCAPES provides a real time, two way interchange of manpower, logisitcs, and operational data between the Air Force and the warfighting CINC's. It matches people and airframes/weapons to the CINC's warfighting requirements.										
<b>(U) FY 1999 (\$ in Thousands)</b>										
(U) \$0 No activity (FY99 funding reflected in PE 0303150F)										
(U) \$0 Total										
<b>(U) FY 2000 (\$ in Thousands)</b>										
(U) \$5,512 DCAPES Increment 1 development, prototyping, coding, and internal testing										
(U) \$500 Government deployment and test support										
(U) \$500 DCAPES Increment 2 requirements definition										
(U) \$2,451 DCAPES Increment 2 development, requirements allocation, prototyping, and coding										
(U) \$8,963 Total										
<b>(U) FY 2001 (\$ in Thousands)</b>										
(U) \$10,637 DCAPES Increment 2 development, prototyping, coding, and testing										
(U) \$500 Government development testing and integration and interoperability testing										
(U) \$399 DCAPES Increment 3 requirements definition										
(U) \$11,536 Total										
Project 674802				Page 18 of 20 Pages				Exhibit R-2A (PE 0207438F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT <b>674802</b>
---	--	--------------------------

(U) **B. Project Change Summary**  
 All funding in project 4802, DCAPES was reported in FY99 under PE 33150F, project 4667. It was transferred to group it with other TBM C4I software development efforts intended to operate in the Defense Information Infrastructure Common Operating Environment.

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) PE 33150 (RDT&E, 4667, Global Command and Control System - AF)	9,122								9,122

(U) **D. Acquisition Strategy**  
 DCAPES will be managed by Electronic Systems Center, Hanscom AFB, MA. In July 98, the DCAPES contract was awarded to the Raytheon, Computer Sciences Corporation, and Science Applications International team under Command and Control Product Line (CCPL) contracts awarded and maintained by Electronic Systems Center. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 1 Development	*											
(U) Government Acceptance Testing						X						
(U) DCAPES Initial Increment Fielded									X			

Note: \* Denotes Completed Event; X Denotes Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I					PROJECT 674802	
(U) <b>A. Project Cost Breakdown (\$ in Thousands)</b>											
								<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	
(U)	Development Contract Effort							0	6,963	8,936	
(U)	Test Support							0	500	700	
(U)	Program Management Support							0	1,200	1,400	
(U)	Expeditionary Force Experiment							0	300	500	
(U)	Total							0	8,963	11,536	
Note: DCAPEs was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.											
(U) <b>B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
(U) <b>Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Raytheon/ CSC/ SAIC	FP/LH with award fee	Feb 98	N/A	N/A	0		7,263	9,436	Continuing	TBD
<u>Support and Management Organizations</u>											
	Mitre	CPAF						800	800	Continuing	TBD
	TEMS	T&M						400	600	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	46 Test Sqdn	MIPR						500	700	Continuing	TBD
Note: DCAPEs was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.											
						<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>											
	Subtotal Product Development					0		7,263	9,436	TBD	TBD
	Subtotal Support and Management							1,200	1,400	TBD	TBD
	Subtotal Test and Evaluation							500	700	TBD	TBD
	Total Project					0		8,963	11,536	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>				PROJECT <b>670003</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
670003	JSTARS	91,701	147,582	144,118	132,993	167,012	313,925	295,338	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            There is an Air Force and Army need to provide, from airborne platforms, near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas. This information enables operational and tactical commanders to make and execute battle decisions. To meet these needs, the Air Force and Army initiated the Joint Surveillance Target Attack Radar System (Joint STARS) program with the Air Force as lead service. Joint STARS provides target information for pairing direct attack aircraft and standoff weapons against selected targets. The system is capable of being cued by other reconnaissance, surveillance, and target acquisition systems; is able to respond rapidly to worldwide contingencies. The operational utility of the system was effectively demonstrated by the two developmental aircraft in support of combat operations during Desert Storm. Joint STARS aircraft were deployed in support of Operation Joint Endeavor in Dec 95 and again from Nov to Dec 96. Joint STARS also successfully supported Operation Allied Force from Feb to June 99. In Sep 96 the Defense Acquisition Board (DAB) Milestone III Review approved full rate production of a 19 E-8C program. The 93rd Air Control Wing, Robins AFB, GA, declared Joint STARS Initial Operational Capability (IOC) in Dec 97 and the system is now participating in operational and training exercises. After the 1996 Quadrennial Defense Review recommended a revision of the Joint STARS production profile the Air Force reduced Joint STARS production from 19 to 13 E-8Cs. Funding for 15th E-8C provided during FY01 President's Budget build.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$4,528                      Continued work on Block 10 (TADIL-J, JIMIS, and DMS/COTS) Efforts</p> <p>(U) \$20,203                    Continued work on Block 20 (Computer Replacement Program (CRP)) Efforts</p> <p>(U) \$10,357                    Continued work on Block 30 (SATCOM) Efforts</p> <p>(U) \$17,276                    Continued work on Block 40 (Radar Technology Insertion Program (RTIP)); Begin Data Link Study</p> <p>(U) \$6,171                      Continued work on Support Systems</p> <p>(U) \$247                        Continued work on Advanced Development (DII COE/GCCS Studies)</p> <p>(U) \$32,919                    Continued work on Test Efforts</p> <p>(U) \$91,701                    Total</p>										
Project 670003			Page 1 of 7 Pages				Exhibit R-2 (PE 0207581F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>		PROJECT <b>670003</b>	
<b>(U) <u>A. Mission Description Continued</u></b>					
<b>(U) <u>FY 2000 (\$ in Thousands)</u></b>					
(U)	\$2,041	Continue Block 10 (JIMIS) Efforts			
(U)	\$20,233	Continue Block 20 (CRP) Efforts			
(U)	\$16,585	Continue Block 30 (SATCOM, Link 16 ASU, DMS COTS, DII COE Studies) Efforts			
(U)	\$77,618	Continue Block 40 (RTIP)			
(U)	\$31,105	Continue Test Efforts			
(U)	\$147,582	Total			
Note: Realigned Link 16 ASU and DMS COTS efforts from Block 10 to Block 30.					
<b>(U) <u>FY 2001 (\$ in Thousands)</u></b>					
(U)	\$25,300	Continue Block 20 (Start Support Systems Upgrades for CRP) Efforts			
(U)	\$16,104	Continue Block 30 (SATCOM, DMS COTS, DII COE Studies) Efforts			
(U)	\$70,714	Continue Block 40 (RTIP) Efforts			
(U)	\$32,000	Continue Test Efforts			
(U)	\$144,118	Total			
<b>(U) <u>B. Budget Activity Justification</u></b>					
This program is in Budget Activity 7 - Operational System Development. Initial operational capability was achieved in Dec 97. Developmental work continues on system upgrades.					
<b>(U) <u>C. Program Change Summary (\$ in Thousands)</u></b>					
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	100,453	130,488	121,699	TBD
(U)	Appropriated Value	101,793	148,488		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-1,340	-95		
	b. Small Business Innovative Research	-3,188			
	c. Omnibus or Other Above Threshold Reprogram		-811		
	d. Below Threshold Reprogram	-5,051			
	e. Rescissions	-513			
	f. Other				
Project 670003		Page 2 of 7 Pages	Exhibit R-2 (PE 0207581F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>					PROJECT <b>670003</b>	
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>											
					<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			<u>Total Cost</u>	
(U)	Adjustments to Budget Years Since FY 2000 PBR						22,419				
(U)	Current Budget Submit/FY 2001 PBR				91,701	147,582	144,118			TBD	
(U)	<u>Significant Program Changes:</u>										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>											
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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, AF, BP10 (PE 27581F)	508,887	291,171	260,878	12,183	0	0	0	0	4,434,701	
(U)	Modifications, BP11 (PE 27581F)	43,522	28,346	33,389	16,161	13,518	13,572	45,259	Continuing	TBD	
(U)	Spares, BP16 (PE 27581F)	66,835	73,685	28,824	9,546	6,332	2,773	1,535	Continuing	TBD	
(U)	Quantity, Joint STARS E-8C Aircraft Proc.	2	1	1							
(U)	Note: Procurement began with 2 E-8Cs per year FY93-FY97.										
<b>(U) E. Acquisition Strategy</b>											
Joint STARS Low Rate Initial Production (LRIP) was approved by the Defense Acquisition Board (DAB) in FY93. Acquisition began with the procurement of 2 E-8Cs in FY93, and continued at 2 E-8Cs per year through FY97. Procurement funding continues with 1 E-8C in FY98, 2 E-8Cs in FY99, 1 E-8C in FY00, and currently concludes with one E-8C in FY01.											
<b>(U) F. Schedule Profile</b>											
				<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>	
				1	2	3	4	1	2	3	4
(U)	CRP EMD First Flight						*				
(U)	RTIP MS II						X				
(U)	RTIP EMD Contract Award							X			
	* Denotes completed event										
Project 670003			Page 3 of 7 Pages					Exhibit R-2 (PE 0207581F)			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>	PROJECT <b>670003</b>
---	--	--------------------------

(U) F. Schedule Profile Continued

<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4

X Denotes planned event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>			PROJECT <b>670003</b>				
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Block 10 (TADIL-J, JIMIS and DMS/COTS) efforts					4,528		2,041		0	
(U)	Block 20 (CRP) efforts					20,203		20,233		25,300	
(U)	Block 30 (SATCOM) efforts					10,357		16,585		16,104	
(U)	Block 40 (RTIP) efforts					17,276		77,618		70,714	
(U)	Support Systems and Crew Trainer Development					6,171		0		0	
(U)	Advanced Development					247		0		0	
(U)	Test Efforts					32,919		31,105		32,000	
(U)	Total					91,701		147,582		144,118	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	* Joint STARS RDT&E funding prior to FY98 was in PE 0604770F										
	<u>Product Development Organizations</u>										
	GMSD**	CPFF	May 97	166,491	166,491	103,411	20,203	17,577	25,300	0	166,491
	Computer Replacement Program										
	GMSD	CPFF	May 97	48,245	48,245	549	10,163	13,632	14,601	9,300	48,245
	SATCOM										
	GMSD	CPFF	May 97	741,062	741,062	5,169	17,276	71,537	70,714	576,366	741,062
	Advanced Dev. (RTIP) Efforts										
	GMSD Other	Various	Various	N/A	N/A	2,339,634	11,140	13,731	1,503	Continuing	TBD
	Dev. Efforts										
Project 670003				Page 5 of 7 Pages				Exhibit R-3 (PE 0207581F)			



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 2000
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
<b>07 - Operational System Development</b>					<b>0207581F JOINT STARS</b>					<b>670003</b>
<b>(U) <u>Performing Organizations Continued:</u></b>										
** Grumman Melbourne Systems Division (now Northrop Grumman)										
<u>Support and Management Organizations</u>										
Joint Program	N/A		N/A	N/A	365,816	0	0	0	0	365,816
Office, Program Support										
<u>Test and Evaluation Organizations</u>										
GMSD, E-8C	SS/FFP/CPFF	Aug 96	156,230	156,230	30,625	18,066	16,617	16,775	74,147	156,230
Follow-On Test Support										
GMSD, Aircraft	SS/FFP/CPFF	Aug 96	30,596	30,596	5,480	3,295	2,480	4,618	14,723	30,596
Over & Above Tests										
GMSD, Follow-On Test Support	SS/FFP/CPFF	Aug 96	3,737	3,737	1,259	179	573	333	1,393	3,737
MILSTRIP										
Range Support	Allotment	N/A	N/A	N/A	26,696	603	1,243	1,165	Continuing	TBD
Horizons Tech. (SETA)	Time and Materials	Various	N/A	N/A	36,136	4,654	5,380	5,541	Continuing	TBD
Joint Test Force Support	Allotment	N/A	N/A	N/A	25,863	1,649	2,360	2,361	Continuing	TBD
Misc. Test Efforts	Various	N/A	N/A	N/A	117,149	4,473	2,452	1,207	Continuing	TBD
<b>(U) <u>Government Furnished Property:</u></b>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>	PROJECT <b>670003</b>
---	--	--------------------------

(U) Government Furnished Property Continued:  
Test and Evaluation Property  
 N/A

	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	2,448,763	58,782	116,477	112,118	TBD	TBD
Subtotal Support and Management	365,816	0	0	0	0	365,816
Subtotal Test and Evaluation	243,208	32,919	31,105	32,000	TBD	TBD
Total Project	3,057,787	91,701	147,582	144,118	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>				PROJECT <b>674037</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674037	SEEK EAGLE Certifications	17,680	22,851	19,472	17,799	17,013	18,946	18,556	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>                      The Air Force has a variety of combat aircraft and numerous stores (munitions, missiles, fuel tanks, electronic countermeasures pods, etc.). Aircraft carry these stores in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change as operational plans and tactics change, and as new aircraft and stores are developed and produced. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, modeling and simulation, and engineering analysis. Over 700 aircraft-store combinations exist to be certified, with new ones added on a regular basis. Depending upon the complexity, certification takes from months to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources for sustainment of a viable Air Force aircraft-store certification capability. Electronic Technical Orders are developed through the Combat Weapons Delivery Software (CWDS), creating cost savings by eliminating paper technical orders. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including F-22, Joint Strike Fighter (JSF), Sensor Fuzed Weapon (SFW), Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Air to Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C5 (AMRAAM), and many other inventory stores on inventory aircraft.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$1,300            Continued development of F-22 data and engineering models to use for follow-on F-22 weapons certification</p> <p>(U) \$2,400            Initiated/continued/completed various automation projects and automated Technical Orders/mission planning projects using CWDS</p> <p>(U) \$2,150            Continued/completed various technology improvement projects and aircraft load/separation prediction capabilities using Applied Computational Fluid Dynamics (ACFD)</p> <p>(U) \$10,404           Initiated/continued/completed various aircraft-store certifications on USAF fighter and bomber aircraft</p> <p>(U) \$1,426            Munitions Effectiveness Evaluation of extended range CBU-87 using strap-on wing kit (LongShot)</p> <p>(U) \$17,680           Total</p>										
Project 674037			Page 1 of 6 Pages				Exhibit R-2 (PE 0207590F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>		PROJECT <b>674037</b>
(U)	<b><u>A. Mission Description Continued</u></b>			
(U)	<u>FY 2000 (\$ in Thousands)</u>			
(U)	\$1,800	Continue development of F-22 data and engineering models to use for follow-on F-22 weapons certification		
(U)	\$2,450	Initiate/continue/complete various automation projects and automated Technical Orders/mission planning projects using CWDS		
(U)	\$2,400	Continue/complete various technology improvement projects and aircraft load/separation prediction capabilities using ACFD		
(U)	\$16,201	Initiate/continue/complete various aircraft-store certifications on USAF fighter and bomber aircraft		
(U)	\$22,851	Total		
(U)	<u>FY 2001 (\$ in Thousands)</u>			
(U)	\$3,100	Continue development of F-22 data and engineering models to use for follow-on F-22 weapons certification		
(U)	\$2,550	Initiate/continue/complete various automation projects and automated Technical Orders/mission planning projects using CWDS		
(U)	\$2,500	Continue/complete various technology improvement projects and aircraft load/separation prediction capabilities using ACFD		
(U)	\$11,322	Initiate/continue/complete various aircraft-store certifications on USAF fighter and bomber aircraft		
(U)	\$19,472	Total		
(U)	<b><u>B. Budget Activity Justification</u></b>			
	The RDT&E Budget Activity is 7, Operational Systems Development, because the program supports fielded systems.			
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>			
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U)	Previous President's Budget (FY 2000 PBR)	18,767	23,133	19,645
(U)	Appropriated Value	19,090	23,133	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions	-269	-12	
	b. Small Business Innovative Research	-495		
	c. Omnibus or Other Above Threshold Reprogram		-126	
	d. Below Threshold Reprogram	-493		
	e. Rescissions	-153	-144	
	f. Other			TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR			-173
(U)	Current Budget Submit/FY 2001 PBR	17,680	22,851	19,472
				TBD

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>			PROJECT <b>674037</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>									
<b>(U) Significant Program Changes:</b>									
FY99: \$1,500 Congressional plus-up for Longshot testing.									
Note: Of the \$493 BTR amount in FY 1999 above, \$158 paid canceled year bills									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Proc of Ammunition, AF*									
(U) - P-1 Line JDAM	0	0	0	146	0	144	0	0	290
(U) - P-1 Line WCMD	0	0	0	0	0	134	0	0	4,146
(U) Missile Procurement, AF*									
(U) - P-1 Line JSOW	9,511	1,150	0	1,023	1,175	1,269	1,267	Continuing	TBD
(U) - P-1 Line AIM-120 C5 (AMRAAM)	0	0	612	0	0	0	0	0	15,137
(U) - P-1 Line AIM-9X, (Sidewinder)	0	0	2,918	5,331	1,944	0	4,266	Continuing	TBD
(U) - P-1 Line JASSM	0	0	0	744	2,896	3,607	2,882	Continuing	TBD
* Note: The SEEK EAGLE procurement dollars shown above are appropriated in each weapon's P-1 line.									
<b>(U) E. Acquisition Strategy</b>									
Budget authorization for procurement funds are given directly to the weapon system program offices, who then procure the required certification test articles through the weapon production contract.									
<b>(U) F. Schedule Profile</b>									
	<u>FY 1999</u>			<u>FY 2000</u>				<u>FY 2001</u>	

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>	PROJECT <b>674037</b>
---	---	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) AIM-120 C5 (AMRAAM)									X	X	X	X
(U) AIM-9X (Sidewinder)									X	X	X	X
(U) JSOW	*	*	*	*	X	X	X	X				

Note: The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

\* = Completed Event

X = Planned hardware buy in support of upcoming certification activities.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>			PROJECT <b>674037</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Process Sustainment					2,150		2,400		2,500
(U)	F-22 Data & Engineering Models					1,300		1,800		3,100
(U)	Engineering Analysis					3,600		4,000		4,250
(U)	Flight Testing					5,004		9,101		5,222
(U)	Extended Range JDAM Testing (Longshot)					1,426		0		0
(U)	Wind Tunnel Testing					1,000		2,200		900
(U)	Other					2,400		2,450		2,550
(U)	- Ballistic/ Safe Escape Analysis									
(U)	- Tech Order/P.C. Floppy Disk									
(U)	- Loading Process Development/Verification									
(U)	Mission Support					800		900		950
(U)	Total					17,680		22,851		19,472
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Lockheed Martin	C/CPFF	Jul 98	15,648	15,648	600	1,300	1,800	3,100	8,848	15,648
Leigh Aerosystems	FFP	Jan 00	1,000	1,000	0	1,000	0	0	0	1,000
<u>Support and Management Organizations</u>										
Mission Support	PO/REO	Continuous	N/A	N/A	9,067	800	900	950	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
46th Test Wing	PO/REO	Continuous	N/A	N/A	89,351	9,840	12,351	10,022	Continuing	TBD
AEDC	PO/REO	Continuous	N/A	N/A	13,738	1,000	2,200	900	Continuing	TBD
46th Test Wing	REO	Nov 99	426	426	0	426	0	0	0	426
Various	PO/REO	Continuous	N/A	N/A	38,392	3,314	5,600	4,500	Continuing	TBD
Project 674037					Page 5 of 6 Pages			Exhibit R-3 (PE 0207590F)		



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>		<b>0207590F Seek Eagle</b>			<b>674037</b>	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						<u>Program</u>
Subtotal Product Development		600	2,300	1,800	3,100	8,848
Subtotal Support and Management		9,067	800	900	950	TBD
Subtotal Test and Evaluation		141,481	14,580	20,151	15,422	TBD
Total Project		151,148	17,680	22,851	19,472	TBD

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY		PE NUMBER AND TITLE							
<b>07 - Operational System Development</b>		<b>0207601F USAF Modeling and Simulation</b>							
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13,632	21,093	17,624	14,929	11,232	11,458	11,684	Continuing	TBD
671008 National Air and Space Warfare Model (NASM)	11,920	15,430	11,909	11,180	7,395	7,544	7,692	Continuing	TBD
674567 Joint Modeling and Simulation System (JMASS)	1,712	5,663	5,715	3,749	3,837	3,914	3,992	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	Continuing	TBD

(U) **A. Mission Description**

Provides RDT&E funding for major USAF Modeling and Simulation efforts such as the National Air and Space [Warfare] Model (NASM)-the air and space element of the Joint Simulation System (JSIMS); and the Joint Modeling and Simulation System (JMASS). JSIMS will be the sole readiness training simulation used by all CINCs, Services, NAFs and at all simulation centers to train Joint Force Commanders, Joint Task Force staffs, Components and their staffs, including Joint Force Air Component Commanders and Air Operations Center personnel. JMASS provides High Level Architecture (HLA)-compliant architecture for engagement level simulations.

(U) **B. Budget Activity Justification**

Initiated in FY 94, this program is in budget activity 7 - Operational System Development, Research Category because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	14,478	19,299	17,624	
(U) Appropriated Value	14,899			
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-421			
b. Small Business Innovative Research	-455			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-324			
e. Rescissions	-67			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>
---	---

<b>(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u></b>				
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
f. Other		21,093		
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR	13,632	21,093	17,624	TBD
<b>(U) <u>Significant Program Changes:</u></b>				
Significant Program Changes: In FY00, funding from PE64256F, Threat Simulator Development, was transferred into PE27601F in FY00 and FY01 for the Joint Modeling and Simulation (JMASS) program development.				

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>				PROJECT <b>671008</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
671008 National Air and Space Warfare Model (NASM)	11,920	15,430	11,909	11,180	7,395	7,544	7,692	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>            This program provides funds for Air Force and Joint wargaming architecture and model development, primarily in support of battlestaff training, education, and military operations. A new wargaming model, NASM, is being developed to replace the existing Air Force standard Air Warfare Simulation (AWSIM). NASM will expand the use and role of modeling and simulation (M&amp;S) in support of operational and acquisition decision making, and increase the interoperability between Air Force and joint efforts. NASM includes an overall USAF M&amp;S architecture and provides a reusable, portable, scaleable, robust distributed core for other simulations. It includes an air combat resolution model to meet the needs of USAF MAJCOMs and Unified/Specified Command air components to train Air Component Commanders and their battle staffs. Primary users will be the unified command air components, Commanders in Chief (CINCs), Joint Forces Air Component Commander's (JFACC), and Service components, as supported by BLUE FLAG and WPC for use in joint exercises involving air, ground, and sea campaigns. NASM is the air component portion of the DoD, Joint Staff and Services Joint Simulation System (JSIMS) which includes Enterprise partner programs from the Joint Staff, Army, Navy (and USMC), DIA, NRO and NSA under CINC JFCOM sponsorship.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$9,795 Continued development of specific air objects to support JSIMS architecture            (U) \$2,125 Continued NASM integration effort and operate the program management office            (U) \$11,920 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$11,125 Continue development of specific air objects to support JSIMS architecture            (U) \$2,355 Continue NASM integration effort and operate the program management office            (U) \$1,950 Upgrade Synthetic Theater Operations Research Model (STORM) and Powerscene model.            (U) \$15,430 Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>            (U) \$9,546 Continue development of specific air objects to support JSIMS architecture            (U) \$2,363 Continue NASM integration effort and operate the program management office            (U) \$11,909 Total</p> <p>(U) <b><u>B. Project Change Summary</u></b></p>									
Project 671008			Page 3 of 8 Pages				Exhibit R-2A (PE 0207601F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>	<b>PROJECT</b> <b>671008</b>
--	--	---------------------------------

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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								Continuing	TBD
(U) Other APPN								Continuing	TBD

(U) **D. Acquisition Strategy**  
 NASM provides the Air and Space software components of the Joint Simulation System (JSIMS). Resources are reviewed and measured against an Enterprise program baseline, with the Earned Value and performance measurement reporting against the baseline accomplished on a monthly basis. The contract was selected by source selection and is a Cost Plus Award Fee (CPAF).

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Initial Op Capability (IOC) 3QFY02												
(U) Full Op Capability (FOC) 4QFY04												

NASM development schedule is aligned with the Joint Simulation System (JSIMS) Acquisition Program Baseline (APB) development schedule required to achieve Initial Operational Capability (IOC) in FY02 and Full Operational Capability (FOC) in FY04.

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT 671008		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Software development					9,795		11,125		9,546
(U)	Program Management/Contractor Support					2,125		2,355		2,363
(U)	Congressional Add; Synthetic Theater Operations Research Model (STORM) upgrade					0		1,950		0
(U)	Total					11,920		15,430		11,909
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Raytheon (NASM)	TRN	3 Mar 97	74,541	74,541	17,135	9,172	13,010	9,489	27,383	76,189
Raytheon (AWSIM/R)	TRN	7 Apr 94	9,876	9,876	11,454				0	11,454
Hughes (AWSIM/R)	TRN	2 Jun 94	4,676	4,676	4,059				0	4,059
TRW (AFSOM)	TRN	12 Dec 97	39	39	39				0	39
<u>Support and Management Organizations</u>										
Tech Eng Mgt Spt (TEMS)	Del Order	1 Feb 94	15,413	15,413	8,082	1,193	1,200	1,200	3,471	15,146
MITRE	Contract Mod	11 Aug 94	13,200	13,200	5,869	1,194	1,200	1,200	3,471	12,934
Other*	Various	Various	19,180	19,180	17,112	361	20	20	1,644	19,157
*Includes Prototype Contracts										
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development					32,687	9,172	13,010	9,489	27,383	91,741
Subtotal Support and Management					31,063	2,748	2,420	2,420	8,586	47,237
Subtotal Test and Evaluation										
Total Project					63,750	11,920	15,430	11,909	35,969	138,978

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>				PROJECT <b>674567</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674567    Joint Modeling and Simulation System (JMASS)	1,712	5,663	5,715	3,749	3,837	3,914	3,992	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>                      The Joint Modeling &amp; Simulation System (JMASS) is a simulation support environment for the development, configuration, execution, and analysis of high fidelity, repeatable simulations with re-usable models-focus is tactical/engagement level simulations with the present concentration on electronic combat. JMASS is a full system software implementation of a modern object based simulation architecture. JMASS provides users with the tools to: Develop objects, assemble these objects into models, configure the models in a complete simulation, execute the simulation, and post process the simulation data. JMASS tools assist users in developing fully compliant objects; users concentrate on the models and analysis, not computer science.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$507                    High Level Architecture (HLA) Compliance                      (U) \$245                    Improved User Interface                      (U) \$675                    Developed Request For Proposal (RFP) documentation and operate the program management office                      (U) \$285                    Prototyped JMASS software on a Personal Computer (PC)                      (U) \$1,712                  Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$2,463                  JMASS Model Space Object (MSO) development (computer representations of individual DoD weapon systems)                      (U) \$1,700                  JMASS Architecture development (Environment, Terrain, Human interaction, background models and simulations)                      (U) \$1,500                  JMASS Integration with Other Service Simulations                      (U) \$5,663                  Total</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b>                      (U) \$3,949                  JMASS Model Space Object (MSO) development (computer representations of individual DoD weapon systems)                      (U) \$1,000                  JMASS Architecture development (Environment, Terrain, Human interaction, background models and simulations)                      (U) \$766                    JMASS Integration with Other Service Simulations                      (U) \$5,715                  Total</p> <p>(U) <b><u>B. Project Change Summary</u></b>                      PE 64256F, Threat Simulator Development, transferred \$2.1M in FY00 and FY01 for JMASS Joint Program Development.</p>									
Project 674567			Page 6 of 8 Pages				Exhibit R-2A (PE 0207601F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>	PROJECT <b>674567</b>
---	---	--------------------------

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>C. Other Program Funding Summary (\$ in Thousands)</b>									
(U) AF RDT&E									
(U) Other APPN									
(U) PE64256F, Threat Simulator Development Project 3321 (EW Test Resources)	4,100							Continuing	TBD

(U) **D. Acquisition Strategy**  
All major contracts for JMASS model development will be awarded after full and open competition.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milestone 2 - RFP (completed 3QFY99)			*									
(U) Contract Award						X						
(U) Initial Delivery												X



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207601F USAF Modeling and Simulation			PROJECT 674567		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
					<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	Software Development				1,030	4,363	4,215			
(U)	Contractor Support				240	1,000	1,000			
(U)	Program Management Support				442	300	500			
(U)	Total				1,712	5,663	5,715			
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	Various	Various				1,712	5,663	5,715	Continuing	TBD
	<u>Support and Management Organizations</u>									
	<u>Test and Evaluation Organizations</u>									
	<u>Subtotals</u>					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
						<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	Subtotal Product Development					1,712	5,663	5,715	TBD	TBD
	Subtotal Support and Management									
	Subtotal Test and Evaluation									
	Total Project					1,712	5,663	5,715	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207605F Wargaming and Simulation Centers</b>				PROJECT <b>672888</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672888 Theater Air Command & Control Sim Facility (TACCSF)	3,822	19,087	3,874	6,005	6,281	6,406	6,534	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>                      Funding provided for the Air Force's premier warfighter-in-the-loop simulation facility operated at Kirtland AFB, NM by Det 4, 505th Exercise Control Squadron (505 ECS). TACCSF's mission is to provide advanced distributed simulation to the warfighter for improving theater air and space warfare systems and concepts of operation. TACCSF is used by the AC2TIG and other customers who require high-fidelity battle management, command, control, communications, computer, and intelligence (BMC4I) simulation for establishing system requirements, assessing interoperability, integrating actual C4I and weapon system, and conducting joint test and evaluation. TACCSF performs the upgrade of a complex equipment system consisting of 23 Air Force and Army weapon system simulators (containing over 2 million lines of software code), 18 internal computer networks, 36 mainframe computers, and 62 tactical warfighter-in-the-loop simulator consoles. These systems interoperate with joint service simulators and live fielded equipment via wide-area networks using state-of-the-art voice and data link communications over multiple long-haul communication circuits.</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>									
(U) \$2,561	Continued to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development								
(U) \$934	Continued to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system								
(U) \$227	Provided program management.								
(U) \$100	DIS provided flexibility, dial-up connectivity between TACCSF and various other M&S facilities.								
(U) \$3,822	Total								
<p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p>									
(U) \$14,000	Provides one-time funding to move TACCSF R&D mission into new facility; includes new computers, virtual flight simulators, multi-ship simulators, and instructor control white-cell consoles for R&D distributed mission training.								
(U) \$3,738	Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development.								
(U) \$1,000	Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system.								
Project 672888			Page 1 of 4 Pages				Exhibit R-2 (PE 0207605F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
<b>07 - Operational System Development</b>		<b>0207605F Wargaming and Simulation Centers</b>		<b>672888</b>	
(U)	<b><u>A. Mission Description Continued</u></b>				
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>				
(U)	\$249	Provides program management.			
(U)	\$100	DIS provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities.			
(U)	\$19,087	Total			
(U)	<u>FY 2001 (\$ in Thousands)</u>				
(U)	\$3,058	Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development.			
(U)	\$466	Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system.			
(U)	\$250	Provides program management.			
(U)	\$100	DIS provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities.			
(U)	\$3,874	Total			
(U)	<b><u>B. Budget Activity Justification</u></b>				
	This program is in budget activity 7 - Operation System Development, because it continues development and upgrades of the Air Force's premier warfighter-in-the-loop simulation facility.				
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	5,272	5,192	3,874	
(U)	Appropriated Value	5,287	19,192		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-15	-105		
	b. Small Business Innovative Research	-165			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-1,264			
	e. Rescissions	-21			
	f. Other				
(U)	Adjustments to Budget Years Since FY 2000 PBR				
(U)	Current Budget Submit/FY 2001 PBR	3,822	19,087	3,874	TBD
Project 672888		Page 2 of 4 Pages	Exhibit R-2 (PE 0207605F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>																																																																																																																																																						
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0207605F Wargaming and Simulation Centers</b>				PROJECT <b>672888</b>																																																																																																																																																					
<p>(U) <b><u>C. Program Change Summary (\$ in Thousands) Continued</u></b></p> <p>(U) <u>Significant Program Changes:</u></p> <p>(U) <b><u>D. Other Program Funding Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 1999</u></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&amp;E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="10"> <p>(U) <b><u>E. Acquisition Strategy</u></b></p> <p>Provides funds for development, upgrade, and maintenance of virtual simulators. Simulators include Airborne Warning and Control Systems (AWACS), Joint Surveillance Attack Radar System (JSTARS), Advanced Airborne Sensor, Airborne Laser (ABL) TSQ-73 Fire Direction Center, PATRIOT and HAWK battalion and batteries and the F-15C to name a few.</p> </td> </tr> <tr> <td colspan="10"> <p>(U) <b><u>F. Schedule Profile</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th colspan="3" style="text-align: center;"><u>FY 1999</u></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Develop Core Structure (Phase 1: Completed 1QFY99)</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Develop &amp; Integrate DIS &amp; HLA (Phase 1: Completed 3QFY99)</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Unit Test &amp; Evaluation Integration (Phase 1: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) DSI Service Fee (Annual: 4QFYxx)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) Upgrade AWACS &amp; MCE software &amp; test (Phase I: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> </tbody> </table> </td> </tr> </tbody></table>											<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										<p>(U) <b><u>E. Acquisition Strategy</u></b></p> <p>Provides funds for development, upgrade, and maintenance of virtual simulators. Simulators include Airborne Warning and Control Systems (AWACS), Joint Surveillance Attack Radar System (JSTARS), Advanced Airborne Sensor, Airborne Laser (ABL) TSQ-73 Fire Direction Center, PATRIOT and HAWK battalion and batteries and the F-15C to name a few.</p>										<p>(U) <b><u>F. Schedule Profile</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th colspan="3" style="text-align: center;"><u>FY 1999</u></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Develop Core Structure (Phase 1: Completed 1QFY99)</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Develop &amp; Integrate DIS &amp; HLA (Phase 1: Completed 3QFY99)</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Unit Test &amp; Evaluation Integration (Phase 1: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) DSI Service Fee (Annual: 4QFYxx)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) Upgrade AWACS &amp; MCE software &amp; test (Phase I: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> </tbody> </table>											<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Develop Core Structure (Phase 1: Completed 1QFY99)	*				X				X				(U) Develop & Integrate DIS & HLA (Phase 1: Completed 3QFY99)			*				X				X		(U) Unit Test & Evaluation Integration (Phase 1: Completed 4QFY99)				*				X				X	(U) DSI Service Fee (Annual: 4QFYxx)				*				X				X	(U) Upgrade AWACS & MCE software & test (Phase I: Completed 4QFY99)				*				X				X
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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																																																																																																																																																													
<p>(U) <b><u>E. Acquisition Strategy</u></b></p> <p>Provides funds for development, upgrade, and maintenance of virtual simulators. Simulators include Airborne Warning and Control Systems (AWACS), Joint Surveillance Attack Radar System (JSTARS), Advanced Airborne Sensor, Airborne Laser (ABL) TSQ-73 Fire Direction Center, PATRIOT and HAWK battalion and batteries and the F-15C to name a few.</p>																																																																																																																																																													
<p>(U) <b><u>F. Schedule Profile</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th colspan="3" style="text-align: center;"><u>FY 1999</u></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Develop Core Structure (Phase 1: Completed 1QFY99)</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Develop &amp; Integrate DIS &amp; HLA (Phase 1: Completed 3QFY99)</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Unit Test &amp; Evaluation Integration (Phase 1: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) DSI Service Fee (Annual: 4QFYxx)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) Upgrade AWACS &amp; MCE software &amp; test (Phase I: Completed 4QFY99)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> </tbody> </table>											<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Develop Core Structure (Phase 1: Completed 1QFY99)	*				X				X				(U) Develop & Integrate DIS & HLA (Phase 1: Completed 3QFY99)			*				X				X		(U) Unit Test & Evaluation Integration (Phase 1: Completed 4QFY99)				*				X				X	(U) DSI Service Fee (Annual: 4QFYxx)				*				X				X	(U) Upgrade AWACS & MCE software & test (Phase I: Completed 4QFY99)				*				X				X																																																												
	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>																																																																																																																																																						
	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																																																	
(U) Develop Core Structure (Phase 1: Completed 1QFY99)	*				X				X																																																																																																																																																				
(U) Develop & Integrate DIS & HLA (Phase 1: Completed 3QFY99)			*				X				X																																																																																																																																																		
(U) Unit Test & Evaluation Integration (Phase 1: Completed 4QFY99)				*				X				X																																																																																																																																																	
(U) DSI Service Fee (Annual: 4QFYxx)				*				X				X																																																																																																																																																	
(U) Upgrade AWACS & MCE software & test (Phase I: Completed 4QFY99)				*				X				X																																																																																																																																																	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207605F Wargaming and Simulation Centers				PROJECT 672888	
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>	<u>FY 2000</u>			<u>FY 2001</u>
(U)	Software Development					2,567	3,554			3,058
(U)	Contractor Support					955	15,080			466
(U)	Program Management Support					300	453			350
(U)	Total					3,822	19,087			3,874
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	Det 4, 505th CCEG		1 Jan 90	Continuing	Continuing	5,272	3,822	19,087	3,874	Continuing
	<u>Support and Management Organizations</u>									
	<u>Test and Evaluation Organizations</u>									
	<u>Subtotals</u>					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	Subtotal Product Development					5,272	3,822	19,087	3,874	TBD
	Subtotal Support and Management									TBD
	Subtotal Test and Evaluation									TBD
	Total Project					5,272	3,822	19,087	3,874	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>				PROJECT <b>673858</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673858	Air Force Mission Support System (AFMSS)	15,415	18,084	20,755	16,976	17,228	17,573	17,919	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

The Mission Planning System program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. This program maintains and preserves combat capability on existing legacy planning systems which will migrate into a USAF wide standard mission planning system known as the Air Force Mission Support System (AFMSS). Integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware, AFMSS encompasses evolutionary software and hardware development in an open systems architecture. AFMSS today consists of the Mission Planning System (MPS), a UNIX-based system, the Portable Flight Planning Software (PFPS), a personal computer (PC)-based system, and the Joint Mission Planning System (JMPS), which is the next generation PC-based system.

The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peace time operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS design is centered around an open architecture, using standard protocols and interfaces, COTS hardware and software. The MPS currently or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F-22, U-2, AGM-130, AGM-142, JDAM, JSOW, WCMD, ABL, JASSM, MALD, Global Hawk, and Predator. Platforms use tailored software called Aircraft/Weapon/Electronics (A/W/E) that integrate with the core software to specialize the software for their mission.

The PFPS provides flight planning tools that support day-to-day training, peace time operations/exercises, and conventional armed conflict. The PFPS design is based on single user PCs. The user interface is Windows 95 and Windows NT. The PFPS currently or will support the following aircrafts: F-16, MC-130, EC-130, HC-130H/N/P, AC-130, E-3, E-8, C-130E/H/J, LC-130, WC-130, C-27, C-17, E-4, T-38, C-141, RC-135, KC-10, KC-135R/E, C-5, C-9, A-10, MH-53, MH-47, AH/MH-6J, and MH/HH-60.

The JMPS is a continuation effort of the AFMSS MPS and PFPS directed at merging the AFMSS and the Navy's Tactical Automated Mission Planning System (TAMPS), to form a single family of systems achieving Global Command and Control System (GCCS) compatibility through compliance with the Defense Information Infrastructure and Common Operating Environment (DII/COE).

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>	PROJECT <b>673858</b>
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 1999 (\$ in Thousands)</u></p> <p>(U) \$1,459 Completed MPS core software development support</p> <p>(U) \$3,130 Began PFPS software development support</p> <p>(U) \$3,426 Continued A/W/E development/support/integration for the platforms listed above</p> <p>(U) \$6,400 Began JMPS migration effort</p> <p>(U) \$1,000 Stand up Responsible Test Organization (RTO) support</p> <p>(U) \$15,415 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$1,258 Continue PFPS software development support</p> <p>(U) \$671 Continue A/W/E development /support/integration for the platforms listed above</p> <p>(U) \$15,435 Continue JMPS migration effort</p> <p>(U) \$720 Continue Responsible Test Organization (RTO) support</p> <p>(U) \$18,084 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$668 Continue A/W/E development/support/integration for the platforms listed above</p> <p>(U) \$14,687 Continue JMPS migration effort</p> <p>(U) \$4,680 Begin JMPS Combat Capabilities, including PGM migration</p> <p>(U) \$720 Continue Responsible Test Organization (RTO) support</p> <p>(U) \$20,755 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>Mission Planning Systems is in budget activity 7, Operational System Development, because the program currently supports deployed AFMSS systems, which include transportable, non-deployable, and portable laptop workstations. AFMSS MPS C2.0, C2.1, and PFPS 3.0 software are operationally fielded. MPS C2.2 and PFPS 3.01 which incorporate Y2K fixes among other new requirements were released and are in the process of fielding to the Combat Air Forces. Development of JMPS v1.0 began in Jun 99.</p>		
Project 673858	Page 2 of 7 Pages	Exhibit R-2 (PE 0208006F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
<b>07 - Operational System Development</b>				<b>0208006F Mission Planning Systems</b>			<b>673858</b>			
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
			<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2000 PBR)		16,204	16,764	20,755	TBD				
(U)	Appropriated Value		17,090	18,264						
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions		-972	-81						
	b. Small Business Innovative Research		-514							
	c. Omnibus or Other Above Threshold Reprogram		-2,342	-99						
	d. Below Threshold Reprogram		2,153							
	e. Rescissions									
	f. Other					TBD				
(U)	Adjustments to Budget Years Since FY 2000 PBR									
(U)	Current Budget Submit/FY 2001 PBR		15,415	18,084	20,755	TBD				
<b>(U) Significant Program Changes:</b>										
FY99:										
BTR/ATR: The AFMSS program was part of a large 1415-2 action requiring a consolidation of numerous sources into several PEs. Funds were BTR'd into the program as part of this 1415-2 and later removed as part of the larger 1415-2 action. The net change to the AFMSS program was -\$174. In addition, - \$15 was for a canceled bill.										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Other Procurement, AF WSC 833040, Theater Air Control System Improvement (TACSI)	6,035	12,633	13,383	17,713	16,253	16,604	16,905	Continuing	TBD
(U)	Other Procurement, AF, WSC 86190A, Initial Spares	1,447	1,118	1,068	785	558	529	380	Continuing	TBD
(U)	Operations & Maintenance,	29,188	32,277	33,794	30,602	32,340	33,621	33,130	Continuing	TBD
Project 673858		Page 3 of 7 Pages							Exhibit R-2 (PE 0208006F)	



<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>	PROJECT <b>673858</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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>	

AF, 0208006F

O&M funds for PE 28006F support the software and hardware maintenance costs of the Air Force Mission Support System (AFMSS) and the Common Mapping Production System. These funds also support the maintenance of the following existing operational systems until replaced by AFMSS: Mission Support System II (MSS IIA) supports existing combat capability for the F-15 and F-16 aircraft mission planning (F/RF-4 and F-111 are now retired); Mission Data Preparation System (MDPS) supports conventional and nuclear mission planning, aircraft/weapons avionics loading, compatibility between evolving B-1B, B-52H avionics, their weapons systems, and USSTRATCOM. O&M funding supported approximately 240 older systems in FY94. By FY00, a similar amount of funding will support over 2900 AFMSS mission planning systems world-wide.

There are no other AFMSS core related RDT&E activities for unit level mission planning in the USAF. Over 50 individual aircraft and weapons programs develop their respective software to be used in conjunction with the AFMSS core software. The aircraft and weapons software is a complimentary, synergistic effort that provides specific aircraft and weapons information and functionality to the core AFMSS software. The combined software gives the warfighter the full spectrum of mission planning and combat capabilities for their aircraft or weapon including interoperability with planned Theater Battle Management (TBM) systems.

(U) **E. Acquisition Strategy**

The Air Force Mission Support System (AFMSS) program is managed within the Combat Air Forces (CAF) Command and Control (C2) Systems Program Office, Electronic Systems Center, Hanscom AFB, Massachusetts. The AFMSS acquisition strategy leverages military and commercial software integrated on Commercial-Off-The-Shelf (COTS) hardware. AFMSS encompasses evolutionary software and hardware development in an open systems architecture. The contractors for the AFMSS projects are Sanders, Nashua, NH, a Lockheed Martin Company, for the MPS and C-17, KC-10, C-5, C-9, C-141, E-3, E-8, KC-135E/R A/W/Es; Tybrin, Fort Walton Beach, FL, for the PFPS; and Logicon, San Pedro, CA for JMPS. A/W/E development is also performed in-house (government) by Oklahoma City Air Logistics Center (OC-ALC), Tinker AFB, OK; Sacramento Air Logistics Center (SM-ALC), McClellan AFB, CA; Warner Robbins Air Logistics Center (WR-ALC), Robbins AFB, GA; and Ogden Air Logistics Center (OO-ALC), Hill AFB, UT.

The JMPS is in the development phase. Development and initial migration activities began in FY99. The current plan is to continue development and migration activities in the FY00-FY05 time frame while individual weapon systems transition with planned Operational Flight Program (OFP) upgrades.

(U) **F. Schedule Profile**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
--	----------------	----------------	----------------

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>	PROJECT <b>673858</b>
---	---	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) PFPS 3.1 Software Release					*							
(U) PFPS 3.1 OT&E Complete						X						
(U) PFPS 3.2 OT&E Complete										X		
(U) MPS C2.1 OT&E Complete		*										
(U) MPS C2.2 OT&E Begin		*										
(U) MPS C2.2 OT&E Complete				*								
(U) MPS C2.2C (w/ F117) OT&E Begin						X						
(U) MPS C2.2C (w/ F117) OT&E Complete								X				
(U) JMPS Study Complete				*								
(U) JMPS Source Selection Complete				*								
(U) JMPS 1.0 Beta S/W Releases						X		X	X		X	X

\* denotes completed event  
X denotes planned event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>			PROJECT <b>673858</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Primary Software Development					6,715		11,640		15,455	
(U)	Aircraft/Weapons/Electronics (A/W/E) Integration Spt.					100		200		300	
(U)	Systems Engineering					4,400		2,640		2,800	
(U)	Program Management					2,600		2,823		1,300	
(U)	Test and Evaluation					700		684		700	
(U)	Miscellaneous					900		97		200	
(U)	Total					15,415		18,084		20,755	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Logicon (JMPS)	CPAF	Jun 99	TBD	TBD	0	3,325	10,650	8,800	Continuing	TBD
	Sanders	CPAF	Dec 92	93,773	93,773	93,201	99	0	0	Continuing	TBD
	Tybrin (Ft Walton Beach)	Project Order	Dec 98	TBD	TBD	0	2,500	530	0	Continuing	TBD
	A/W/E Integration Activity	Time & Mat'l	Oct 98	TBD	TBD	0	250	0	0	Continuing	TBD
	SPO Misc					4,449	2,867	1,769	2,100	Continuing	TBD
	JMPS Combat Capability	TBD	TBD	TBD	TBD				3,680	Continuing	TBD
<u>Support and Management Organizations</u>											
	FFRDC			TBD	TBD	15,480	4,400	2,640	2,860	Continuing	TBD
	Miscellaneous			TBD	TBD	9,532	1,254	1,775	2,595	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	46TW (Eglin AFB)	Project Order	Oct 98	TBD	TBD	0	720	720	720	Continuing	TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems			PROJECT 673858	
<b>(U) Government Furnished Property:</b>								
	<u>Contract</u>	<u>Award or</u>						
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Vehicle</u>								<u>Total</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
								<u>Total</u>
Subtotal Product Development				97,650	9,041	12,949	14,580	TBD
Subtotal Support and Management				25,012	5,654	4,415	5,455	TBD
Subtotal Test and Evaluation				0	720	720	720	TBD
Total Project				122,662	15,415	18,084	20,755	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>				PROJECT <b>670374</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
670374	Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	2,864	1,368	1	3	3,182	3,272	3,367	0	4,233
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            This program responds to CINC requests for urgently needed technical solutions to operational problems. This program studies, develops and demonstrates Information Operations (IO) prototypes to provide warning, self protection, and support to personnel and equipment against combat systems employed by enemy forces. In response to CINC tasking, this program identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Commands, and quickly bridges the gap between technology developments to meld the technology to meet the warfighter's operational requirements. The Secretary of Defense identified the need for this capability in 1983, and with unanimous approval of the Services and the Unified Commands, JCS made this function a part of the Joint Information Operations Center (JIOC) mission (formerly the Joint Command and Control Warfare Center (JC2WC). The Air Force as executive agent is responsible for the total funding of this effort. The Information Operations Planning Tool (IOPT) initiative. IOPT is a five-year development and integration program. IOPT has four overall program objectives: (1) Determine an operational architecture (2) Develop an evolving suite of interoperable IO planing and decision support capabilities, comprised of software, hardware, and communications products. (3) Identify and implement an open, scaleable system architecture which will accommodate growth in functionality, allow functional modules to interact, and remain compliant with evolving Defense Information Infrastructure (DII) common Operating Environment (DOE) standards; and (4) Implement a spiral/evolutionary acquisition process through which user requirements are systematically identified, prioritized, and address a disciplined, risk-mitigated, user-focused process, and through which new concepts and technology may be incorporated into the solution set..</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$63                      Mayberry ACTD            (U) \$252                     IO Planning Process &amp; JIOPP            (U) \$880                     Information Operations Planning System (IOPS)            (U) \$629                     EFX IO Planning System Initiative            (U) \$81                        Sounder ACTD            (U) \$959                     C2W Analysis and Targetting Tool (CATT)            (U) \$2,864                    Total</p>										
Project 670374				Page 1 of 5 Pages				Exhibit R-2 (PE 0208021F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>	PROJECT <b>670374</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$1,368 Information Operations Planning System (IOPS)</p> <p>(U) \$1,368 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$1 Program has been phased out. The \$1K is residual and will be used to buy system supplies.</p> <p>(U) \$1 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in Budget Activity 7, Operational System Development, because it studies, develops and demonstrates IO prototypes to provide warning, self protection, and support to personnel and equipment against combat systems employed by enemy forces. It identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Commands, and quickly bridge the gap between technology developments and meld the technology into the warfighter's operational requirements. The Secretary of Defense identified the need for this capability in 1983, and with unanimous approval of the services and the Unified Commands, JCS made this function a part of the Joint Information Operations Center (JIOC) mission (formerly the Joint Command and Control Warfare (JC2WC)). The Air Force, as executive agent, is responsible for the total funding of this effort.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">2,864</td> <td style="text-align: center;">1,368</td> <td style="text-align: center;">1</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">2,375</td> <td style="text-align: center;">1,376</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-7</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: center;">-80</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-8</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: center;">592</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: center;">-16</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">2,864</td> <td style="text-align: center;">1,368</td> <td style="text-align: center;">1</td> <td style="text-align: center;">4,233</td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b></p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	2,864	1,368	1		(U) Appropriated Value	2,375	1,376			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-7				b. Small Business Innovative Research	-80				c. Omnibus or Other Above Threshold Reprogram		-8			d. Below Threshold Reprogram	592				e. Rescissions	-16				f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR					(U) Current Budget Submit/FY 2001 PBR	2,864	1,368	1	4,233
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	2,864	1,368	1																																																											
(U) Appropriated Value	2,375	1,376																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-7																																																													
b. Small Business Innovative Research	-80																																																													
c. Omnibus or Other Above Threshold Reprogram		-8																																																												
d. Below Threshold Reprogram	592																																																													
e. Rescissions	-16																																																													
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR																																																														
(U) Current Budget Submit/FY 2001 PBR	2,864	1,368	1	4,233																																																										
Project 670374	Page 2 of 5 Pages	Exhibit R-2 (PE 0208021F)																																																												

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>	PROJECT <b>670374</b>
---	--	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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

(U) **E. Acquisition Strategy**  
All major contracts within this Program Element were awarded after full and open competition.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4

(U) Not Applicable



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>			PROJECT <b>670374</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Mayberry ACTD					0		0		1
(U)	Instrumentation and Support					72		0		
(U)	Facilities					0		0		
(U)	Testing					75		0		
(U)	Engineering Services					2,717		1,368		
(U)	SME					0		0		
(U)	Total					2,864		1,368		1
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Bell Aerospace & Techn	DDForm 448	Jan	2	91		880	800		0	1,680
GRCI	AF Form 9	Feb	2	91		175			0	175
GRCI	AF Form 9	Aug	2	91		77			0	77
Unknown	TBD		2	91			568			568
CALSPAN	DDForm 448	Jan Jun	2	91		956		1	0	957
General Dynamics	AF Form 9	Sep	2	91		629				629
<u>Support and Management Organizations</u>										
DISA	DDForm 448	Jan	2	91		54			0	54
JC2WC	DDForm 1610	Jan-Sep	2	91		18			0	18
<u>Test and Evaluation Organizations</u>										
SWRI	AF Form 9	Feb	2	91		75			0	75

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE  
February 2000

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>	PROJECT <b>670374</b>
---	--	--------------------------

(U) Government Furnished Property:

<u>Item</u> <u>Description</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u>	<u>Award or</u> <u>Obligation</u> <u>Date</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Property</u>									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development					2,717	1,368	1	0	4,086
Subtotal Support and Management					72			0	72
Subtotal Test and Evaluation					75			0	75
Total Project					2,864	1,368	1	0	4,233

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208031F WRM-EQUIPMENT/SECONDARY ITEMS</b>				PROJECT <b>674668</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674668 Shelter Development	1,440	1,450	1,475	2,557	2,775	2,830	2,887	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>SAF/AQPS, HQ USAF/ILSR and HQ USAF/ILEX are in the process of consolidating three small dollar Civil Engineer (CE) readiness R&amp;D programs ( PE64617f - Agile Combat Support; PE64708f - Civil, Fire, Environmental, Shelters, and the 3600 portion of PE28031f - War Reserve Material) under PE 64617. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable CE Readiness modernization effort. This consolidation will begin in February 2000 and should be complete by the beginning of FY01 (October 2000).</p> <p>(U) <b><u>A. Mission Description</u></b></p> <p>(U) A. Mission Description</p> <p>1. This program supports Air Force (AF) Bare Base Mobility Equipment, also known as Harvest Falcon (HF) and Harvest Eagle (HE). Designed and sized to support the current Joint Chiefs of Staff (JCS) wartime planning scenario of two nearly simultaneous Major Theater Wars (2MTW), this equipment provides theater warfighters billeting, industrial, and air field capability to support up to 68,200 combat troops and 822 aircraft at 15 austere locations by building complete temporary bases from the ground up. Of the two systems, HF is the newest and fields the greatest capability (housekeeping plus air base infrastructures). The HF system provides capability directed in the FY90-94 Defense Planning Guidance (DPG) that initially tasked the Air Force to support United States Central Command (USCENTCOM) Rapid Deployment Forces (RDF) and save critical airlift resources through theater prepositioning. Subsequent DPGs have continued this requirement. Harvest Falcon remains a top priority procurement requirement of the Commander-In-Chief/Central Command.</p> <p>2. The outstanding reputation enjoyed by the AF Bare Base program, established during the Gulf War, has continued to grow in successive Military-Operations-Other-Than-War (MOOTW) throughout the world. These include Operation Southern Watch, Provide Relief, Provide Promise, Provide Comfort, Restore Hope, Sea Signal, Uphold Democracy, Joint Endeavor, Desert Focus, Desert Fox, Noble Anvil and Allied Force. Significant quantities of Harvest Falcon and Harvest Eagle assets were successfully employed during Operations Allied Force and Noble Anvil to support operational and humanitarian requirements in Kosovo, Albania, Italy, and Northern Turkey. The unparalleled success of the AF Bare Base program in providing critically needed austere basing facilities has resulted in continued demand for the equipment to support MOOTW. This high Operational Tempo (OPTEMPO) utilization continues to take its toll on system assets. As a result, the majority of HF and HE sets currently in the inventory require comprehensive repair or replacement. A majority of the equipment has been used for over three years, well beyond its original design parameters. Equipment modernization and reconstitution funding thus remains a crucial issue.</p>									
Project 674668			Page 1 of 5 Pages				Exhibit R-2 (PE 0208031F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																						
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208031F WRM-EQUIPMENT/SECONDARY ITEMS</b>	PROJECT <b>674668</b>																						
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>3. The Air Force Bare Base program has had unparalleled success meeting the demands in support of MOOTW. This has taken its toll on equipment, and as a result the majority of HF and HE equipment has been in use well beyond design parameters and requires comprehensive repair or replacement. In addition, the Expeditionary Air Force concept demands systems that are lighter leaner, more maintainable, and more deployable. Research, Development, Testing, and Evaluation (RDT&amp;E) funds support these modernization and reconstitution requirements.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <table style="width: 100%;"> <tr> <td style="width: 15%;">(U) \$1,227</td> <td>Initiated EMD for Deployable Waste Management System</td> </tr> <tr> <td>(U) \$213</td> <td>Continued other technical support</td> </tr> <tr> <td>(U) \$1,440</td> <td>Total</td> </tr> </table> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p> <table style="width: 100%;"> <tr> <td style="width: 15%;">(U) \$590</td> <td>Initiate EMD for Bare Base Systems Cold Weather Package</td> </tr> <tr> <td>(U) \$600</td> <td>Continue EMD for Deployable Waste Management System</td> </tr> <tr> <td>(U) \$260</td> <td>Continue other technical support</td> </tr> <tr> <td>(U) \$1,450</td> <td>Total</td> </tr> </table> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <table style="width: 100%;"> <tr> <td style="width: 15%;">(U) \$300</td> <td>Continue EMD for Bare Base Systems Cold Weather Package</td> </tr> <tr> <td>(U) \$860</td> <td>Continue EMD for Deployable Waste Management System</td> </tr> <tr> <td>(U) \$315</td> <td>Continue other technical support</td> </tr> <tr> <td>(U) \$1,475</td> <td>Total</td> </tr> </table> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in Budget Activity 7 because it supports development of operational HF/HE equipment in modernized configurations which reduce deployment 'footprints', required transport airlift sorties, and increase operational efficiencies.</p>			(U) \$1,227	Initiated EMD for Deployable Waste Management System	(U) \$213	Continued other technical support	(U) \$1,440	Total	(U) \$590	Initiate EMD for Bare Base Systems Cold Weather Package	(U) \$600	Continue EMD for Deployable Waste Management System	(U) \$260	Continue other technical support	(U) \$1,450	Total	(U) \$300	Continue EMD for Bare Base Systems Cold Weather Package	(U) \$860	Continue EMD for Deployable Waste Management System	(U) \$315	Continue other technical support	(U) \$1,475	Total
(U) \$1,227	Initiated EMD for Deployable Waste Management System																							
(U) \$213	Continued other technical support																							
(U) \$1,440	Total																							
(U) \$590	Initiate EMD for Bare Base Systems Cold Weather Package																							
(U) \$600	Continue EMD for Deployable Waste Management System																							
(U) \$260	Continue other technical support																							
(U) \$1,450	Total																							
(U) \$300	Continue EMD for Bare Base Systems Cold Weather Package																							
(U) \$860	Continue EMD for Deployable Waste Management System																							
(U) \$315	Continue other technical support																							
(U) \$1,475	Total																							
Project 674668	Page 2 of 5 Pages	Exhibit R-2 (PE 0208031F)																						

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208031F WRM-EQUIPMENT/SECONDARY ITEMS</b>			PROJECT <b>674668</b>			
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		<u>Total Cost</u>		
(U)	Previous President's Budget (FY 2000 PBR)			1,466	1,467	1,475		TBD		
(U)	Appropriated Value			1,470	1,459					
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions			-12	-9					
	b. Small Business Innovative Research			-18						
	c. Omnibus or Other Above Threshold Reprogram									
	d. Below Threshold Reprogram									
	e. Rescissions									
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR							TBD		
(U)	Current Budget Submit/FY 2001 PBR			1,440	1,450	1,475		TBD		
(U)	<u>Significant Program Changes:</u>									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U)	Other APPN									
(U)	Other Procurement, AF, Other Base Maintenance and Support Equipment:									
(U)	WRM-Equipment/Secondary Items (0208031F) (WSC 845420), P-1: 108		35,399	46,455	50,021	27,421	26,809	20,148	19,348	Continuing

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208031F WRM-EQUIPMENT/SECONDARY ITEMS</b>	PROJECT <b>674668</b>
---	--	--------------------------

(U) **E. Acquisition Strategy**  
 The SPO is evaluating and testing commercial solutions to determine options for militarizing commercially-available products for cold weather systems and waste management systems. It will also evaluate work performed by Wright Laboratories, which has identified plasma-arc technology as a potential solution to safely, effectively and efficiently incinerate medical and hazardous wastes. This technology also provides capability to eliminate other waste materials, such as solid wastes/garbage, and other materials placed in landfills. Contracts will be competitive, firm fixed price.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) BARE BASE COLD WEATHER PKG												
(U) - Release RFP						X						
(U) - Contract Award							X					
(U) - Conduct Verification Testing								X				
(U) - Milestone III Decision									X			
(U) DEPLOYABLE WASTE MGT SYS												
(U) - Initiate Waste Management Study		*										
(U) -Complete Waste Management Study				*								
(U) - Milestone I/II Decision					X					X		
(U) - Contract Award						X						
(U) - Phase I Milestone III Decision										X		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>07 - Operational System Development</b>				<b>0208031F WRM-EQUIPMENT/SECONDARY ITEMS</b>				<b>674668</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Contracts					250		640		530
(U)	A&AS Support					969		480		460
(U)	Other Government Agencies					0		50		120
(U)	Material/Equipment					0		20		50
(U)	Other Technical Support					221		260		315
(U)	Total					1,440		1,450		1,475
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Bare Base Systems Cold	C/FP	3Qtr/FY00	910	910	0	0	590	300	Continuing	TBD
Weather Package										
Deployable Waste Management System	C/FP	4Qtr/FY99	3,948	3,948	0	1,440	860	1,175	Continuing	TBD
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0	1,440	1,450	1,475	TBD	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project					0	1,440	1,450	1,475	TBD	TBD



**THIS PAGE INTENTIONALLY LEFT BLANK**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY		PE NUMBER AND TITLE							
<b>07 - Operational System Development</b>		<b>0208060F Theater Missile Defenses</b>							
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	30,571	25,904	19,824	0	0	0	0	Continuing	TBD
674478 Command, Control, Communications, Computers, and Intelligence Enhancements	22,044	17,723	19,824	0	0	0	0	Continuing	TBD
674479 Attack Operations Concept Development	8,527	8,181	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

Air Force Theater Missile Defense/Time Critical Target (TMD/TCT) effort is focused in two areas: Battle Management/Command, Control, Communications, Computers, and Intelligence (BM/C4I) enhancements and improvements to existing Attack Operations systems and procedures. AF TMD concentrates on defining improvements to existing operational capabilities, developing and evaluating prototypes, demonstrating as well as simulating modifications through operational concept demonstrations, and coordinating the transition of these capabilities to operational systems. BM/C4I projects [including, for example, Dynamic Battle Management, Attack Operations Decision Aid (AODA), Automatic Application of Intelligence Preparation of Battlespace (A2IPB) and Joint TADIL-J Range Extension (JRE)] reduce timelines required to negate the theater missile threat by increasing interoperability, improving battle management tools, and providing accurate target data via datalinks for Offensive Counterair (Attack Operations). Attack Operations focuses on improving the ability to locate, identify, target and destroy theater missiles and supporting infrastructure, including theater missile threats in production, deployment, prior to and during launch, as well as soon after launch before critical mobile targets are able to egress to hide locations. The foundation for Attack Operations is improved C4I, advanced sensors, target identification capabilities, CONOPS, training, tactics and procedures, and requirements development for offensive counterair and integration with defensive systems.

(U) **B. Budget Activity Justification**

This program is in Budget Activity 7 because its projects are upgrades to existing operational systems.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE		
<b>07 - Operational System Development</b>		<b>0208060F Theater Missile Defenses</b>		
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>			
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
				<u>Total Cost</u>
(U)	Previous President's Budget (FY 2000 PBR)	30,352	26,129	28,551
(U)	Appropriated Value	31,057	26,129	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions	-705	-83	
	b. Small Business Innovative Research	-1,004		
	c. Omnibus or Other Above Threshold Reprogram		-142	
	d. Below Threshold Reprogram	1,394		
	e. Rescissions	-171		
	f. Other			TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR			-8,727
(U)	Current Budget Submit/FY 2001 PBR	30,571	25,904	19,824
(U)	<u>Significant Program Changes:</u>			
	PE 28060F was reduced across the FYDP to provide funding for higher AF priority programs.			

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208060F Theater Missile Defenses</b>				PROJECT <b>674478</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674478	Command, Control, Communications, Computers, and Intelligence Enhancements	22,044	17,723	19,824	0	0	0	0	Continuing	TBD
<p>(U) <b>A. Mission Description</b></p> <p>Battle Management, Command, Control, Communications, Computers, and Intelligence (BMC4I) enhancements are needed to reduce timelines required to negate Theater Missiles and Time Critical Targets (TCTs) by increasing interoperability, improving battle management tools, and providing accurate target data via datalinks for Offensive Counterair (Attack Operations) against TCTs. The Combat Air Force (CAF) CONOPS for C2 Against Time Critical Targets and Air Superiority Mission Area Plan (MAP) provide the foundation. The BM/C4I program encompasses:</p> <p>1) Dynamic Battle Management (DBM), the CAF vision for providing flexible, centralized C2 throughout conflict spectrum to meet Joint Vision 2010 objectives. Will allow JFACC to tailor decentralized execution to best meet the Rule of Engagement (ROE) and span of control requirements enabling prosecution of any TCT. DBM will identify technical capabilities and migration path required to support DBM environment consisting of wide area connectivity, decision support tools, and shared information.</p> <p>2) Automated Planning Tools / Decision Aids which prototype and demonstrate advanced decision aid capabilities to upgrade the battle management tools and infrastructure to better execute the Theater Missile Defense (TMD) mission. Examples include the integration of the Time Critical Target Aid (TCTA) and Joint Defensive Planner (JDP) into Theater Battle Management Core Systems (TBMCS)/ Global Command and Control System (GCCS) architecture as well as the development and migration of the Attack Operations Decision Aid (AODA) into TACS platforms.</p> <p>3) Intelligence Preparation Of Battlespace (IPB) which enables the Commander and supporting staff to visualize the full spectrum of adversary capabilities and course of actions (COAs) across all dimensions of the battlespace. Examples include the revision of the methodology for the IPB process as it supports TMD; development of an information architecture populated with linked digital products; generation of training material for use in Air Force schoolhouse and field IPB training; and development of a software Automated Assistance with IPB (A2IPB) tool for TBMCS/GCCS to assist the intelligence analyst at a Joint Intelligence Center (JIC), and the Intel/Ops Planner at an AOC.</p> <p>4) Data Link Connectivity which provides upgrades to existing Air Force platforms to better utilize existing communications systems. These include Joint Tactical Information Dissemination System (JTIDS) TMD Message Set Integration and JTIDS gateways to extend range beyond line of sight and interface with National Technical Means (NTM) to provide attack and early launch reporting to theater.</p>										
Project 674478			Page 3 of 12 Pages				Exhibit R-2A (PE 0208060F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>07 - Operational System Development</b>	<b>0208060F Theater Missile Defenses</b>	<b>February 2000</b> <b>674478</b>
(U)	<u><b>A. Mission Description Continued</b></u>	
(U)	<u>FY 1999 (\$ in Thousands)</u>	
(U)	\$6,316	Conducted (DBM operations onboard AWACS and JSTARS live-fly platforms during EFX 99.
(U)	\$5,940	Continued to develop IPB evolutionary prototypes (EPs) for TBMCS and Air Intelligence Agency's Virtual Production environment; demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs).
(U)	\$6,383	Completed AODA spiral 1 prototype development and EFX 99 demonstration; integrate and demonstrate JTE concept in laboratory (single site); completed ATR/TCTA integration and EFX 99 demonstration; began Intelligence Surveillance Recce (ISR) Real Time Requirements definition effort; utilized TCT test bed to improve integration into operational systems and demonstrated integrated capabilities
(U)	\$3,405	Completed JRE prototype development, EFX 99 demonstration, and implementation plan; performed kill chain based C4I analysis.
(U)	\$22,044	Total
(U)	<u>FY 2000 (\$ in Thousands)</u>	
(U)	\$4,268	Integration of DBM concepts and prototype capabilities into TMD/TCT cell. Develop upgraded capability for Air Operations Center (AOC) and GTACS and conduct operations experiments during EFX 00.
(U)	\$5,893	Continue to develop IPB evolutionary prototypes (EPs) for TBMCS and Air Intelligence Agency's Virtual Production environment; demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs) and Joint exercises. Complete Area Limitation module development and conduct FY00 EFX demonstration.
(U)	\$4,819	Complete AODA spiral 2 prototype development; continue to develop JTE and conduct EFX 00 demonstrations (distributed, collaborative targeting). Kickoff ISR-Real Time prototype development effort based on FY99 analysis. Maintain TMD Cell Testbed to improve integration into operational systems and demonstrate integrated capabilities in operational concept demonstrations.
(U)	\$2,743	Continue to explore communications improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities in OCDs, CINC experiments, and Joint Exercises.
(U)	\$17,723	Total
(U)	<u>FY 2001 (\$ in Thousands)</u>	
(U)	\$6,165	Continue to develop IPB evolutionary prototypes (EPs) for TBMCS and Air Intelligence Agency's Virtual Production environment; demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs), CINC experiments and joint exercises.
(U)	\$5,292	Complete AODA spiral 2 prototype development and conduct EFX 00 demonstration; continue to develop JTE and conduct EFX 00 demonstration (distributed, collaborative targeting); kickoff ISR-Real Time prototype development effort; maintain TCT Testbed to improve integration into operational systems and demonstrate integrated capabilities in CINC experiments and joint exercises.
(U)	\$1,052	Continue to explore communications improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities
Project 674478		Exhibit R-2A (PE 0208060F)

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2000</b>																																																											
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208060F Theater Missile Defenses</b>			PROJECT <b>674478</b>																																																											
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <b><u>FY 2001 (\$ in Thousands) Continued</u></b></p> <p style="padding-left: 40px;">in OCDs, CINC experiments, and Joint Exercises.</p> <p>(U) \$4,626                      Conduct BMC4I and Attack Operations Operational Concept Demonstrations.</p> <p>(U) \$2,689                      Conduct development of prototype JSTARS ATR HW &amp; SW for multisensor application in the TCTA.</p> <p>(U) \$19,824                      Total</p> <p>(U) <b><u>B. Project Change Summary</u></b></p> <p style="padding-left: 40px;">- FY2001 budget is inclusive of BMC4I initiatives and Attack Operations. The FY01-05 budget is reduced to reflect the impact due to budget constraints and funding AF higher priorities.</p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 1999</u></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&amp;E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) RDT&amp;E, BMDO PMA F3261, BM/C4I</td> <td style="text-align: center;">9,885</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">4,000</td> <td></td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p style="padding-left: 40px;">Funding provided by the Ballistic Missile Defense Office for BMC4I interoperability evaluations and prototype development.</p> <p>(U) <b><u>D. Acquisition Strategy</u></b></p> <p style="padding-left: 40px;">HQ Electronic Systems Center (ESC) provides program management for the concept exploration of C4I enhancements. Prototypes and analysis of improvements to existing C4I assets will complement the Attack Operations effort with combined participation in Operational Concept Demonstrations. These Attack Operations and C4I analyses and demonstrations are specifically targeted against operational deficiencies identified in the TMD Mission Area Plan (MAP), are traceable to the AF and JROC Mission Need Statement (MNS) and are consistent with the Air Force and Joint TMD CONOPS in accordance with Joint Doctrine. Integration of TMD requirements and fielding of proposed material solutions will continue beyond concept exploration in the appropriate program element for a particular system. Existing contracts will be used for those systems where engineering change proposals are appropriate. Systems Engineering and Technical Analysis (SETA) contracts will be used to support the requirements definition phase of TMD improvements. In those areas where new material solutions are necessary to correct a deficiency, the source selection process will be followed.</p> <p>(U) <b><u>E. Schedule Profile</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="width:20%;"><u>FY 1999</u></th> <th style="width:20%;"><u>FY 2000</u></th> <th style="width:20%;"><u>FY 2001</u></th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>										<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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										(U) RDT&E, BMDO PMA F3261, BM/C4I	9,885	4,000	4,000	4,000	4,000	4,000	4,000		TBD		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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																																																																		
(U) RDT&E, BMDO PMA F3261, BM/C4I	9,885	4,000	4,000	4,000	4,000	4,000	4,000		TBD																																																									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>																																																															
Project 674478			Page 5 of 12 Pages			Exhibit R-2A (PE 0208060F)																																																												

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0208060F Theater Missile Defenses</b>	PROJECT <b>674478</b>
---	---	--------------------------

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) <b><u>E. Schedule Profile Continued</u></b>												
(U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems												
(U) Establish BMC4I prototype development plan and schedule. Annual review			*				X				X	
(U) JEFX demonstrations			*				X					
(U) Demonstrate automated IPB procedures and system capabilities in Ops Concept				*				X				X
(U) CINC experiments and Joint Exercises.			*			X	X			X	X	
(U) Evaluate use of C2 planning/decision aids. Annual Review.				*				X				X
(U) Continue to explore JTIDS/Link-16 Integration/Improvements. Annual Rev				*				X				X
* - Completed												
X- Planned Start Date												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0208060F Theater Missile Defenses</b>			PROJECT <b>674478</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Dynamic Battle Management (DBM)					6,316		4,268		
(U)	Intelligence Preparation of Battlespace (IPB)					5,940		5,893		6,165
(U)	Automated Decision Aids/Planning Tools					6,383		4,819		5,292
(U)	JTIDS/Link-16 Integration & Beyond LOS Capability					3,405		2,743		1,052
(U)	Operations Concept Demonstrations and CINC Exercises									4,626
(U)	Joint STARS ATC/ATR Demonstration									2,689
(U)	Total					22,044		17,723		19,824
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Total</u>									<u>Program</u>
<u>Product Development Organizations</u>										
	TRW (AODA)	CPFF	Oct 97	N/A	N/A		2,879	3,080	2,000	Continuing
	Boeing (DBM)	T&M	Dec 97	N/A	N/A		2,339	0	0	
	Northrop Grumman (DBM)	T&M	Dec 97	N/A	N/A		2,415	0	0	
	Zel Technologies (A2IPB)	T&M	May 96	N/A	N/A		3,160	3,090	2,812	Continuing
	Sparta (Intel Data Base)	T&M	May 96	N/A	N/A		1,534	1,170	1,100	Continuing
	Raytheon (JRE)	T&M	Oct 97	N/A	N/A		2,119	405	325	Continuing
	Motorola (TCTA)	T&M	Mar 96	N/A	N/A		1,945	1,820	3,259	Continuing
	Army TEC (Area Lim)	MIPR	June 99	N/A	N/A			1,556	985	
	For Profit Contractor	TBD	Nov 99	N/A	N/A			575		Continuing
	(Analyses)									
	Sandia National Labs	MIPR	Oct 99	N/A	N/A				2,034	Continuing



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2000		
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT		
<b>07 - Operational System Development</b>			<b>0208060F Theater Missile Defenses</b>			<b>674478</b>		
<b>(U) <u>Performing Organizations Continued:</u></b>								
<u>Support and Management Organizations</u>								
FFRDC	N/A	N/A	2,500	1,353	985	Continuing	TBD	
Non-FFRDC (ESC)	N/A	N/A	1,031	875	650	Continuing	TBD	
Non-FFRDC (AC2ISRC)	N/A	N/A	540	525	525	Continuing	TBD	
Non-FFRDC (AF/XORT)	N/A	N/A	500	955	984	Continuing	TBD	
<u>Test and Evaluation Organizations</u>								
C2TIG/AFTED			1,082	2,319	4,165	Continuing	TBD	
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>			<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				16,391	11,696	12,515	TBD	TBD
Subtotal Support and Management				4,571	3,708	3,144	TBD	TBD
Subtotal Test and Evaluation				1,082	2,319	4,165	TBD	TBD
Total Project				22,044	17,723	19,824	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0208060F Theater Missile Defenses</b>				PROJECT <b>674479</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674479    Attack Operations Concept Development	8,527	8,181	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            Improvements in Attack Operations are based on the ability to locate, identify, and destroy theater missiles, their launchers, and associated infrastructure on the ground. In addition to the enhancements to C4I, the Attack Operations Project focuses on advanced sensor and target identification capabilities, CONOPS and requirements development for TMD offensive counter-air and optimized integration with defensive systems. Specific technologies such as automatic target cueing/recognition (ATC/R) and moving target indicator/track (MTI/T) upgrades to Joint STARS, F-15E and potentially the U-2, F-16 and UAVs are to be analyzed using constructive analysis and evaluated through Technology/Operational Concept Demonstrations and CINC Experiments along with command and control connectivity upgrades critical to their optimum employment against theater missile targets. Effectiveness and affordability parameters defined will be used in support of follow on acquisition decisions involving P3I upgrades to existing weapon systems and potential new start programs within existing/other program elements.</p>									
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p>									
(U) \$2,135	Conducted Attack Operations Operational Concept Demonstration.								
(U) \$1,520	Continued analysis of updated architectures with weapon system and BMC4I upgrades, to support future year mission analysis. Planned participation in future year distributed simulations to demonstrate improvements in attack operations capabilities.								
(U) \$2,691	Conducted demonstration of F-15E ATC/R prototype with sensor fusion.								
(U) \$2,181	Conducted development of common ATR for integration in the Time-Critical Targeting Aid (TCTA) for multi-sensor application. Continued development and demonstration planning of ATR onboard the JSTARS test aircraft (T3).								
(U) \$8,527	Total								
<p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p>									
(U) \$2,145	Conduct Attack Operations Operational Concept Demonstration.								
(U) \$1,900	Continue analysis of architectures with weapon system and BMC4I upgrades. Participate in a distributed simulation to verify improvements in attack operations capabilities from sensor to shooter that were demonstrated on prototype attack and surveillance systems. Support development of user's operational requirements for weapon system ORDs.								
(U) \$2,090	Conduct demonstration of prototype TCTA with ATR. Conduct demonstration of JSTARS ATR with expanded target set of time-critical targets.								
(U) \$2,046	Conduct development of F-15E ATC/R prototype with on- and off-board sensor fusion. Perform lab demonstration of prototyped capabilities.								
(U) \$8,181	Total								
Project 674479			Page 9 of 12 Pages				Exhibit R-2A (PE 0208060F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208060F Theater Missile Defenses</b>	<b>PROJECT</b> <b>674479</b>
--	--	---------------------------------

(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands)

(U) \$0 FY01 Attack Operations programs included in BPAC 674479.

(U) \$0 Total

(U) **B. Project Change Summary**

FY01 funding consolidated in BPAC 674478

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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

(U) **D. Acquisition Strategy**

HQ Aeronautical Systems Center (ASC) provides the program management for the concept exploration and prototype development of TMD Attack Operations. ASC conducts lab demonstrations with Wright Labs and supports Concept of Operations (CONOPS) development and requirements definition by analyzing and demonstrating measures of effectiveness for various sensor improvements and cueing schemes.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) ATC/R Demos (F-15E/Surveillance)		*				X						
(U) Ops Concept Demonstrations			*			X						

\* - Completed

X - Planned Start Date

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0208060F Theater Missile Defenses				PROJECT 674479		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>	<u>FY 2000</u>		<u>FY 2001</u>	
(U)	Joint STARS ATC/R Demonstration/Improvements					2,181	2,046		0	
(U)	Operational Concept Demonstration (RS99 and EFX99)					2,135	2,145		0	
(U)	Sensor Prototypes and Attack Ops Demonstrations/Sims					1,520	1,900		0	
(U)	F-15E ATC/R Demonstrations					2,691	2,090		0	
(U)	Total					8,527	8,181		0	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
For Profit Contractor	TBD	Nov 99	N/A	N/A		1,240	1,600			2,840
(Analyses)										
Sandia National Labs	MIPR	Oct 99	N/A	N/A		2,310	2,090			4,400
Raytheon (F-15E Radar)	CPFF	Mar 95	N/A	N/A		2,265	1,564			3,829
Lockheed (Tgt Pod)	CPFF	Nov 99	N/A	N/A		1,316	891			2,207
<u>Support and Management Organizations</u>										
FFRDC			N/A	N/A					Continuing	TBD
Non-FFRDC			N/A	N/A					Continuing	TBD
HQ ASC			N/A	N/A		300	355		Continuing	TBD
<u>Test and Evaluation Organizations</u>										
C2ITG/AFTED	MIPR	Mar 95	N/A	N/A		734	1,581		Continuing	TBD
AFSAA	MIPR	Feb 95	N/A	N/A					0	0
Eglin-46 Tst Wg	PO	May 94	N/A	N/A		362	100		Continuing	TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2000		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<b>07 - Operational System Development</b>		<b>0208060F Theater Missile Defenses</b>			<b>674479</b>	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development			7,131	6,145		13,276
Subtotal Support and Management			300	355	TBD	TBD
Subtotal Test and Evaluation			1,096	1,681	TBD	TBD
Total Project			8,527	8,181	TBD	TBD

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 2000</b>			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>				PROJECT <b>674777</b>		
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674777 E-4B Aircraft Modernization	1,824	12,597	34,410	32,314	4,168	19,353	27,904	0	132,570	
Quantity of RDT&E Articles	0	0	0	1	0	0	0	0	1	
<p>(U) <b><u>A. Mission Description</u></b>                      This program encompasses modernization of National Airborne Operational Center (NAOC) essential infrastructure, mission equipment, and interior, as well as mandated Global Access, Navigation, and Safety/Global Air Traffic Management (GANS/GATM) modifications to the E-4B aircraft. The NAOC supports the National Command Authority (NCA) and Joint Chiefs of Staff with a worldwide, survivable and enduring node of the National Military Command System (NMCS) for the exercise of their national security responsibilities throughout the full spectrum of conflict. These modifications are vital in order to maintain mission effectiveness and efficiency. The upgrades: 1) replace the increasingly hard-to-support 1960s era communications and computer equipment (telecommunications switch, multiplexer, messaging systems, etc) on the aircraft with modern, reliable, digital systems that will be supportable for the planned life of the platform; 2) make the commander's console and battle staff workstations compatible with GCCS architecture and software; 3) provide sound dampening to eliminate the severe ambient noise problems that prevent normal communications in the briefing room, conference room, and battle staff area without using intercom headsets; and 4) provide GANS/GATM equipment, integration and testing.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>                      (U) \$1,334            Engineering Trade Studies(e.g., E-4B modification and GANS/GATM Analysis)                      (U) \$490             System Engineering and Program Management Support                      (U) \$0                No Activity                      (U) \$1,824            Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>                      (U) \$6,727            Development of E-4B Modifications                      (U) \$4,670            Software Development; GCCS Integration                      (U) \$1,200            System Engineering and Program Management Support                      (U) \$12,597           Total</p>										
Project 674777			Page 1 of 5 Pages				Exhibit R-2 (PE 0302015F)			

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																												
BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>	PROJECT <b>674777</b>																																																												
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$3,094 Complete E-4B Modifications Development (Software and Hardware)</p> <p>(U) \$14,594 Purchase Engineering Prototype</p> <p>(U) \$10,010 Install Prototype on A/C #1</p> <p>(U) \$5,162 System Integration, Testing, and Documentation</p> <p>(U) \$1,550 System Engineering, and Program Management Support</p> <p>(U) \$34,410 Total</p> <p>(U) <b><u>B. Budget Activity Justification</u></b></p> <p>This program is in budget activity 7 - Operational System Development, Research Category 6.6 because the program is developing modifications for current operations systems.</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right; width: 10%;"><u>FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">2,137</td> <td style="text-align: right;">12,666</td> <td style="text-align: right;">40,516</td> <td style="text-align: right;">87,798</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">2,143</td> <td style="text-align: right;">12,666</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    a. Congressional/General Reductions</td> <td style="text-align: right;">-6</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    b. Small Business Innovative Research</td> <td style="text-align: right;">-70</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: right;">-69</td> <td></td> <td></td> </tr> <tr> <td>    d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    e. Rescissions</td> <td style="text-align: right;">-243</td> <td></td> <td></td> <td></td> </tr> <tr> <td>    f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: right;">-6,106</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: right;">1,824</td> <td style="text-align: right;">12,597</td> <td style="text-align: right;">34,410</td> <td style="text-align: right;">132,570</td> </tr> </tbody> </table> <p>(U) <b><u>Significant Program Changes:</u></b> FY01: RDT&amp;E and Procurement programs have been re-phased based on DepSecDef guidance.</p>				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	2,137	12,666	40,516	87,798	(U) Appropriated Value	2,143	12,666			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-6				b. Small Business Innovative Research	-70				c. Omnibus or Other Above Threshold Reprogram		-69			d. Below Threshold Reprogram					e. Rescissions	-243				f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-6,106		(U) Current Budget Submit/FY 2001 PBR	1,824	12,597	34,410	132,570
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																										
(U) Previous President's Budget (FY 2000 PBR)	2,137	12,666	40,516	87,798																																																										
(U) Appropriated Value	2,143	12,666																																																												
(U) Adjustments to Appropriated Value																																																														
a. Congressional/General Reductions	-6																																																													
b. Small Business Innovative Research	-70																																																													
c. Omnibus or Other Above Threshold Reprogram		-69																																																												
d. Below Threshold Reprogram																																																														
e. Rescissions	-243																																																													
f. Other																																																														
(U) Adjustments to Budget Years Since FY 2000 PBR			-6,106																																																											
(U) Current Budget Submit/FY 2001 PBR	1,824	12,597	34,410	132,570																																																										
Project 674777	Page 2 of 5 Pages	Exhibit R-2 (PE 0302015F)																																																												

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>	<b>PROJECT</b> <b>674777</b>
--	--	---------------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F	10,971	15,044	31,559	16,925	33,023	61,349	38,780	0	207,651

(U) **E. Acquisition Strategy**

There are two contracts on the E-4B: an Engineering Services (ES) contract and a Contractor Logistics Support (CLS)/Modifications contract. The ES contract was awarded to the Boeing Company as the Original Equipment Manufacturer (also includes support for the KC-10, VC-25, T-43, and others) and provides development and prototyping efforts. The CLS/Mods contract was awarded after a full and open competition and provides Programmed Depot Maintenance and modification installations.

The E-4B Modernization Program will be developed and trial installed under the ES contract as a Cost Plus Award Fee (CPAF) effort. The production and installation of modification kits will be performed under the CLS/Mods contract as a Firm Fixed Price (FFP) contract.

(U) **F. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Begin Engineering Trade Studies			*									
(U) Complete Engineering Trade Studies					*							
(U) Begin E-4B Modifications Development						X						
(U) Complete E-4B Modifications Development												X
(U) Begin Software Development							X					
(U) Complete Software Development												X
(U) Purchase Engineering Prototype for A/C #1										X		

Note: \* Denotes Completed Event. X Denotes Planned Event



UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
<b>07 - Operational System Development</b>					<b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>			<b>674777</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Engineering Trade Studies					1,334				
(U)	Development of E-4B Modifications							6,727		3,094
(U)	Software Development; GCCS Integration							4,670		
(U)	Purchase Engineering Prototype									14,594
(U)	Install Prototype on A/C #1									10,010
(U)	System Integration and Testing									5,162
(U)	System Engineering and Program Management Support					490		1,200		1,550
(U)	Total					1,824		12,597		34,410
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Boeing	CPAF	Feb 97	TBD	TBD	0	1,334	11,397	32,820	80,569	126,120
<u>Support and Management Organizations</u>										
ANSER	T & M	Jan 99	N/A	N/A	0	318	338	348	700	1,704
TRW	T & M	Oct 98	N/A	N/A	0	160	825	1,160	2,320	4,465
Misc	TBD	Various	TBD	TBD	0	12	37	42	50	141
<u>Test and Evaluation Organizations</u>										
NSA/FAA	MIPR	N/A	TBD	TBD	0			40	100	140

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER			PROJECT 674777	
<b>(U) Government Furnished Property:</b>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Product Development Property</u>								
None								
<u>Support and Management Property</u>								
None								
<u>Test and Evaluation Property</u>								
None								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
Subtotal Product Development				0	1,334	11,397	32,820	80,569
Subtotal Support and Management				0	490	1,200	1,550	3,070
Subtotal Test and Evaluation				0			40	100
Total Project				0	1,824	12,597	34,410	83,739
								132,570

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303110F Defense Satellite Communications System</b>				PROJECT <b>672638</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672638	Defense Satellite Communications Sys	10,405	5,015	7,328	4,069	2,153	1,259	1,352	0	626,915
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            Defense Satellite Communications System (DSCS) is the backbone of the Government's satellite communications system, providing both secure voice and high data rate transmissions in the Super High Frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, intelligence and early warning data relay, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the National Command Authorities, Defense Information System Network, Diplomatic Telecommunications Service, White House Communications Agency, Air Force Satellite Control Network, and ground mobile forces of all services.</p> <p>The DSCS Service Life Enhancement Program (SLEP) includes additional modifications that increase the last four satellites capacity to tactical users by more than 200%, and implements the DoD Space Architect's recommendation.</p> <p>The last two DSCS III satellites will launch on the Evolved Expendable Launch Vehicle (EELV) and will require DSCS launch vehicle interface modifications and additional launch loads analyses.</p>										
<p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$1,317            System Program Office Operations                                      - Contractor Support                                      - Mission Support</p> <p>(U) \$1,592            Basic DSCS Program                                      - Pay performance incentives for development satellites still on orbit and operational                                      - Conduct programmatic tradeoffs and analyses</p> <p>(U) \$7,316            Continue DSCS/EELV (Evolved Expendable Launch Vehicle) integration kit development, transitioning the last two satellites to EELV</p> <p>(U) \$180                Continue SLEP (Service Life Enhancement Program) Modification</p> <p>(U) \$10,405            Total</p>										
Project 672638			Page 1 of 6 Pages				Exhibit R-2 (PE 0303110F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0303110F Defense Satellite Communications System</b>		PROJECT <b>672638</b>
(U)	<b><u>A. Mission Description Continued</u></b>			
(U)	<u>FY 2000 (\$ in Thousands)</u>			
(U)	\$1,210	System Program Office Operations		
		- Contractor Support		
		- Mission Support		
(U)	\$553	Basic DSCS Program		
		- Pay performance incentives for development satellites still on orbit and operational		
		- Conduct programmatic tradeoffs and analyses		
(U)	\$100	Finish SLEP Modification		
(U)	\$3,152	Continue DSCS/EELV integration kit development, transitioning the last two satellites to EELV		
(U)	\$5,015	Total		
(U)	<u>FY 2001 (\$ in Thousands)</u>			
(U)	\$1,653	System Program Office Operations		
		- Contractor Support		
		- Mission Support		
(U)	\$315	Basic DSCS Program		
		- Pay performance incentives for development satellites still on orbit and operational		
		- Conduct programmatic tradeoffs and analyses		
(U)	\$5,360	Continue DSCS/EELV integration kit development, transitioning the last two satellites to EELV		
(U)	\$7,328	Total		
(U)	<b><u>B. Budget Activity Justification</u></b>			
	This program is in Budget Activity 7, Operational System Development, since DSCS is a fully operational satellite constellation with replenishment satellites awaiting launch, and associated support systems.			
(U)	<b><u>C. Program Change Summary (\$ in Thousands)</u></b>			
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U)	Previous President's Budget (FY 2000 PBR)	14,003	8,985	8,593
(U)	Appropriated Value	14,141	5,485	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions	-138	-7	
				<u>Total Cost</u>
				645,948
Project 672638		Page 2 of 6 Pages	Exhibit R-2 (PE 0303110F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303110F Defense Satellite Communications System</b>			PROJECT <b>672638</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>									
				<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		<u>Total Cost</u>	
	b. Small Business Innovative Research			-587					
	c. Omnibus or Other Above Threshold Reprogram				-28				
	d. Below Threshold Reprogram			-2,953					
	e. Rescissions			-58	-435				
	f. Other								
(U)	Adjustments to Budget Years Since FY 2000 PBR					-1,265			
(U)	Current Budget Submit/FY 2001 PBR			10,405	5,015	7,328		626,915	
<b>(U) Significant Program Changes:</b>									
\$2895K in FY1999 and \$1265K in FY2001 used to fund higher Air Force priorities.									
RDT&E funding beyond FY04 was transferred to the O&M appropriation for FY05 through the end of the program.									
B8 launch scheduled for Jul 99 slipped to Jan 00 due to launch scheduling issues and satellite wiring problems.									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>									
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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								
(U)	AF Wideband 3600, PE 63854F, BPAC 836780 (CCS-C)	0	0	11,500	13,300	24,400	46,600	25,900	121,700
(U)	Other APPN								
(U)	AF Wideband 3080 Procurement (CCS-C), PE 33600F	0	0	4,852	5,411	5,503	8,115	2,209	26,090
(U)	Missile Procurement, Budget Activity 5, Space and Other Support, Line Item P-27	27,573	30,425	22,770	26,841	22,804	11,819	12,091	1,590,741
<b>(U) E. Acquisition Strategy</b>									
All satellites have been acquired and four satellites remain to launch. Enhancements to satellites not launched will be accomplished through sole source contract awards.									
Project 672638				Page 3 of 6 Pages			Exhibit R-2 (PE 0303110F)		

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303110F Defense Satellite Communications System</b>	PROJECT <b>672638</b>
---	--	--------------------------

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Launch DSCS B8/IABS (Integrated Apogee Boost Subsystem) 9 (Jan 00)						*						
(U) Launch DSCS B11/IABS 8 (Oct 00)									X			
(U) Launch DSCS B6/IABS 7 (May 02)												
(U) Launch DSCS A3/IABS 10 (May 03)												
(U) SLEP Mod Program (Mar 96-Sep 00)									X			
(U) EELV Integration (Sep 98 - May 03)												

\* = completed event; x = planned event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0303110F Defense Satellite Communications System			PROJECT 672638			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>											
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
(U)	System Program Office Operations					1,317		1,210		1,653	
(U)	Basic DSCS Program					1,592		553		315	
(U)	Evolved Expendable Launch Vehicle Integration					7,316		3,152		5,360	
(U)	Service Life Enhancement Program Modifications					180		100		0	
(U)	Total					10,405		5,015		7,328	
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
(U) <b><u>Performing Organizations:</u></b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Lockheed Martin	CPAF/AF	Oct 84/Mar 96	437,500	437,500	434,259	180	100		0	434,539
	Miscellaneous	CPAF	Various	N/A	N/A	132,773	7,316	3,152	5,450	3,284	151,975
<u>Support and Management Organizations</u>											
	Aerospace Corp	PO	Various	N/A	N/A	12,900				0	12,900
	Miscellaneous	Various	Various	N/A	N/A	15,402	2,909	1,763	1,878	5,549	27,501
<u>Test and Evaluation Organizations</u>											
None											
(U) <b><u>Government Furnished Property:</u></b>											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
None											



UNCLASSIFIED

**RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)**

DATE  
**February 2000**

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303110F Defense Satellite Communications System</b>	<b>PROJECT</b> <b>672638</b>
--	---	---------------------------------

**(U) Government Furnished Property Continued:**

Support and Management Property

None

Test and Evaluation Property

None

	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	567,032	7,496	3,252	5,450	3,284	586,514
Subtotal Support and Management	28,302	2,909	1,763	1,878	5,549	40,401
Subtotal Test and Evaluation						
<b>Total Project</b>	<b>595,334</b>	<b>10,405</b>	<b>5,015</b>	<b>7,328</b>	<b>8,833</b>	<b>626,915</b>

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303112F AIR FORCE COMMUNICATIONS</b>				PROJECT <b>674884</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674884 Public Key Infrastructure Implementation	0	0	11,478	31,648	0	0	0	0	43,126
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <b><u>A. Mission Description</u></b>            PUBLIC KEY INFRASTRUCTURE (PKI):</p> <p>A Department of Defense (DoD) PKI was mandated by the Deputy Secretary of Defense on 8 Aug 97 and the Services were further directed to use the capabilities in a 6 May 99 memo. PKI, a new start program, supports the overall Defense-in-Depth strategy for information assurance capabilities -- user identification, non-repudiation, digital signatures and encryption for government electronic business and network transactions -- protecting/securing all network information.</p> <p>Because of the initial program efforts for integration and implementation of the PKI COTS certificates and products into our common operating environment (including network architecture), FY01 and FY02 funds were transferred from Operations and Maintenance (O&amp;M) to Research Development Test &amp; Evaluation (RDT&amp;E).</p> <p>Funds will be used to support initial implementation and integration of PKI user smart card , public key directory storage of the PKI certificates, PKI registration for both users and servers, and initial training. In particular, the RDT&amp;E funds will be applied to the Smart Card/Common Access Card (CAC) to integrate and test with the current Defense Enrollment Reporting System (DEERS)/Real-Time Automated Personnel Identification Systems (RAPIDS) ID and registration system. Additionally, the funds will be used to prototype and test replicating the DoD Public key directory to each Air Force base-level directory structure. Furthermore, we will perform technology integration and testing of new hardware CAC token into the user desktop environment. Finally, we alloted a small amount for AF SPO program support activities.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u>            (U) \$0 No Activity            (U) \$0 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u>            (U) \$0 No Activity            (U) \$0 Total</p>									
Project 674884			Page 1 of 4 Pages				Exhibit R-2 (PE 0303112F)		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303112F AIR FORCE COMMUNICATIONS</b>	PROJECT <b>674884</b>
---	---	--------------------------

- (U) **A. Mission Description Continued**
- (U) FY 2001 (\$ in Thousands)
- (U) \$7,085 Prototyping support for Interface/Integration of registration Common Access Card tokens, peripheral readers with Air Force-wide computer and communication architectures
- (U) \$3,820 Testing support of Public Key Infrastructure Certificate Directories and other infrastructure components
- (U) \$573 Program and management control (SPO activities)
- (U) \$11,478 Total

(U) **B. Budget Activity Justification**  
 This is a budget activity 7, Operational System Development because it supports Air Force requirements to prototype, integrate, and test Public Key Infrastructure components including registration and usage hardware/software/middle-ware, Common Access Cards, and directories on Air Force computer systems and networks.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)				
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			11,478	
(U) Current Budget Submit/FY 2001 PBR			11,478	43,126

(U) Significant Program Changes:

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303112F AIR FORCE COMMUNICATIONS</b>	PROJECT <b>674884</b>
---	---	--------------------------

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) APPN 3600/PE 33112F/PE Title AF Communications/BPAC 674884/ Title PKI			11,478	31,648					43,126
(U) Other APPN									

(U) **E. Acquisition Strategy**  
 Electronic Systems Center (ESC) Information Assurance Product Area Directorate (PAD) manages the AF PKI Program. All major contracts within this program element are scheduled to be awarded after full and open competition or through existing government contracting vehicles. The PKI program is a new start and we will continue to address contract options. The options under review include: GSA, Standard AF contract (through the Standard Systems Group, AL), and Information Technology Services Program (ITSP) to support engineering effort and equipment for the integration of Common Access Card tokens and prototyping of AF base level directories. Current PKI program strategy is to use the ITSP contract.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Prototyping support for PKI Interface/Integration of Tokens										X		
(U) Testing support of Public Key Infrastructure Certificate Directories										X		

X denotes planned event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0303112F AIR FORCE COMMUNICATIONS				PROJECT 674884	
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Prototyping support for Interface/Integration of registration Common Access Card tokens, peripheral readers with Air Force-wide computer and communication architectures							7,085		7,085
(U)	Testing support of PKI Certificate Directories and other infrastructure components									3,820
(U)	Program and management control (SPO activities)									573
(U)	Total									11,478
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Prototyping Support	PR	Dec 00	TBD	TBD				7,085	19,500	26,585
<u>Support and Management Organizations</u>										
ESC/DIW SPO Activities	PR	Dec 00	TBD	TBD				573	1,600	2,173
<u>Test and Evaluation Organizations</u>										
Test Support	PR	Dec 00	TBD	TBD	0	0	0	3,820	10,548	14,368
<u>Subtotals</u>					<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development								7,085	19,500	26,585
Subtotal Support and Management								573	1,600	2,173
Subtotal Test and Evaluation					0	0	0	3,820	10,548	14,368
Total Project					0	0	0	11,478	31,648	43,126

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

February 2000

BUDGET ACTIVITY

**07 - Operational System Development**

PE NUMBER AND TITLE

**0303131F Minimum Essential Emergency Communications Network (MEECN)**

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	37,624	45,285	15,302	2,970	2,437	2,032	2,075	Continuing	TBD
672832 VLF/LF System Improvements	22,260	21,809	2,719	1,446	1,176	1,452	1,495	Continuing	TBD
674521 DIRECT	3,321	1,171	1,236	1,135	873	290	290	Continuing	TBD
674610 MEECN EHF	12,043	22,305	11,347	389	388	290	290	Continuing	TBD
Quantity of RDT&E Articles	9	11	4	0	0	0	0	0	TBD

**(U) A. Mission Description**

MEECN systems provide assured communications connectivity between the National Command Authorities (NCA) and the strategic deterrent forces. Currently these systems include the Modified Miniature Receive Terminal (MMRT) with High Data Rate (HIDAR) mode for the E-4B and E-6B aircraft, a VLF/LF modification to the Minuteman Launch Control Center (LCC), the Defense Improved Emergency Message Automated Transmission System (IEMATS) Replacement Command and Control Terminals (DIRECT), and Extremely High Frequency (EHF) modification to the Minuteman LCC.

**(U) B. Budget Activity Justification**

This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems.

**(U) C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	38,788	45,907	15,438	
(U) Appropriated Value	39,230	45,907		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-442	-15		
b. Small Business Innovative Research	-1,232			
c. Omnibus or Other Above Threshold Reprogram		-249		
d. Below Threshold Reprogram	278			

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

February 2000

BUDGET ACTIVITY

**07 - Operational System Development**

PE NUMBER AND TITLE

**0303131F Minimum Essential Emergency  
Communications Network (MEECN)**

(U) C. Program Change Summary (\$ in Thousands) Continued

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
e. Rescissions	-210	-358		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			-136	
(U) Current Budget Submit/FY 2001 PBR	37,624	45,285	15,302	TBD
(U) <u>Significant Program Changes:</u> BTR in FY99: Support to DIRECT: +\$800K; support to other AF priorities: -\$512K.				

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000				
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>					PROJECT <b>672832</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672832	VLF/LF System Improvements	22,260	21,809	2,719	1,446	1,176	1,452	1,495	Continuing	TBD	
<p>(U) <b><u>A. Mission Description</u></b></p> <p>The Modified Miniature Receive Terminal (MMRT) Program will modify existing Miniature Receive Terminals (MRTs) and provide High Data Rate (HIDAR) capability for installation on the following platforms as a minimum: the E-4B, National Airborne Operations Center (NAOC); and the E-6B, Take Charge and Move Out (TACAMO). This program will make VLF/LF receivers fully interoperable. MRT is a Very Low Frequency/Low Frequency (VLF/LF) receiver without HIDAR already designed, developed, and installed on the B-1B and B-52H bombers. The MRTs to be modified for the MMRT program will be removed from the B-1Bs and some retired B-52s. HIDAR is a Joint Staff-directed effort to provide a fast and interoperable MEECN mode. The MMRT program develops and tests HIDAR modifications required to ensure the E-4 and E-6 platforms are interoperable in MEECN.</p> <p>ICBM Launch Control Center (LCC) VLF/LF RDT&amp;E and Production tasks were contractually combined with the MEECN EHF effort. The combined program is referred to as the Minuteman MEECN Program (MMP). The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle. Requirements, estimates and schedules remain the same.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <p>(U) \$8,730 Continued common MMRT and airborne integration development</p> <p>(U) \$3,100 MMRT Testing</p> <p>(U) \$1,370 Communications Evaluation Program (CEP)/Studies and Analysis</p> <p>(U) \$9,060 ICBM LCCs VLF/LF integration and development (part of MMP)</p> <p>(U) \$22,260 Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p> <p>(U) \$5,000 Continue common MMRT and airborne integration development</p> <p>(U) \$2,091 MMRT airworthiness and nuclear certification</p> <p>(U) \$1,411 Communications Evaluation Program (CEP)/Studies and Analysis</p> <p>(U) \$13,307 ICBM LCC VLF/LF integration and development (part of MMP)</p> <p>(U) \$21,809 Total</p>											
Project 672832				Page 3 of 15 Pages				Exhibit R-2A (PE 0303131F)			



<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	<b>PROJECT</b> <b>672832</b>
--	--	---------------------------------

(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands)

- (U) \$1,409 MMRT airworthiness and nuclear certification
- (U) \$1,310 Communications Evaluation Program (CEP)/Studies and Analysis
- (U) \$2,719 Total

(U) **B. Project Change Summary**

None

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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, Aircraft Procurement - AF, (MEECN, PE 0303131F, BA 5, P-1 XX)	0	5,003	18,550	7,236	1,506	0	0	0	32,295

(U) **D. Acquisition Strategy**

Modified Miniature Receive Terminal (MMRT) Program. Program to satisfy both the Air Force and Navy requirements via a joint effort with the Air Force Electronics Systems Center, Hanscom AFB, MA, as the lead agency. Modifies existing Miniature Receive Terminals (MRTs). EMD contract awarded in FY96 for the E-4B (National Airborne Operations Center (NAOC)); E-6B (Take Charge and Move Out (TACAMO)); and an option for the ICBM Launch Control Centers (LCCs). Airborne MMRT production contract award planned for FY00. Deployment of airborne Air Force and Navy MMRT units will be complete by 2003. ICBM LCC VLF/LF EMD began in FY99. ICBM LCC VLF/LF EMD tasks and production were coupled with the MEECN EHF effort contractually. The combined program is referred to as the Minuteman MEECN Program (MMP). The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>						
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) Complete EMD for E-4B Aircraft													
(U) MMRT Aircraft Milestone III Decision													
(U) EMD Contract Award - ICBM LCC VLF/LF													
(U) Preliminary Design Review - LCC VLF/LF													

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	PROJECT <b>672832</b>
---	---	--------------------------

(U) **E. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Critical Design Review - LCC VLF/LF				*								
(U) Milestone III Decision - LCC VLF/LF										X		
(U) Production Start - LCC VLF/LF										X		

\* Indicates completed task  
X Indicates planned task

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)				PROJECT 672832		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Prime Contract (MMRT)					7,830		5,000		1,189
(U)	ICBM VLF/LF Development (MMP)					9,060		13,307		0
(U)	Test									
(U)	Air Force					0		0		0
(U)	Navy					3,100		1,100		0
(U)	Program Management Administration (PMA)					300		600		100
(U)	SE/TA					600		391		120
(U)	CEP/Studies and Analysis					1,370		1,411		1,310
(U)	Total					22,260		21,809		2,719
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Rockwell	SS/CPAF	Aug 92	13,500	13,500	13,500				0	13,500
Rockwell	SS/CPAF	Jul 96	47,916	47,916	33,836	7,830	5,000	1,189	Continuing	TBD
TRW	SS/CPAF	Mar 99	N/A	N/A	0	9,060	13,307		0	22,367
<u>Support and Management Organizations</u>										
SE/TA [SRC, ASEC, MCR	LOE	Annual			1,942	600	391	120	Continuing	TBD
ATT, ANSER]										
MITRE	LOE	Annual			131				Continuing	TBD
PMA	Various	Annual			484	300	600	100	Continuing	TBD
SPAWAR SysCen (CEP)	MIPR	Annual			1,068	1,370	1,411	1,310	Continuing	TBD
ALCs	MIPR	Annual			355				0	355

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT 672832	
<b>(U) Performing Organizations Continued:</b>								
<u>Test and Evaluation Organizations</u>								
NavAir Warfare Center	MIPR	Annual		1,954	3,100	1,100	0	6,154
Air Force	MIPR	Annual		204			0	204
<b>(U) Government Furnished Property:</b>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
Subtotal Product Development				47,336	16,890	18,307	1,189	TBD
Subtotal Support and Management				3,980	2,270	2,402	1,530	TBD
Subtotal Test and Evaluation				2,158	3,100	1,100		0
Total Project				53,474	22,260	21,809	2,719	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)				PROJECT 674521		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674521	DIRECT	3,321	1,171	1,236	1,135	873	290	290	Continuing	TBD
<p>This project was established in Jan 96 to consolidate efforts related to DIRECT planned for accomplishment in PE 0603851F, ICBM Modernization Dem/Val (BPAC 1024, ICBM C2 Applications), PE 0604851F, ICBM Modernization EMD (BPAC 13C4, Strategic C4 Program), PE 0101213F, Minuteman Squadrons, and 0303131F, MEECN (BPAC 2832, VLF/LF System Improvements).</p> <p>(U) <b>A. Mission Description</b>                      The Defense IEMATS Replacement Command and Control Terminals (DIRECT), which is the Improved Emergency Message Automated Transmission System (IEMATS) replacement program, is a Strategic Nuclear Command and Control (C2) system directly supporting the Chairman of the Joint Chiefs of Staff (CJCS) and the National Command Authorities (NCA). DIRECT will provide for all current IEMATS requirements, including the build, release, and transmission of Emergency Action Messages (EAM) to allow the CJCS and warfighters to remain responsive to NCA directives. This program will procure system hardware for seven unified command centers, a software maintenance facility and two alternate command centers. DIRECT will be compatible with the Defense Message System (DMS) when it supplants the Automated Digital Network (AUTODIN) and will interface with all other EAM distribution communications systems. AUTODIN is scheduled for closure not later than the 2QCY00.</p> <p>(U) <b>FY 1999 (\$ in Thousands)</b>                      (U) \$2,891 Continued DIRECT Engineering and Manufacturing Development (EMD)                      (U) \$230 Communications Evaluation Program (CEP)/Studies and Analysis                      (U) \$200 Test                      (U) \$3,321 Total</p> <p>(U) <b>FY 2000 (\$ in Thousands)</b>                      (U) \$921 DIRECT EMD                      (U) \$250 Communications Evaluation Program (CEP)/Studies and Analysis                      (U) \$1,171 Total</p>										
Project 674521			Page 8 of 15 Pages				Exhibit R-2A (PE 0303131F)			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	PROJECT <b>674521</b>
---	---	--------------------------

(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands)

- (U) \$988 DIRECT/DMS Interface EMD
- (U) \$248 Communications Evaluation Program (CEP)/Studies and Analysis
- (U) \$1,236 Total

(U) **B. Project Change Summary**

None

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 16, Other Procurement - AF, Electronics and Telecommunications Equip (MEECN, PE 0303131F, BA 3, P-1 XX)	1,502	5,122	1,584	2,076	1,085	0	0	0	23,028

(U) **D. Acquisition Strategy**

DIRECT Program. A contract for EMD was awarded to GTE Government Systems (now General Dynamics-Communications Systems), Needham, MA on 12 Jul 96. A contract modification for production (using Other Procurement, AF) was awarded 11 Aug 98.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Development Test and Evaluation			*									
(U) Functional Qual Test			*									
(U) Begin DIRECT/DMS Interface EMD									X			

\* Indicates completed task  
X Indicates planned task

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)				PROJECT 674521		
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Prime Contract					1,591		587		588
(U)	Test					200		0		0
(U)	Program Management Administration (PMA)					300		84		100
(U)	SE/TA					400		300		300
(U)	MITRE					600		0		0
(U)	CEP/Studies and Analysis					230		200		248
(U)	Total					3,321		1,171		1,236
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
GTE	SS/CPAF	Jul 96	30,290	30,290	27,480	1,591	587	588	Continuing	TBD
National Security Agency (NSA)	MIPR	Annually	2,500	2,500	2,500				0	2,500
<u>Support and Management Organizations</u>										
SE/TA [ASEC, ABACUS, MCR, ATT, ANSER]	LOE	Annual	N/A		2,027	400	300	300	Continuing	TBD
MITRE	LOE	Annual	N/A		2,068	600	0	0	Continuing	TBD
JHU-APL(CEP)	LOE	Annual	N/A		423	230	200	248	Continuing	TBD
PMA	Various	Annual	N/A		645	300	84	100	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Various	Various	Annual	N/A	406	271	200	0	0	Continuing	TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT 674521	
<b>(U) Government Furnished Property:</b>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
NA								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Subtotals</u>								<u>Total</u>
Subtotal Product Development				29,980	1,591	587	588	TBD
Subtotal Support and Management				5,163	1,530	584	648	TBD
Subtotal Test and Evaluation				271	200	0	0	TBD
Total Project				35,414	3,321	1,171	1,236	TBD



**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2000</b>		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>				PROJECT <b>674610</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674610 MEECN EHF	12,043	22,305	11,347	389	388	290	290	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>            This MEECN project will provide reliable, secure, and survivable communications in the Extremely High Frequency (EHF) band. Specifically, this effort is currently focused on replacing the satellite-based, ground communication links with Minuteman ICBM forces. It supplants the ICBM Super High Frequency (SHF) Satellite Terminal (ISST) receipt, providing force direction/execution, and the Ultra High Frequency (UHF) report-back links. ISST relies upon the Single Channel Transponder (SCT) package aboard the Defense Satellite Communications System (DSCS). The SCT will not be flown on the DSCS after 2003. Extending the use of SCT aboard DSCS is not practical. The UHF links depend upon the Air Force Satellite Communications (AFSATCOM) packages hosted aboard the Fleet Satellite Communications (FLTSATCOM) satellites. FLTSATCOM satellites are past their life expectancy. MEECN EHF is required to meet redundancy standards established by national security directives. MEECN EHF was identified as a new start effort in the FY99 budget documentation. This project was combined contractually with the ICBM LCC VLF/LF tasks from Project 2832 and together are referred to as the Minuteman MEECN Program (MMP).</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b>            (U) \$10,427            Engineering and Manufacturing Development (EMD)            (U) \$1,568            Integration and Test            (U) \$48                Communications Evaluation Program (CEP)/Studies and Analysis            (U) \$12,043           Total</p> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b>            (U) \$15,067           Continue EMD            (U) \$7,105            Integration and Test            (U) \$133              Communications Evaluation Program (CEP)/Studies and Analysis            (U) \$22,305           Total</p>									
Project 674610			Page 12 of 15 Pages				Exhibit R-2A (PE 0303131F)		

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2000</b>			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>				PROJECT <b>674610</b>		
<b>(U) A. Mission Description Continued</b>										
<b>(U) FY 2001 (\$ in Thousands)</b>										
<b>(U) \$6,439 Continue EMD</b>										
<b>(U) \$4,758 Integration and Test</b>										
<b>(U) \$150 Communications Evaluation Program (CEP)/Studies and Analysis</b>										
<b>(U) \$11,347 Total</b>										
<b>(U) B. Project Change Summary</b>										
None										
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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) APPN 14, Missile Procurement -AF, (MEECN, PE 0303131F, BA 3, P-1 12)</b>	0	0	48,069	43,502	8,563	6,724	5,795	0	112,653	
<b>(U) D. Acquisition Strategy</b>										
The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle for the Minuteman LCC VLF/LF and EHF modifications known as Minuteman MEECN Program (MMP).										
<b>(U) E. Schedule Profile</b>										
			<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>	
			1	2	3	4	1	2	3	4
<b>(U) EMD Contract Award</b>				*						
<b>(U) Preliminary Design Review</b>					*					
<b>(U) Critical Design Review</b>						*				
<b>(U) Milestone III Decision</b>									X	
<b>(U) Production start</b>									X	
* Indicates completed task										
X Indicates planned task										
Project 674610			Page 13 of 15 Pages				Exhibit R-2A (PE 0303131F)			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
07 - Operational System Development			0303131F Minimum Essential Emergency Communications Network (MEECN)				674610			
(U) <b><u>A. Project Cost Breakdown (\$ in Thousands)</u></b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Prime Contract					11,195		20,684		10,497
(U)	Test					0		788		0
(U)	Program Management Administration (PMA)					200		100		100
(U)	SE/TA					400		400		400
(U)	MITRE					200		200		200
(U)	CEP					48		133		150
(U)	Total					12,043		22,305		11,347
(U) <b><u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
(U) <b><u>Performing Organizations:</u></b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
TRW	SS/CPAF	Mar 99			0	11,195	20,684	10,497	Continuing	TBD
<u>Support and Management Organizations</u>										
SE/TA [SRC, MCR, ATT, ANSER]	LOE	Annual			0	400	400	400	Continuing	TBD
MITRE	LOE	Annual			0	200	200	200	Continuing	TBD
PMA	Various	Annual			0	200	100	100	Continuing	TBD
CEP	LOE	Annual			0	48	133	150	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Various	Various	Annual			0	0	788	0	0	788

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303131F Minimum Essential Emergency Communications Network (MEECN)			PROJECT 674610	
<b>(U) Government Furnished Property:</b>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
Subtotal Product Development				0	11,195	20,684	10,497	TBD
Subtotal Support and Management				0	848	833	850	TBD
Subtotal Test and Evaluation				0	0	788	0	0
Total Project				0	12,043	22,305	11,347	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

**February 2000**

BUDGET ACTIVITY

PE NUMBER AND TITLE

**07 - Operational System Development**

**0303140F Information Systems Security Program**

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	7,754	19,381	7,212	6,944	7,017	7,155	7,296	Continuing	TBD
674579 Information Warfare	1,920	9,407	1,892	1,882	1,869	1,906	1,943	Continuing	TBD
674585 Cryptologic 2020	1,957	1,233	0	0	0	0	0	Continuing	TBD
677820 Computer Security RDT&E: Firestarter	3,877	8,741	5,320	5,062	5,148	5,249	5,353	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

BPAC 674585, Cryptologic 2020, will be funded under PE 33401F, Comm Sec, BPAC 674861, Cryptologic 2020, beginning in FY01.

**(U) A. Mission Description**

This program provides the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from Information Warfare (IW) attacks and recover from those attacks. Primarily, the project does research and development of information protection tools and transitions them to operational systems. It also provides the acquisition community and operational warfighters the ability to manage their own risks relative to mission, task, threat, and vulnerability information; and to mitigate IW risks based on rank-ordered countermeasure recommendations. The program element consists of three complimentary projects.

The computer security project directs the R&D of information protection technology and tools to defend C4ISR systems, with emphasis on computer and network systems security, damage assessment and recovery, and multi-level systems security. It provides access control, integrity, assured services and meets warfighter's requirements. The Cryptologic 2020 project comprises R&D for the Air Force Electronic Key Management System (AFEKMS). The AFEKMS, in concert with National Security Agency's (NSA's) EKMS, provides a secure and flexible capability for the electronic generation, distribution, and management of key material, voice callwords, and Communications Security (COMSEC) publications for the F-22. AFEKMS replaces the existing physical distribution and management system providing COMSEC KEYS for USAF Information Protection. The Air Force unique AFEKMS software is required because the production software developed by NSA cannot provide the capabilities to distribute the system keys in the format needed by the F-22 Mission Support System. The Information Warfare project comprises R&D for Vulnerability Assessment/Risk Management (IW VA/RM) and Technology planning to build information protection into all AF C4ISR and weapons systems.

UNCLASSIFIED

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE  
**February 2000**

BUDGET ACTIVITY

**07 - Operational System Development**

PE NUMBER AND TITLE

**0303140F Information Systems Security Program**

(U) **B. Budget Activity Justification**

This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	9,277	7,992	7,284	TBD
(U) Appropriated Value	9,420	19,492		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-143	-5		
b. Small Business Innovative Research	-498			
c. Omnibus or Other Above Threshold Reprogram		-106		
d. Below Threshold Reprogram	-981			
e. Rescissions	-44			
f. Other				TBD
(U) Adjustments to Budget Years Since FY 2000 PBR			-72	
(U) Current Budget Submit/FY 2001 PBR	7,754	19,381	7,212	TBD

(U) **Significant Program Changes:**

Funding: Congressional \$7.0M add in FY00 for management of the Cyber Lighthouse Security Technology Program, and \$4.5M add for continued development of the Secure Interoperable Distributed Computing Systems project.

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
<b>BUDGET ACTIVITY</b> <b>07 - Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>				<b>PROJECT</b> <b>674579</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674579 Information Warfare	1,920	9,407	1,892	1,882	1,869	1,906	1,943	Continuing	TBD
<p><b>(U) A. Mission Description</b></p> <p>Builds information protection into all AF Command and Control ( C2), Intelligence, Surveillance, and Reconnaissance (ISR), and weapons systems. The project provides the acquisition community and operational warfighters the ability to manage the IW risks to their missions and operational tasks based on system threat and vulnerability information. Provides decision makers with countermeasures recommendations, rank-ordered based on operational utility and relative cost. Looking across all assessments conducted on AF systems, the project also provides the USAF a unique system-of-systems perspective for managing shared IW risks.</p> <p>Information Warfare Vulnerability Assessment and Risk Management (IW VA/RM): Development and sustainment of a new capability to manage both individual and shared Information Warfare (IW) risks across all AF C2 and weapon systems. This will enable AF acquisition programs to meet the information assurance requirements of AFPD 10-20, para 12. The IW VA/RM program enhances a commercially-available risk management tool so that it (1) provides risk management solutions based on mission impact and user cost; and (2) seamlessly combines government Threat, Vulnerability and Countermeasure (TVC) data with commercial TVC data at point of use. The IW VA/RM program also initiates the production of the Government TVC data; and the process of setting up a management infrastructure to coordinate all future TVC data production and distribution, similar to that established under AFI 10-703, Electronic Warfare Integrated Reprogramming (EWIR). Together, the tool with the data and supporting infrastructure will enable all AF System Program Offices (SPOs) to evaluate their IW risks and propose mission-based mitigation strategies to their users as part of a coordinated, coherent effort. To provide the overview needed to manage the shared risk across all AF systems, the IW VA/RM program establishes the means to aggregate individual SPO risk assessment results and report them based on higher-echelon mission impact. These reports will provide vital information on trends, deficiencies, and rationale for the AF Modernization Planning process.</p> <p>IW Technical Planning Integrated Product Team (IW TPIPT). Supports modernization planning for Counterinformation (CI) Mission Area and technology planning processes. Continuously identifies and evaluates commercial and Government inventory of available products that can be used to meet Counterinformation mission deficiencies. Develops and coordinates technology development and acquisition plans for resolving mission area deficiencies. Provides Government laboratories and private industry guidance on new technologies needed for the next 10 to 25 years.</p>									
Project 674579			Page 3 of 16 Pages				Exhibit R-2A (PE 0303140F)		



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>07 - Operational System Development</b>	<b>0303140F Information Systems Security Program</b>	<b>674579</b>
<b>(U) <u>A. Mission Description Continued</u></b>		
<b>(U) <u>FY 1999 (\$ in Thousands)</u></b>		
(U) \$700	Continued exportable VA/RM process and toolset development	
(U) \$433	Established infrastructure: Intelligence support, metrics measurement, etc.	
(U) \$362	Continued developing libraries and databases, system-of-systems model	
(U) \$283	Continued IW TPIPT activities, analyses, database support	
(U) \$142	Conducted integrated cross program assessments and solution development	
(U) \$1,920	Total	
<b>(U) <u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$1,278	Continue exportable VA/RM process and toolset development	
(U) \$240	Establish infrastructure: Intelligence support, metrics, etc.	
(U) \$293	Continue to develop and update libraries and databases, system-of-systems model	
(U) \$292	Continue IW TPIPT activities, analyses, database support	
(U) \$304	Continue integrated cross program assessments and solution development	
(U) \$7,000	Manage Cyber Lighthouse Security Technology Development Program (Congressional add)	
(U) \$9,407	Total	
<b>(U) <u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$1,034	Continue exportable VA/RM process and toolset development	
(U) \$90	Establish and support existing infrastructure: Intelligence support, metrics, etc.	
(U) \$90	Continue to develop and update libraries and databases, system-of-systems model	
(U) \$196	Continue IW TPIPT activities, analyses, database support	
(U) \$482	Continue to integrate cross program assessments and solution development	
(U) \$1,892	Total	
<b>(U) <u>B. Project Change Summary</u></b>		
N/A		
Project 674579	Page 4 of 16 Pages	Exhibit R-2A (PE 0303140F)

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT <b>674579</b>
---	---	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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**  
 All major contracts within this Program Element are awarded after full and open competition.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Develop and iterate versions of the Exportable VA/RM process & toc set	*		*		*		X		X		X	
(U) Develop and iterate versions of the infrastructure, libraries, and database	*		*		*		X		X		X	
(U) Intelligence Support Plan signed					*							
(U) Establish VA/RM infrastructure: Intelligence support, metrics measurement,				*								
(U) Periodically check to ensure integration of cross program assessments and s	*		*		*		X		X		X	
(U) Sustain IW TPIPT technology database (quarterly reviews)	*	*	*	*	*	X	X	X	X	X	X	X
(U) Sustain IW TPIPT technology development plan (annual)			*				X				X	
(U) Participate and support IW TPIPT activities	*		*		*		X		X		X	

\* Denotes Completed Events  
 X Denotes Planned Events

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT <b>674579</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
					<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	Software development				702	4,480	847			
(U)	Systems engineering support				1,082	4,264	920			
(U)	Program management support				136	663	125			
(U)	Total				1,920	9,407	1,892			
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
	Trident Data Systems	FFP	Aug 98		0	822	1,097	820	Continuing	TBD
	MITRE	FFRDC	On-going		0	0	2,332	0	0	2,332
	Lincoln Labs	FFRDC	On-going		0	0	2,333	0	0	2,333
	Carnegie-Mellon Software	FFRDC	On-going		0	0	2,333	0	0	2,333
	Engineering Institute (SEI)									
<u>Support and Management Organizations</u>										
	MITRE	FFRDC	On-going		0	480	729	765	Continuing	TBD
	ITSP (various)	ID/IQ	On-going		0	483	371	232	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
	Test & Evaluation				0	135	212	75	Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	<u>Subtotals</u>									
	Subtotal Product Development				0	822	8,095	820	TBD	TBD
	Subtotal Support and Management				0	963	1,100	997	TBD	TBD
	Subtotal Test and Evaluation				0	135	212	75	TBD	TBD
	Total Project				0	1,920	9,407	1,892	TBD	TBD

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT <b>674585</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674585 Cryptologic 2020	1,957	1,233	0	0	0	0	0	Continuing	TBD
<p>(U) <b><u>A. Mission Description</u></b>            NOTE: FY99 through FY00 funds are in PE 33140. Beginning in FY01, this effort will be funded in PE 33401.</p> <p>The Cryptologic project consists of Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, in concert with NSA's EKMS, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) publications for all AF weapon systems. AFEKMS replaces the existing physical distribution and management system providing COMSEC keying material for USAF Information Protection. Information Protection emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three tier system structure in a hierarchical arrangement. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the 'wholesale' capability. Tier 2 installations comprise the distribution network and tier 3 comprises the 'retail locations' where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE) - the consumer.</p> <p>Acquisition includes Commercial Off The Shelf (COTS) computers and software, contractor developed application software, Government Furnished Equipment (GFE) and software such as the NSA's Local COMSEC Management Software (LCMS). Also, USAF developed application software (UAS) is necessary for unique systems such as the F-22 and unique key fill requirements of EICE for other airborne platforms.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u>            (U) \$950 LCMS application software development (F-22)            (U) \$1,007 Local Management Device/Data Management Device (LMD/DMD) software development and system integration            (U) \$1,957 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u>            (U) \$617 Transition LCMS application software development/sustainment (F-22) to Air Force            (U) \$616 LMD/DMD software development and system integration            (U) \$1,233 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u>            (U) \$0 No Activity            (U) \$0 Total</p>									
Project 674585			Page 7 of 16 Pages				Exhibit R-2A (PE 0303140F)		

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT <b>674585</b>	
(U) <b><u>B. Project Change Summary</u></b>									
N/A									
(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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									
(U) APPN 3600/PE 33401F/ PE Title Comm Security/ BPAC 674861/ Cryptologic 2020			4,857	4,700	5,511	5,507	4,017	Continuing	TBD
(U) APPN 3600/PE 64239F/PE Title F-22/BPAC 654069/BPAC Title Adv. Tactical Fighter	410							Continuing	TBD
NOTE: BPAC 674585, Cryptologic 2020, will be funded under PE 33401,Comm Sec, BPAC 674861, Cryptologic 2020, beginning in FY01.									
(U) <b><u>D. Acquisition Strategy</u></b>									
All major contracts within this Program Element are awarded after full and open competition.									
(U) <b><u>E. Schedule Profile</u></b>									
			<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3
(U) F-22 UAS Development & Transition Complete									X
(U) DMD/DTD 2000 hardware/software development and system integration					*			X	
* Denotes Completed Events									
X Denotes Planned Events									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>					PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>			PROJECT <b>674585</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Hardware Development									0
(U)	Software Development					1,957		1,233		
(U)	Total					1,957		1,233		0
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Motorola Inc.	SS/CPFF	Apr 97	N/A	N/A	51	950	83	0	Continuing	TBD
(F19628-97-C-0600)										
SAIC	BPA	May 98	N/A	N/A	823	1,007	575	0	Continuing	TBD
(GS-35F-44616)										
National Security Agency	SS/CPFF	Jun 98	N/A	N/A	517		575	0	Continuing	TBD
X35										
<u>Support and Management Organizations</u>										
Trustest S/W Support					159				Continuing	TBD
MSN Support					90				Continuing	TBD
<u>Test and Evaluation Organizations</u>										
<b>(U) Government Furnished Property:</b>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
<u>Support and Management Property</u>										

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT <b>674585</b>
---	---	--------------------------

(U) Government Furnished Property Continued:

Test and Evaluation Property

Total Project

Subtotals

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

	<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development	1,391	1,957	1,233	0	TBD	TBD
Subtotal Support and Management	249				TBD	TBD
Subtotal Test and Evaluation						
Total Project	1,640	1,957	1,233	0	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT <b>677820</b>		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
677820	Computer Security RDT&E: Firestarter	3,877	8,741	5,320	5,062	5,148	5,249	5,353	Continuing	TBD
NOTE: FY00 New Start Request currently being processed for submission to Congress. Title: Pouncer 4. Amount \$2.995M. Years: FY00										
<b>(U) <u>A. Mission Description</u></b>										
<p>This program directs the Research &amp; Development (R&amp;D) of Information Protect technology/tools to provide the capability to defend USAF Command, Control, Communications, Computer, and Intelligence (C4I) Systems from Information Warfare (IW) Cyber attacks and to recover from those attacks. As the USAF single manager for Information Protect (R&amp;D), this program directs C4I system Information Protect R&amp;D with emphasis in computer/network systems security, damage assessment and recovery, and multi-level security. With the advent of the information age, the battlefield commander's ability to fight and win becomes more dependent upon the availability, timeliness, and integrity of the information flow/processing capability available. The requirement for global presence and global power has demanded increasing reliance on these advanced information systems with global accessibility. The susceptibilities inherent in such reliance and accessibility has heightened the awareness that the National Information Infrastructure (NII) and the Defense Information Infrastructure (DII) must be protected against attack.</p> <p>Emphasis is therefore placed on R&amp;D areas that provide deterrence of attack through cyberspace surveillance, Tactical Indications &amp; Warning (I&amp;W), intrusion detection and characterization of attack. As adversaries may gain access to critical AF Force information systems through a variety of means, this technology will provide the capability of collecting, integrating, and displaying threat, vulnerability, and system data indicating an attack is about to take place and/or is taking place. Current Air Force systems such as the Combat Information Transport Systems (CITS), Theater Deployable Communications (TDC) leverage the technology from this project to meet their info protect needs/requirements. Additionally, this project utilizes info assurance technology investments by DARPA as a jump-start for providing a solution to Air Force requirements and cooperates with DISA and other services/agencies to ensure DII info protect requirements are complied with.</p>										
<b>(U) <u>FY 1999 (\$ in Thousands)</u></b>										
(U)	\$58	Continued the development of secure data handling system for multi-level database								
(U)	\$1,512	Continued the development of secure interoperable distributed computing systems								
(U)	\$552	Initiated the development of technology for self-healing network system								
(U)	\$546	Developed methodologies for commercial software evaluation								
(U)	\$313	Completed effort to transition DARPA intrusion detection technology into the Air Force Information Warfare Center (AFIWC) and the Base Information Protection (BIP) Suite								
Project 677820			Page 11 of 16 Pages				Exhibit R-2A (PE 0303140F)			



UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
<b>07 - Operational System Development</b>	<b>0303140F Information Systems Security Program</b>	<b>February 2000</b> <b>677820</b>
(U) <b><u>A. Mission Description Continued</u></b>		
(U) <b><u>FY 1999 (\$ in Thousands) Continued</u></b>		
(U) \$292	Completed effort to demonstrate INFOSEC for Air Force Network Operations System Centers (AF NOSCs)	
(U) \$302	Initiated effort to transition secure wrapper technologies into Air Force systems.	
(U) \$302	Initiated effort for automatic capability to trace source of intrusions	
(U) \$3,877	Total	
(U) <b><u>FY 2000 (\$ in Thousands)</u></b>		
(U) \$1,103	Continue development of technology for self-healing network systems (to include automated system recovery)	
(U) \$406	Begin development of Information Attack correlation methodologies	
(U) \$660	Continue effort to transition DARPA information assurance technology to Air Force Information Warfare Center (AFIWC) and Combat Information Transport System (CITS) SPO	
(U) \$404	Continue development of methodologies for commercial software evaluation and steganography detection	
(U) \$4,912	Continue development of secure interoperable distributed agent computing (\$4.5M Congressional Add)	
(U) \$802	Begin development of extensible prototype framework for Enterprise Defense to support protection of warfighter mission critical information flows	
(U) \$454	Continue effort to transition secure wrapper technologies into Air Force systems.	
(U) \$0	Pouncer 4 - pending submission to Congress and approval of new start effort.	
(U) \$8,741	Total	
(U) <b><u>FY 2001 (\$ in Thousands)</u></b>		
(U) \$1,290	Continue development of technology for self-healing network systems (to include automated system recovery)	
(U) \$780	Continue development of Information Attack correlation methodologies	
(U) \$680	Continue development of methodologies for commercial software evaluation and steganography detection	
(U) \$880	Continue development of extensible prototype framework for Enterprise Defense to support protection of warfighter mission critical information flows	
(U) \$480	Continue effort to transition secure wrapper technologies into Air Force systems.	
(U) \$780	Continue effort to transition DARPA information assurance technology into AF Information Protect architecture	
(U) \$430	Begin effort to develop metrics for reliable information assurance measurement & testing	
(U) \$5,320	Total	
(U) <b><u>B. Project Change Summary</u></b>		

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT <b>677820</b>
---	---	--------------------------

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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**  
 All major contracts within this Program Element are awarded after full and open competition.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Requirements Review Boards			*				X				X	
(U) AF NOSEC INFOSEC Transition/demonstrations				*				X				X
(U) Transition Secure Wrapper Tech Development to AF Systems		*										X
(U) Begin Development of Self Healing Network Systems			*									X
(U) MLS DB technology transition				*								X
(U) Develop Secure Interoperable Distributed Computing System & Periodically De	*				*			X				X
(U) Begin development of methodologies for Commercial Software Evaluation and	*											X
(U) DARPA Information Assurance Technology Transition	*							X				
(U) Devel tech for tracing intrusions							X					
(U) Information attack correlation technology development					*						X	
(U) Develop and periodically demonstrate extensible prototype framework for Ent					*				X			
(U) Begin Development of reliable information assurance measurement & testing									X			
(U) Develop automated Information damage assessment and recover capability							X					

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT <b>677820</b>
---	---	--------------------------

(U) **E. Schedule Profile Continued**

<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4
1	2	3	4	1	2	3	4	1	2	3	4

KEY: \* Denotes Completed Events;  
X Denotes Planned Events.

UNCLASSIFIED

<b>RDT&amp;E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)</b>	DATE <b>February 2000</b>
---	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT <b>677820</b>
---	---	--------------------------

(U) **A. Project Cost Breakdown (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) Secure Data Handling System	58		
(U) Database Protection Mechanisms			
(U) Security Analysis Tools			
(U) DARPA Technology Insertion/Transition	313	660	780
(U) Secure Distributed Computing/Collaborative Planning	1,512	4,912	
(U) Information Protection (IP) Integration Framework	292		
(U) Self-Healing Network System (to include automated system recovery)	552	1,103	1,290
(U) Wrappers to Secure Commercial-Off-the-Shelf ( COTS)	302	454	480
(U) Information Attack Data Correlation		406	780
(U) Extensible framework for Enterprise for Defense	302	802	880
(U) COTS Software (S/W) Evaluation	546	404	680
(U) Reliable Information Assurance measurement & testing			430
(U) Total	3,877	8,741	5,320

(U) **B. Budget Acquisition History and Planning Information (\$ in Thousands)**

(U) **Performing Organizations:**

<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
FFRDC (MITRE)	MIPR	On-Going	N/A	N/A	652	171	490	548	Continuing	TBD
Multiple Contractors	CPFF	On-Going	N/A	N/A	2,277	3,308	7,661	4,124	Continuing	TBD
Universities	CPFF	On-Going	N/A	N/A	368	398	590	648	Continuing	TBD
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE					
07 - Operational System Development		0303140F Information Systems Security Program			February 2000		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT					
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>							
Subtotal Product Development		3,297	3,877	8,741	5,320	TBD	TBD
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project		3,297	3,877	8,741	5,320	TBD	TBD

**UNCLASSIFIED**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0303141F Global Combat Support System (GCSS)				PROJECT 674655		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674655	BLSM	17,083	19,283	46,369	28,064	30,700	29,431	29,547	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**  
 The GCSS-AF program modernizes, develops, and integrates legacy base-level standard Air Force and Department of Defense (DoD) combat support information systems. The modernized systems are being developed in compliance with and hosted on the Defense Information Infrastructure (DII) Common Operating Environment (COE). The centerpiece of the GCSS-AF effort is an architecture that provides common computing utilities and infrastructure services for all combat support systems and enables real-time access to accurate, current data. The GCSS-AF architecture will ensure on-time delivery of critical functional support data to decision support systems for wing commanders, operational commanders, and theater battlestaff at the Point-of-Attack. The modernized systems will be implemented and sustained worldwide and support both wartime and peacetime requirements using hardware, software, and communications capabilities available from standard open systems government contracts and communications infrastructure programs.

The GCSS-AF approach allows for gradual, incremental modernization of legacy 'stove-pipe' environments into an interoperable set of management information systems. Those Automated Information Systems (AISs) requiring improvements in business practices will be functionally modernized. Those AISs requiring only a modernized database management system and/or modernized programming will be technically modernized. Other AISs will be rehosted to the COE. The GCSS-AF program will also assist AISs in complying with the GCSS-AF concept. This approach supports both regional and distributed processing.

The Integrated Logistics System - Supply (ILS-S) will be one of the first systems modernized. This effort will modernize the existing legacy Standard Base Supply System (SBSS). Starting in FY00, this effort underwent a significant restructure to decrease dependence on a commercial off-the-shelf Grand Design to using a spiral development acquisition approach to technically refresh and componentize the legacy SBSS to better meet User requirements in a more timely manner. While this approach is technically different than the one previously being pursued, it does not change program requirements. The schedule to satisfy existing program requirements has been restructured to fit within available FY funding.

Beginning in FY01, funding for the Financial Information Resource System (FIRST) was transferred to this program. FIRST is a software development effort aimed at providing an integrated, modern, seamless financial management system that enables authorized users (from Air Staff to base level) to plan, program, and execute their budgets. FIRST is ultimately envisioned to be the foundation for the Air Force's Planning, Programming, and Budgeting System (PPBS). FIRST will be compliant with the Joint Technical Architecture (JTA) and incorporate Public Key Infrastructure initiatives (such as electronic signature capability). FIRST will share information with

UNCLASSIFIED

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		DATE <b>February 2000</b>																																																											
BUDGET ACTIVITY <b>07 - Operational System Development</b>		PE NUMBER AND TITLE <b>0303141F Global Combat Support System (GCSS)</b>	PROJECT <b>674655</b>																																																										
<p>(U) <b><u>A. Mission Description Continued</u></b>          other Air Force Functional activities within the scope of the Global Combat Support System-Air Force (GCSS-AF) concept.</p> <p>(U) <b><u>FY 1999 (\$ in Thousands)</u></b></p> <table style="width:100%;"> <tr> <td style="width:10%;">(U) \$3,239</td> <td>Logistics Integration (formerly known as Core)</td> </tr> <tr> <td>(U) \$9,241</td> <td>ILS-S (Integrated Logistics System-Supply)</td> </tr> <tr> <td>(U) \$4,603</td> <td>GCSS-AF Architecture Development (formerly known as DII)</td> </tr> <tr> <td>(U) \$17,083</td> <td>Total</td> </tr> </table> <p>(U) <b><u>FY 2000 (\$ in Thousands)</u></b></p> <table style="width:100%;"> <tr> <td style="width:10%;">(U) \$7,242</td> <td>Logistics Integration (formerly known as Core)</td> </tr> <tr> <td>(U) \$10,052</td> <td>ILS-S</td> </tr> <tr> <td>(U) \$1,989</td> <td>GCSS-AF Architecture Development (formerly known as DII)</td> </tr> <tr> <td>(U) \$19,283</td> <td>Total</td> </tr> </table> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <table style="width:100%;"> <tr> <td style="width:10%;">(U) \$7,215</td> <td>Logistics Integration (formerly known as Core)</td> </tr> <tr> <td>(U) \$11,538</td> <td>ILS-S</td> </tr> <tr> <td>(U) \$9,912</td> <td>GCSS-AF Architecture Development (formerly known as DII)</td> </tr> <tr> <td>(U) \$9,912</td> <td>GCSS-AF Domain Integration</td> </tr> <tr> <td>(U) \$7,792</td> <td>Financial Information Resource System (FIRST)</td> </tr> <tr> <td>(U) \$46,369</td> <td>Total</td> </tr> </table> <p>(U) <b><u>B. Budget Activity Justification</u></b>          This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AISs).</p> <p>(U) <b><u>C. Program Change Summary (\$ in Thousands)</u></b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: right;">17,906</td> <td style="text-align: right;">19,742</td> <td style="text-align: right;">21,317</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">17,973</td> <td style="text-align: right;">19,389</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-67</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: right;">-442</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				(U) \$3,239	Logistics Integration (formerly known as Core)	(U) \$9,241	ILS-S (Integrated Logistics System-Supply)	(U) \$4,603	GCSS-AF Architecture Development (formerly known as DII)	(U) \$17,083	Total	(U) \$7,242	Logistics Integration (formerly known as Core)	(U) \$10,052	ILS-S	(U) \$1,989	GCSS-AF Architecture Development (formerly known as DII)	(U) \$19,283	Total	(U) \$7,215	Logistics Integration (formerly known as Core)	(U) \$11,538	ILS-S	(U) \$9,912	GCSS-AF Architecture Development (formerly known as DII)	(U) \$9,912	GCSS-AF Domain Integration	(U) \$7,792	Financial Information Resource System (FIRST)	(U) \$46,369	Total		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	17,906	19,742	21,317	TBD	(U) Appropriated Value	17,973	19,389			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-67				b. Small Business Innovative Research	-442			
(U) \$3,239	Logistics Integration (formerly known as Core)																																																												
(U) \$9,241	ILS-S (Integrated Logistics System-Supply)																																																												
(U) \$4,603	GCSS-AF Architecture Development (formerly known as DII)																																																												
(U) \$17,083	Total																																																												
(U) \$7,242	Logistics Integration (formerly known as Core)																																																												
(U) \$10,052	ILS-S																																																												
(U) \$1,989	GCSS-AF Architecture Development (formerly known as DII)																																																												
(U) \$19,283	Total																																																												
(U) \$7,215	Logistics Integration (formerly known as Core)																																																												
(U) \$11,538	ILS-S																																																												
(U) \$9,912	GCSS-AF Architecture Development (formerly known as DII)																																																												
(U) \$9,912	GCSS-AF Domain Integration																																																												
(U) \$7,792	Financial Information Resource System (FIRST)																																																												
(U) \$46,369	Total																																																												
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>																																																									
(U) Previous President's Budget (FY 2000 PBR)	17,906	19,742	21,317	TBD																																																									
(U) Appropriated Value	17,973	19,389																																																											
(U) Adjustments to Appropriated Value																																																													
a. Congressional/General Reductions	-67																																																												
b. Small Business Innovative Research	-442																																																												
Project 674655		Page 2 of 5 Pages																																																											
		Exhibit R-2 (PE 0303141F)																																																											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2000			
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0303141F Global Combat Support System (GCSS)</b>				PROJECT <b>674655</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>										
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>Total Cost</u>
	c. Omnibus or Other Above Threshold Reprogram					-106				
	d. Below Threshold Reprogram			-285						
	e. Rescissions			-96						
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR							25,052		TBD
(U)	Current Budget Submit/FY 2001 PBR			17,083		19,283		46,369		TBD
(U)	<u>Significant Program Changes:</u>									
	\$18 million in FY01 RDT&E funds were added for GCSS-AF Domain Integration and GCSS-AF Architecture Development.									
	Funding for the Financial Information Resource System (FIRST) was transferred to this PE for FY01-05.									
	The ILS-S modernization effort was restructured at the direction of the Defense Acquisition Executive (DAE), June 1999.									
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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, BA 7, PE 0303141F	0	0	0	0	0	15,522	30,926	Continuing	TBD
<b>(U) E. Acquisition Strategy</b>										
	All major contracts within this Program Element were awarded after full and open competition.									
<b>(U) F. Schedule Profile</b>										
				<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>	
				1	2	3	4	1	2	3
(U)	Logistics Integration (on-going)									
(U)	GCSS-AF Architecture Development (on-going)									
(U)	Integrated Logistics System Supply (ILS-S)									
(U)	Alpha 1 Delivered			*						
(U)	Alpha 2 Delivered				*					
(U)	Alpha 3 Delivered					*				
(U)	Inc 1, ILS-S						X			
Project 674655				Page 3 of 5 Pages				Exhibit R-2 (PE 0303141F)		



**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2000</b>
--	------------------------------

BUDGET ACTIVITY <b>07 - Operational System Development</b>	PE NUMBER AND TITLE <b>0303141F Global Combat Support System (GCSS)</b>	PROJECT <b>674655</b>
---	--	--------------------------

(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Release 1 (Increment 1 IOC)							X					
(U) Release 2									X			
(U) Release 3												X
* - Completed Event												
X - Planned Event												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
<b>07 - Operational System Development</b>				<b>0303141F Global Combat Support System (GCSS)</b>				<b>674655</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	Logistics Integration (formerly known as Core)					3,239	7,242	7,215		
(U)	ILS-S					9,241	10,052	11,538		
(U)	GCSS-AF Architecture Development (formerly known as DII)					4,603	1,989	9,912		
(U)	GCSS-AF Domain Integration					0	0	9,912		
(U)	Financial Information Resource System (FIRST)					0	0	7,792		
(U)	Total					17,083	19,283	46,369		
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Lockheed Martin	IDIQ	15 Aug 95	N/A	N/A	31,542	15,552	8,745	10,407	Continuing	TBD
SSG/SW (Software Factory)	N/A	N/A	N/A	N/A	0	0	6,045	6,500	Continuing	TBD
Various	TBD	TBD	N/A	N/A	0	0	0	25,860	Continuing	TBD
<u>Support and Management Organizations</u>										
Support Contractors	Various	Various	N/A	N/A	2,813	725	1,680	1,723	Continuing	TBD
SSG PMO Support	N/A	N/A	N/A	N/A	5,556	806	2,813	1,879	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					31,542	15,552	14,790	42,767	TBD	TBD
Subtotal Support and Management					8,369	1,531	4,493	3,602	TBD	TBD
Subtotal Test and Evaluation										
Total Project					39,911	17,083	19,283	46,369	TBD	TBD

**THIS PAGE INTENTIONALLY LEFT BLANK**