Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification				Date February 2008			
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets			
COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	584,615	621,861	665,445	664,419	682,454	700,507	710,725
0304 Test & Evaluation	221,855	0	0	0	0	0	0
YX04 Test & Evaluation	0	285,692	260,427	252,223	259,370	272,251	273,853
0804 Test & Evaluation Block 2006	120,381	0	0	0	0	0	0
0904 Test & Evaluation Block 2008	36,282	0	0	0	0	0	0
AX04 Test & Evaluation Block 1.0	0	40,082	27,936	0	0	0	0
BX04 Test & Evaluation Block 2.0	0	35,227	28,333	3,968	0	0	0
CX04 Test & Evaluation Block 3.0	0	14,211	38,802	53,938	45,048	46,979	49,068
DX04 Test & Evaluation Block 4.0	0	0	0	6,518	24,854	28,061	32,748
EX04 Test & Evaluation Block 5.0	0	9,576	17,712	31,526	41,189	45,267	40,901
WX04 Test & Evaluation Capability Development	0	5,329	15,522	42,143	40,276	45,364	46,579
XX04 Concurrent, Test, Training & Ops (CTTO)	0	41,359	37,701	35,722	32,969	8,946	9,047
0305 Targets & Countermeasures Core	20,272	0	0	0	0	0	0
0805 Targets & Countermeasures Block 2006	157,126	0	0	0	0	0	0
0905 Targets & Countermeasures Block 2008	17,898	0	0	0	0	0	0
0005 Targets & Countermeasures Block 2010	2,659	0	0	0	0	0	0
YX05 Targets and Countermeasures Core	0	182,249	219,831	215,203	219,223	233,280	237,330
0602 Program-Wide Support	8,142	0	0	0	0	0	0
ZX40 Program-Wide Support	0	8,136	19,181	23,178	19,525	20,359	21,199

Note:

1. Funding for content in budget project YX04 (FY08 thru FY13) was previously included in FY07 within budget project 0304 plus the Test Planning and Design task within budget project 0904.

2. Funding for content in budget project AX04, BX04, CX04, DX04, EX04 and WX04 (FY08 thru FY13) was previously included in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

3. Funding for content in budget project XX04 (FY08 thru FY13) was previously included in FY07 within budget projects 0817, 0917, 0017, and R117.

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4. Starting in FY08, funding for all block content (with the exception of Test Planning and Design) in budget projects 0804 and 0904 are included within budget projects AX04, BX04, CX04, DX04, EX04, and WX04.

5. Starting in FY08, funding for all content (with the exception of Concurrent Test, Training and Operations (CTTO)) in budget project 0304 is included within budget project YX04.

6. Starting in FY08, funding for Test Planning and Design is included within budget project YX04.

7. Starting in FY08, funding for CTTO is included within budget project XX04.

8. Starting in FY08, targets funding associated with budget projects 0804, 0904, AX04, BX04, CX04, DX04, EX04, and WX04 is included within budget project YX05.

9. The content in this PE supports the master system level test schedule which is included in the R-4 section of budget projects 0304 and YX04.

A. Mission Description and Budget Item Justification

A.1 System Element Description
As part of the total Ballistic Missile Defense System (BMDS), the Test and Targets Program Element (PE) provides the resources, including targets and countermeasures development, for an integrated system-level test approach, bringing together the capabilities of the BMDS elements.

For FY07, this PE consists of fifteen projects: Test & Evaluation (T&E); T&E Block 2006; T&E Block 2008; T&E Block 2010; T&E Block 2012; T&E Block 2014; Targets & Countermeasures Core; Targets & Countermeasures Block 2006; Targets & Countermeasures Block 2008; Targets & Countermeasures Block 2010; Targets & Countermeasures Block 2012; Concurrent Test, Training, and Operations (CTTO) Block 2008; CTTO Block 2010; CTTO Block 2012, and Program Wide Support.

For FY08-FY13, this PE consists of ten projects: T&E (contained in the new MDA Block Structure under Mission Area Investment); T&E Block 1; T&E Block 2; T&E Block 3; T&E Block 4; T&E Block 5; T&E Capability Development; Targets & Countermeasures Core; Concurrent, Test, Training & Ops (CTTO), and Program Wide Support.

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BMDS Test Program:

BMDS testing is conducted at essentially three levels, Element component level testing, Element level verification testing, and BMD System level integration testing. Element component level testing consist primarily of Element subsystem developmental testing and Component-level debug and improvement testing. This level of testing is funded as part of an Elements developmental program and reflected in their respective Program Element (PE) submission. Element level verification testing primarily consists of Element level developmental and verification testing, Element improvements, Component-level integration, verification and validation of hardware and software readiness for incorporation into BMDS, and System integration testing. This level of testing is funded primarily as part of an Elements developmental program and reflected in their respective Program Element (PE); however, portions of this testing are occasionally funded by the Test and Targets PE if the Element test has BMD System level interest. BMD System Integration Testing primarily supports Engagement Sequence Group (ESG) demonstration, Launch threat characterization, Operational Test Agency (OTA) involvement, System-level integration and improvements, International participation, and Warfighter involvement. This level of testing is funded as a combination of funding from this PE and the primary Elements PE. This approach includes a combined Developmental/Operational Test (DT/OT) Program at both the element and system level. System Level test infrastructure is also funded as part of this PE.

The T&E projects provide consolidated MDA-wide capabilities and resources to support the management and execution of BMDS System and Element-level testing. With the evolution of the BMDS, testing needs have expanded beyond those of the individual elements to include testing of BMDS engagement sequences that rely on multiple BMDS elements. The structure of MDA's T&E Directorate, hereafter referred to as the MDA Responsible Test Organization (RTO), centralizes authority, control, and responsibility for all BMDS testing. The RTO is responsible for executing BMDS system tests and conducting post-test analysis to characterize BMDS system performance to support system verification. BMDS system test objectives are determined by BMD Responsible Engineering Organization (REO) and include threat capability in the selection of targets and test parameters. The MDA test program provides data and information to anchor the models and simulations used to verify BMDS capabilities and to support BMDS characterization and assessments. RTO activities are grouped into seven functional areas: Test Policy and Strategy; BMDS Combined Test Force; BMDS Readiness; Test Resources; Facilities, Siting, and Environmental management; Concurrent Test, Training, and Operations (CTTO); Fielding and Integration.

The Test Policy and Strategy program supports the development and implementation of strategic planning, test policy, standards, and procedures for creating a unified BMD test process. This program also includes funding for the BMDS Capability Assessment (BCA) team and funding for all of the Service Operational Test Agencies (OTAs) to conduct a BMDS Operational Assessment (OA). The BMDS Readiness program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The BMDS Readiness program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The RTO also includes the BMDS

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Combined Test Force (CTF) which plans, executes, analyzes, and reports all BMD system test events. The BMDS CTF consolidates the personnel, processes, and resources across MDA, including the BMDS elements, into a unified, cohesive team to execute the BMDS test program. The BMDS CTF provides for core support that spans multiple Blocks as well as the individual efforts required for the test and assessment of specific Blocks. The Test Resources program supports the development, operation, maintenance, and modernization of the T&E infrastructure supporting both BMDS System and Element-level testing. The Facilities, Siting and Environmental program provides guidance, environmental analysis and documentation, real property facility siting, acquisition, and facility operational support for BMD systems. The Ballistic Missile Defense System (BMDS) Concurrent Test, Training and Operations (CTTO) provides comprehensive, in-place, geographically dispersed upgrades, testing, training, and sustainment while maintaining operational readiness across the complete Ballistic Missile Defense System (BMDS) Enterprise. This CTTO capability will enable simultaneous cross-element-on training events in the field during BMDS incremental and spiral development testing and sustained operational readiness conditions without degrading protection capability. The BMDS CTTO capability is required in the JFCC-IMD Modifications Requirement List (MRL). The Fielding and Integration program's mission is to manage and direct the integration of the BMDS including developing, testing and sustaining the fielded BMDS.

BMDS Targets Program:
The Targets and Countermeasures Directorate provides targets (hardware and launch services) to the MDA Elements to test the integrated BMDS. The Targets and Countermeasures Directorate oversees the associated funding for the testing. The funding for these targets reside in the Elements respective Program Elements.

BMDS Test and Evaluation Functions:
- MDA's Responsible Test Organization (RTO) structure centralizes authority, control, and responsibility for all BMDS testing.
- Plans tests according to BMDS and Element objectives.
- Provides test ranges, instrumentation and infrastructure.
- Develops MDA test policy.
- Directs the Combined Test Force (CTF).
- Plans, executes, and conducts analysis of BMDS ground and flight tests.
- Demonstrates integrated BMDS capability.
- Addresses critical measurements for growth and capability.
- Collects data for BMDS analysis and manages MDA data centers.
- Provides documentation of BMDS and Element performance results for use by MDA, the OTAs, STRATCOM, and senior decision makers.

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- Provides civil engineering / facility acquisition expertise, oversees all construction funding, and ensures environmental compliance of all MDA activities.
- Provides data and information to anchor the models and simulations used to verify BMDS capabilities and to support BMDS characterization and assessment.

Concurrent Test, Training and Operations (CTTO) Functions:
- Concurrent Test, Training, and Operations (CTTO) effort organizes and provides the resources, including systems development and acquisition, for an integrated system-level developmental and acquisition approach, bringing together the capabilities of the BMDS Elements. This effort provides for implementation of test and evaluation, training, and operations functions that span multiple Blocks, as well as identifies capability gaps as part of current and future Blocks.

BMDS Targets and Countermeasures Functions:
- The Targets and Countermeasures Program is a supporting BMDS program that provides targets to test the integrated, layered BMDS, including targets, countermeasures, and instrumentation to support testing prior to initial defensive operational capability.

A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)
Test and Evaluation Contribution to the BMDS:
- Plan and conduct testing of the BMDS Engagement Sequence Groups (ESGs) developed by the REO.
- Collect and provide test data in order to support the effectiveness, suitability, survivability, and interoperability assessments of the BMDS.
- Provide infrastructure and environmental compliance necessary to support increasingly complex tests.
- Provide risk reduction for the BMDS through measurements flight testing to include technology demonstration, algorithm and model validation, and threat and countermeasure characterization.
- Develop MDA BMDS testing policy with common, repeatable processes.

Concurrent Test, Training, and Operations (CTTO) Contribution to the BMDS:
- Enables BMDS sustained operational capability and continued BMDS incremental and spiral development while providing Warfighters the ability to maintain an operational capability, participate in exercises, train, and mission rehearse.
- Provides comprehensive, in-place, geographically dispersed test, evaluation and training of the complete BMDS.

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- Eliminates current need to co-locate forces at a central training facility, thus providing both cost savings for the exercise conduct and the added advantage of training operators in an operational state
- Ensures horizontal and vertical test and evaluation scalability from Element through Global BMDS.
- Safely injects consistent high fidelity threat and scenario data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations.
- Strategic end-state: BMDS available on-demand for test and evaluation, training, and operations that is transparent to real world operations.

Targets and Countermeasures Contribution to the BMDS:
- The Targets and Countermeasures Program develops new targets and countermeasures, risk reduction flights (tests of target prototypes), subsystem characterization, and the acquisition and maintenance of long lead target material items. Specifically, the Targets and Countermeasures program provides capability-based ballistic missile target systems to include missile subsystems and common target components, such as boosters, re-entry vehicles (RVs), countermeasures, guidance and control components, data and instrumentation packages, and launch support systems. Additionally, the Targets and Countermeasure program supports aging surveillance, refurbishment, and reuse of existing government furnished equipment such as Minuteman II and Lance missile hardware. Utilizing existing government inventories and the development of common target components, a BMDS target system is integrated and tested, thus reducing the cost and cycle time of developing and acquiring new target system hardware. To assist the government in this endeavor, a ten year prime contract was awarded in FY04 to design, develop, and test all BMDS targets.

A.3 Major System Element Goals
Major Test and Evaluation Goals:
- Form one BMDS test team under the RTO that is accountable to the MDA Director and Element program directors.
- Provide leadership and guidance under the CTF for the planning, execution, analysis, and reporting of BMD system test events to support system verification.
- Establish single BMD system test processes that reflect the best practices of existing Element processes.
- Benchmark and merge existing Elements and executing processes into BMDS processes.
- Develop Element Lessons Learned and Best Practices to support single BMDS test design processes.
- Provide required infrastructure and environmental compliance for robust BMD system testing.

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Major Concurrent Test, Training and Operations (CTTO) Goals:

- Integrate existing BMDS teams to support BMDS CTTO and report progress to Missile Defense Agency Director.
- Provide leadership and guidance for the planning, execution, analysis, and reporting of BMDS CTTO events to support system verification.
- Benchmark and merge existing Element and executing processes into BMDS CTTO processes.
- Develop Lessons Learned and Best Practices to support single BMDS CTTO design process.
- Increase Warfighter confidence in the BMDS.
- Enable BMDS testing and training in the field without degrading protection capability.
- Sustain BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition without degrading protection capability.
- Ensure horizontal and vertical CTTO scalability from MDA Element through global BMDS.
- Safely inject consistent high fidelity threat and scenario data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations.
- Support the development and evaluation of Warfighter Tactics, Techniques, and Procedures at the BMDS level.

Major Targets and Countermeasures Goals:

- The Targets and Countermeasures Program is developing a Flexible Target Family (FTF). This approach emphasizes commonality and modularity. The FTF will minimize the set of different booster stages, provide common Flight Test Services (FTS) and Instrumentation components, provide common vehicle support equipment, provide common launch support equipment, and provide common interfaces. Targets and Countermeasure Program has incorporated a Product Line strategy to better manage the Program. Product Lines consist of Systems Engineering, Launch Vehicle, Data and Instrumentation, Countermeasures, Re-entry Vehicles, Logistics, Integration, and Mission Management. Product Lines will develop common target components for BMDS testing which will reduce both cycle time and cost while maximizing flexibility. Product Lines will prove the flexibility to allow common target components to be developed, integrated, and tested.

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A.4 Major Events Schedule and Description

Major Event	Project	Timeframe	Description
Flight Test			
System Flight Tests			
FTM-11 (Test Failure)	0804	1Q FY 2007	An incorrect system setting aboard the ship resulted in no launch of the interceptors. BMDS Primary: • Exercise functionality used in SM-3 Engage On (EO) AN/SPY-1 Engagement Sequence Group (ESG) with priority on AN/SPY-1 sensor for Launch and Engagement (L&E) support for SM-3 weapon to engage target. BMDS/Aegis BMD Secondary: • Determine Aegis BMD capability with lethal intercept of exo-atmosphere Short Range Ballistic Missile (SRBM) & Anti-Ship Cruise Missile (ASCM) • Planned participants included: Aegis BMD, AN/TPY-2 (TM)
FTT-06	0804	2Q FY 2007	COMPLETED THAAD Primary: • Demo high endo aim point selection & medium aspect intercept against a non-separating liquid fuel target THAAD Secondary: • Demo Element Integration at Pacific Missile Range Facility (PMRF) • Planned participants included: THAAD, AN/TPY-2 (TM)
FTX-02	0804	2Q FY 2007	COMPLETED BMDS/GMD Primary: • Demo GBI EO SBX through a simulated interceptor launch and and collect SBX data to support assessment of radar functions (including advanced algorithm) against a dynamic target with associated objects • Demo Aegis BMD capability to perform a simulated SM-3 Launch on Remote (LOR) engagement BMDS Secondary: • Assess BMDS old Block 06 functionality and interoperability with GMD, Aegis BMD, SBIRS, and C2BMC • Assess Aegis BMD LRS&T capabilty and to anchor M&S • Planned participants included: Aegis BMD; C2BMC; GMD; SBX; Beale UEWR; AN/TPY-2 (FBM); SBIRS
FTG-03 (No Test)	0804	3Q FY 2007	No Test due to Target Anomaly BMDS Primary: • Demo BMDS functionality of GBI LO/EO Beale Upgraded Early Warning Radar (UEWR) for Ground Based Interceptor (GBI) launched from Vandenberg Air Force Base (VAFB) to perform all functions associated with intercepting lethal object BMDS/ GMD Secondary: • SBX collect data in shadow mode for post msn playback of GBI LO/EO SBX • Aegis BMD to collect data in shadow mode (on-line) for post mission playback for GBI LO/EO AN/SPY-1 • Planned participants included: GMD; DSP-SBIRS; C2BMC; SBX; Beale UEWR; Aegis BMD

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Major Event	Project	Timeframe	Description
FTM-11 Event 4	0804	3Q FY 2007	COMPLETED Note: Also known as FTM-11b. BMDS Primary: • Exercise functionality used in SM-3 Engage On (EO) AN/SPY-1 Engagement Sequence Group (ESG) with priority on AN/SPY-1 sensor for Launch and Engagement Engagement (L&E) support for SM-3 weapon to engage target. BMDS/Aegis BMD Secondary: • Determine Aegis BMD capability with lethal intercept of exo-atmosphere Short Range Ballistic Missile (SRBM) & Anti-Ship Cruise Missile (ASCM) • Planned participants included: Aegis BMD, AN/TPY-2 (TM)
FTM-12	0804	3Q FY 2007	COMPLETED Aegis BMD Primary: • Determine Aegis BMD capability with cued engagement & lethal intercept of exo-atmosphere Medium Range Ballistic Missile (MRBM) Aegis BMD Secondary: • Assess multiple simultaneous engagement performance • Planned participants included: Aegis BMD
FTT-05	0804	3Q FY 2007	COMPLETED THAAD Primary: • Demo booster / kill vehicle separation in high dynamic pressure fly-out environment THAAD Secondary: • Evaluate aero heating effects on seeker window • Planned participants included: THAAD
FTT-07	0804	3Q FY 2007	COMPLETED BMDS Primary: • Exercise BMDS functionality for THAAD EO AN/TPY-2 (TM) ESG where AN/TPY-2 (TM) is the engaging weapon against a non-separating low aspect mid-endo liquid fuel target BMDS/THAAD Secondary: • Demonstrate and assess ability of THAAD to provide STADIL-J to Aegis BMD (SPAWAR) and C2BMC • Planned participants included: C2BMC; THAAD; AN/TPY-2 (TM); Aegis BMD; PATRIOT
FTG-03a	0804	4Q FY 2007	COMPLETED BMDS Primary: • Demo BMDS functionality of GBI LO/EO Beale Upgraded Early Warning Radar (UEWR) for Ground Based Interceptor (GBI) launched from Vandenberg Air Force Base (VAFB) to perform all functions thru acquisition, discrimination, transition to terminal, & hitting lethal object BMDS/ GMD Secondary: • SBX collect data in shadow mode for post msn playback of GBI LO/EO SBX • Planned participants included: GMD; DSP-SBIRS; C2BMC; SBX; Beale UEWR; Aegis BMD

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Major Event	Project	Timeframe	Description
FTM-11a	0804	4Q FY 2007	COMPLETED Objectives: • Demo engagement under operational conditions with miminal a-priori date provided • Evaluate Aegis BMD performance against engineering specifications • Partipants included: Aegis BMD
FTG-04	AX04	2Q FY 2008	BMDS Primary: • Demo the engagement of a target launched from the Kodiak Launch Complex using a GBI launched from VAFB and perform all functions on a more complex target scene than previous tests. BMDS/GMD Secondary: • Exercise the operational functionality of the BMDS using DSP, AN/SPY-1 AN/TPY-2 (FBM), Beale IEWR, and SBX as inline sensors and GBI as the engaging weapon • Demo the GBI EO SBX ESG using AN/SPY-1 and SBX as on-line sensors and a second GFC node to simulate a GBI engagement • Planned participants include: GMD GFC/C; SBX; UEWR; C2BMC; AN/TPY-2 (FBM) CR; SBIRS, Aegis BMD
FTG-05	AX04	4Q FY 2008	BMDS Primary: • Within a BMDS framework, demonstrate the engagement of a target launched for KLC, using a GBI interceptor launched from VAFB and perform all functions to intercept the lethal object from a more complex target scene BMDS/ GMD Secondary: • Exercise the operational functionality of the BMDS using DSP, AN/SPY-1, AN/TPY-2 (FBM), Beale UEWR, and/or SBX as on-line sensors and GBI as the engaging weapon. • Planned participants include: GMD, Aegis BMD, SBX, SBIRS, C2BMC
FTG-06	AX04	2Q FY 2009	BMDS Primary: • Within a BMDS framework, demonstrate the engagement of a target launched from KLC with AN/SPY-1 providing initial track with SBX updates, using a GBI launched from VAFB executing a dogleg maneuver and performing all functions with a medium closing velocity to intercept the lethal object fro a more complex target scene. BMDS/GMD Secondary: • Exercise the operational functionality of the BMDS using DSP and AN/SPY-1 to provide initial warning to the system, SBX, and AN/TPY-2 (FBM) (if available) as the on-line sensor, and GBI as the engaging weapon. • Planned participants include: GMD, Aegis BMD, SBX, UEWR, C2BMC, SBIRS
FTG-07	AX04	4Q FY 2009	BMDS Primary: • Within a BMDS framework, demonstrate the engagement of a target launched from KLC with multiple sensors and increased countermeasure complexity with a GBI launched from VAFB performing a long time of flight, with low altitude, performing all functions to intercept the lethal representative object from a complex target scene. BMDS/ GMD Secondary: • Exercise the operational functionality of the BMDS using DSP and AN/SPY-1 to provide initial warning to the system SBX as the on-line sensor, and GBI as the engaging weapon. • Planned participants include: GMD; SBX; C2BMC; SBIRS

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Major Event	Project	Timeframe	Description
FTM-13	BX04	1Q FY 2008	COMPLETED BMDS Primary: • Exercise functionality used in the SM-3 Engage on AN/SPY-1 ESG for the SM-3 weapon to conduct lethal intercepts against a raid of two unitary SRBM targets in accordance with BMDS old Block 06 Test Bed System Specification • Detect, track, and conduct simultaneous engagements of two SRBM threats with: Aegis BMD CG and Two SM-3 Block IA missiles BMDS Secondary: • Exercise operational information exchange architectures to include TADILs voice, SIPRNET and IBS-I IAW old Block 06 TBSS: Volume 1. Assess BMDS voice and data test communication links and procedures • Planned participants include: Aegis BMD, C2BMC, TFCC
FTT-08	BX04	1Q FY 2008	COMPLETED THAAD Primary: • Demonstrate integrated Radar, Launcher, THAAD Fire Control and Communication (TFCC) and Interceptor closed loop operations, engagement, and intercept of an exo-atmospheric, unitary target THAAD Secondary: • Demonstrate hot conditioned Interceptor performance • Demonstrate Interceptor endgame capability for target intercept • Planned participants include: THAAD TFCC; AN/TPY-2 (TM)
FTB-01	BX04	3Q FY 2008	Note: Also known as FTM-14 Event 1. BMDS Primary: • Exercise functionality used in the SM-2 Engage On AN/SPY-1 ESG for a Near-Term Sea Based Terminal (SBT) engagement of a Foreign Military Asset SRBM BMDS Secondary: • Aegis BMD CG and THAAD perform target acquisition and track exchange • Demonstrate and assess C2BMC ability to provide situational awareness to PACOM • Characterize PATRIOT ability to receive, process, and display Link 16 messages in the SED lab as receive only • Demonstrate and assess capability to exchange track information between THAAD and PATRIOT • Demonstrate and assess capability to exchange track information between Aegis BMD, AN/TPY-2, THAAD, and SBX IAW the old Block 2006 TBSS and the old Block 2006 Test Bed Internal ICD, Part 1 & Part 2, Volume 1 • Planned participants include: Aegis BMD; C2BMC; PATRIOT; THAAD
FTT-09	BX04	3Q FY 2008	THAAD Primary: • Demonstrate and assess integrated Radar, Launcher, THAAD Fire Control and Communication (TFCC), and Interceptor closed loop operations, engagement functions, and low-endoatmospheric intercept of a spin-stabilized nonreoriented separating target THAAD Secondary: • Demonstrate long-range Radar discrimination with software update • Planned participants include: THAAD; AN/TPY-2 (TM), C2BMC

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Major Event	Project	Timeframe	Description
FTT-10	BX04	4Q FY 2008	BMDS Primary: • Demonstrate the unconstrained engagement of a threatrepresentative exo-atmospheric ballistic target using a salvo of THAAD interceptors and perform all functions to intercept this lethal object. BMDS Secondary • Aegis BMD to provide early warning and track data to cue THAAD Radar (AN/TPY-2 (TM)) • Planned participants include: THAAD; AN/TPY-2 (TM), C2BMC, Aegis BMD, PATRIOT, SBIRS
FTM-14	BX04	2Q FY 2009	Note: Also known as FTM-14 Event 3 BMDS Primary: • Exercise functionality used in the SM-3 LOR intercept against an IRBM • Verify the ability of the Aegis BMD to monitor, report, and exchange track information via line-of-site or Satellite TADIL-J • Planned participants include: C2BMC; Aegis BMD; THAAD (HWIL), AN/TPY-2 (FB)
FTX-04	BX04	2Q FY 2009	Note: Also known as FTM-14 Event 2 BMDS Primary: • Exercise functionality used in the SM-3 Engage On AN/SPY-1 ESG for the SM-3 weapon to conduct simulated lethal intercepts against a raid of 2 separating MRBM targets BMDS Secondary: • Aegis BMD CG and THAAD perform target acquisition and track exchange • Demonstrate and assess C2BMC ability to provide situational awareness to PACOM • Characterize PATRIOT ability to receive, process, and display Link 16 messages in the SED lab as receive only • Demonstrate and assess capability to exchange track information between THAAD and PATRIOT • Demonstrate and assess capability to exchange track information between Aegis BMD, AN/TPY-2, THAAD, and SBX IAW the old Block 2006 TBSS and the old Block 2006 Test Bed Internal ICD, Part 1 & Part 2, Volume 1 • Participants include: Aegis BMD; C2BMC; PATRIOT; THAAD
FTT-11	BX04	3Q FY 2009	BMDS Primary: • Demonstrate integrated Radar, Launcher, TFCC and Interceptor closed loop operations, engegament functions, and Exo intercept of separating target with low IR and RCS BMDS Secondary: • Demonstrate THAAD intercept of TT-2 SRBM target • D&A BMDS old Block 06 functionality and interoperability with THAAD - C2BMC • Demonstrate Interceptor endgame capability for target intercept • Demonstrate acquisition, track and aim-point selection by the Interceptor seeker AFS • Demonstrate soldier conduct of TFCC, Launcher, and Radar operations. • Planned participants include: C2BMC, THAAD, AN/TPY-2 (FB)

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
FTT-12	BX04	4Q FY 2009	BMDS Primary: • Demonstrate integrated Radar, Launcher, TFCC, and Interceptor closed loop operations, engagement functions, and intercepts of concurrent Low and Mid Endo separating targets BMDS Secondary: • Demonstrate Element engagement scheduling in a flash environment • Demonstrate Sim-Over-Live engagement operations • Characterize performance of a hot STS conditioned, not launched Interceptor • Demonstrate Interceptor endgame capability for target intercept • Demonstrate acquisition, tack and aimpoint selection by the Interceptor seeker AFS • Demonstrate Soldier conduct of TFCC, Launcher and Radar operations. • Planned participants include: C2BMC, THAAD, AN/TPY-2 (TM)
FTX-05	CX04	4Q FY 2009	BMDS Primary: • Characterize Fylingdales UEWR • Planned participants include: C2BMC, UEWR, GMD, Aegis BMD, SBIRS
FTM-15	EX04	4Q FY 2009	BMDS Primary: • Exercise functionality used in the SM-3 LOR intercept against an IRBM • Verify the abiity of the Aegis BMD to monitor, report, and exchange track information via line-of-site or Satellite TADIL-J
JFTM-01	WX04	1Q FY 2008	COMPLETED Aegis BMD Primary: • Demonstrate Japan BMD (JABMD) combat system configuration and SM-3 Block IA performance against a Group B MRBM target Aegis BMD Secondary: • Demonstrate and assess BMDS two way voice and data test communications links and procedures IAW BMDS old Block 06 TBSS: Volume 1 • ESG tested: SM-3 EO AN/SPY-1; (Demonstrate performance of the JABMD configuration and the SM-3 Block IA installed in the Japan Maritime Self Defense Force (JMSDF) Destroyer JDS KONGO • Planned participants include: Aegis BMD
ATM-48	WX04	4Q FY 2008	BMDS Primary: • Exercise BMDS functionality for PAC-3/GEM/GEM+ & EO AN/MPQ-53/65 BMDS/PAC Secondary: • Demonstrate and Assess (D&A) BMDS old Block 06 functionality & intercept with: • PATRIOT, THAAD, C2BMC, DSP/SBIRS (if available) • Planned participants include: C2BMC; PATRIOT; THAAD HWIL: SIBRS

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification			Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**			R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
PAC3 7-2	WX04	4Q FY 2008	BMDS Primary: • Exercise BMDS functionality for PAC-3/GEM/GEM+ & EO AN/MPQ-53/65 intercept BMDS/PAC Secondary: • First live test of PATRIOT PDB-6.0 & C2BMC Spiral 6.2 • D&A BMDS Block 06 functionality & intercept with: PATRIOT, THAAD, C2BMC, DSP/SBIRS (if available) • D&A LDC software upgrade capability between C2BMC & PATRIOT • D&A capability of THAAD - PATRIOT exchange of track information • Collect data to assess situational awareness capability from PATRIOT to C2BMC & M&S anchoring • Collect data to identify & support investigation of new system issues & unresolved issues specified by JAT • BC Interfaces to test: C2BMC - PATRIOT, PATRIOT - THAAD, C2BMC - THAAD • Planned participants include: PATRIOT, C2BMC, THAAD (HWIL), SBIRS
JFTM-02	WX04	1Q FY 2009	Aegis BMD Primary: • Event 1: Demonstrate Aegis BMD simulated engagement of a Group C++ MRBM • Event 2: Demonstrate Aegis BMD simulated engagements of a raid Group B MRBM (no target retro separation • Demonstrate and assess BMDS two way voice and data test communications links and procedures • Planned participants include: Aegis BMD, C2BMC
FTS-01	WX04	2Q FY 2009	STSS Primary: • Demo capability to detect, acquire & track a boosting TBM with Acquisition sensor • Demo capability to handover boosting TBM track from acquisition sensor to track sensor on same satellite • Demo capability to track boosting TBM with track sensor • Demo capability to maintain track of TBM during midcourse • Demo capability to supply track to C2BMC • Demo capability to generate a track sensor stare command with OSMs received from one SV & external cueing data • Demo capability to generate track sensor stare command with OSMs received from one SV & priori data STSS Secondary: • Evaluate measured signature of targets against truth models • Determine the measured position and velocity errors during boost • Determine the measured position and velocity errors during midcourse

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			Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
FTS-02	WX04	3Q FY 2009	STSS Primary: • Demo detection & acquisition of a boosting missile with acquisition sensor • Demo handover of boosting missile track from acquisition sensor to track sensor on same SV • Demo tracking of boosting missile stages with track sensor • Demo acquisition & track of midcourse objects deployed from a PBV • Determine relative position of midcourse objects • Generate stereo tracks of missile stages, PBV, & all tracked deployed objects & send mission data reports to C2BMC • Determine position & velocity errors for midcourse objects • Demo inherent system capability to discriminate objects BMDS/STSS Secondary: • Demo simulated GBI LO/EO STSS with SBX sensor support • Collect signature of targets for discrimination analysis
FTL-01	WX04	4Q FY 2009	BMDS/ABL Primary: • Demo ABL capability to negate a threat-representative ballistic missile during boost phase BMDS/ABL Secondary: • Characterize capabilities of ABL Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I) to safely initiate and execute an engagement. • Characterize ABL capabilities to detect and track a ballistic missile during the boost phase • Characterize ABL acquisition, track, and pointing (ATP) functions against a ballistic missile during the boost phase • Characterize ABL capability to negate a ballistic missile during the boost phase. • Planned participants include: C2BMC, ABL, SBIRS
Ground Test			
System Ground Tests			
GTD-01	0804	1Q FY 2007	COMPLETED BMDS Primary: • Assess BMDS ability to simultaneously execute multiple old Block 04 ESGs using multiple raid sizes and old Block 04 functionality & interoperability • D&A Element SA data is sent to C2BMC • Demo AN/TPY-2 (FB) functionality & interoperability with BMDS by assessing: • C2BMC sensor management & tasking to AN/TPY-2 (FB) • AN/TPY-2 (FB) track data is sent to C2BMC & forwarded to GMD • D&A BMDS Block 04 software upgrades do not affect LDC functionality

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
GTX-02a	0804	2Q FY 2007	COMPLETED BMDS Primary: • Assess BMDS ability to simultaneously execute multiple old Block 06 ESGs using theater assets with old Block 06 scenarios with priority on THAAD EO AN/TPY-2 (TM) • Assess BMDS initial old Block 06 functionality & interoperability with: THAAD, PATRIOT, C2BMC, AEGIS BMD, SBIRS/Azusa BMDS Secondary: • D&A THAAD - PATRIOT exchange track information (man/voice not P2P engagement coordination) • D&A capability for THAAD & C2BMC to exchange data • Assess assigned SEBOs (THAAD, PATRIOT, C2BMC) • Collect data to identify & support later investigation of any new system issues
GTG 04-3	0804	3Q FY 2007	COMPLETED GMD Primary: • Demo readiness of GMD old Block 06 initial capability upgrades including SBX & Fylingdales, for field integration & BMDS ground tests GMD Secondary: • Demo GMD capability to perform EO SBX and Flyingdales • Demo CE-2 architecture additions (Second IDT) with current ESGs • Demo GMD system performance, with component upgrades, is consistent with previously demonstrated old Block 04 ESG behavior • Demo communication between GMD components, GMD readiness functionality, GMD activation (alert transition) functionality, GMD planning operations, and GMD engagement operations • Collect test data to support GMD characterization & M&S anchoring
GTG 04-4.a	0804	3Q FY 2007	COMPLETED GMD Primary: • Verify the GMD system, dormant node with upgrades • Verify the dual node GMD system • Demo GMD system is consistent with previously demonstrated behavior for old Block 04 ESGs, GMD capability to perform old Block 06 ESGs, communications between GMD components, GMD readiness functionality • Demo GMD activation, GMD planning operations, GMD sensor operations and tasking, GMD engagement operations • Demo GFC to XBR, ET to XBR, GFC to UEWR FYL, & ET to UWR FYL interface connectivity • Demo GMD upgrades & enhancements for IP-5 have not affected safety • Collect EME data to support GCD requirements validation

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			Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
GTI-02	0804	4Q FY 2007	COMPLETED BMDS Primary: • Assess BMDS ability to simultaneously execute multiple old Block 06 ESGs using theater & strategic assets with old Block 06 scenarios • Assess BMDS initial old Block 06 functionality & interoperability with • THAAD, AN/TPY-2 (FB), C2BMC, GMD (SBX, Fylingdales, Beale, Cobra Dane), Aegis BMD, SBIRS/MCS, PATRIOT) • Exercise functionality used in applicable Block 06 ESGs with priority on: • THAAD EO AN/TPY-2 (TM) • ESGs with AN/TPY-2 (FB) as Surveillance/Initial Track Sensor BMDS Secondary • D&A C2BMC`s • Capability to control & manage BMDS communication networks • SA capability with BMDS • Initial Protection Capability (PROCAP) capability with BMDS • Capability to exchange data with THAAD
GTD-02	0804	1Q FY 2008	COMPLETED BMDS Primary: • Assess BMDS ability to simultaneously execute multiple old Blk 06 ESGs using theater & strategic assets with old Blk 06 scenarios and operational comm. BMDS Secondary: • Exercise functionality used in app. Old Blk 06 ESGs, priority on THAAD EO AN/TPY-2 (TM) • Assess BMDS initial old Blk 06 functionality & interoperability with THAAD, AN/TPY-2 (FB), C2BMC, GMD, (SBX, Fylingdales, Beale, Cobra Dane), Aegis BMD, SBIRS/MCS, PATRIOT • D&A capability for THAAD & C2BMC to exchange data, THAAD-PATRIOT peer-to-peer coord., THAAD Hit Assessment capability, Aegis BMD-THAAD-PATRIOT exchange of track info, Aegis BMD peer-to-peer coord. with THAAD & PATRIOT (voice only) • D&A C2BMCs Capability to control & manage BMDS comm networks, Sensor management capability with AN/TPY-2 (FB) & interfaces with BMDS-SBIRS; GMD-Aegis BMD; Aegis BMD-SBIRS

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			Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
GTX-09b	AX04	2Q FY 2009	Note: GTX-09b also included in R-4 for projects BX04 and EX04. BMDS Primary: • Demo capability for AN/TPY-2 (FBM) to provide discrimination for C2BMC to manage and GMD to use • Assess BMDS ability to simultaneously execute multiple ESGs with old Block 06 • Exercise functionality of applicable old Block 06 ESGs with priority on AN/TPY-2 (FBM) as launch or engagement support sensor • Multiple Demo and Assess objectives for AN/TPY-2 discrimination capabilities with C2BMC and GMD BMDS Secondary: • Demo of MDSE (CHETS) enhancements • Demo of C2BMC enhancements (GEM) • Early Integration of UEWR (Thule) • Risk reduction for GTI-04
GTI-09	AX04	3Q FY 2009	Note: GTI-09 also included in R-4 for projects BX04, CX04 and EX04. BMDS Primary: • Provide old Block 06 BMDS functionality in an integrated environment • Exercise functionality used in the applicable old Block 06 ESGs in an integrated environment. • Assess BMDS old Block 06 functionality and interoperability. • Demo engagement coordination and lower-tier point to point. • Demonstrate C2BMC`s sensor management / situational awareness capability. • Multiple demo and assess objectives for AN-TPY-2 discrim capability with C2BMC, GMD. BMDS Secondary: • Demonstration of MDSE (CHETS) enhancements.
GTX-03a	BX04	2Q FY 2008	Note: GTX-03a also included in R-4 for project EX04. BMDS Primary: • Assess BMDS ability to simultaneously execute multiple ESGs while integrating PATRIOT and THAAD functionality using theater assets with old Blk 06 scenarios & old Blk 06 threats with the projected fielded and developmental baselines at the end of CY 08 BMDS Secondary: • Exercise functionality in applicable ESGs with priority on PATRIOT and THAAD sensor support • D&A PATRIOT upper tier debris mitigation • Assess BMDS functionality and interoperability with PATRIOT, THAAD, C2BMC, Aegis BMD, AN/TPY-2 (FBM) and DSP/SBIRS • D&A THAAD-PATRIOT peer-to-peer engagement mitigation • D&A THAAD hit assessment to C2BMC • D&A THAAD radar coherent integration and improved discrimination • D&A capability to Aegis BMD to exercise the SM-3 LO AN/TPY-2 (FBM) and LOR AN/SPY-1 ESG • Collect data to identify & support later investigation of any new system issues

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			Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification			**February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**			R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
GTI-03	BX04	3Q FY 2008	Note: GTI-03 also included in R-4 for projects AX04, CX04 and EX04. BMDS Primary: • Assess BMDS ability to simultaneously execute multiple ESGs using old Block 06 scenarios & old Block 06 threats with the projected fielded and developmental baseline at the end of CY 2008 BMDS Secondary: • Exercise functionality of applicable old Block 06 ESGs with priority on PATRIOT, AN/TPY-2 (TM) or AN/TPY-2 (FBM) as sensor support • Assess BMDS functionality, interoperability and connectivity • D&A C2BMC (GEM or COCOM Suite) • D&A AN/TPY-2 (FBM) sensor data sent to C2BMC • D&A Aegis BMD capability to exercise SM-3 LO AN/TPY-2 (FBM) • D&A Aegis BMD capability to exercise SM-3 LOR AN/SPY-1 ESG • D&A THAAD & PATRIOT peer-to-peer engagement coordination • D&A THAAD hit assessment to C2BMC • D&A AN/TPY-2 (TM) coherent integration & improved discrimination
GTD-03/GTG-03b.2	BX04	4Q FY 2008	Note: GTD-03/GTG-03b.2 also included in R-4 for projects AX04, CX04 and EX04. BMDS Primary: • Assess BMDS ability to simultaneously execute multiple ESGs using old Block 06 scenarios & old Block 06 threats with the projected fielded and developmental baseline at the end of CY 2008 BMDS Secondary: • Exercise functionality of applicable old Block 06 ESGs with priority on PATRIOT, AN/TPY-2 (TM) or AN/TPY-2 (FBM) as the sensor support • Assess BMDS functionality, interoperability and connectivity • D&A C2BMC (GEM or COCOM Suite) • D&A AN/TPY-2 (FBM) sensor data sent to C2BMC • D&A Aegis BMD capability to exercise SM-3 LO AN/TPY-2 (FBM) • D&A Aegis BMD capability to exercise SM-3 LOR AN/SPY-1 ESG • D&A THAAD & PATRIOT peer-to-peer engagement coordination • D&A THAAD hit assessment to C2BMC • D&A AN/TPY-2 (TM) coherent integration & improved discrimination

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Major Event	Project	Timeframe	Description
GTX-09a	BX04	1Q FY 2009	Note: GTX-09a also included in R-4 for project EX04. BMDS Primary: • Increased Discrimination Capability with newly released SW • Theater assets with focus on THAAD and Aegis (SBT) • Assess BMDS Ability to simultaneously execute multiple ESGs with old Block 06 scenarios and old Block 06 threats for CY 2008 baselines • Exercise Functionality of old Block 06 ESGs Multiple Demo and Assess old Block 06 Objectives for AN/TPY-2 (FBM), THAAD, PATRIOT, Aegis BMD and C2BMC • Assess THAAD and Aegis BMD (SBT) functionality BMDS Secondary: • Initial demo of MDSE (CHETS) enhancements • Initial demo of C2BMC enhancements (GEM) • Risk reduction for GTI-04
GTD-09	BX04	4Q FY 2009	Note: GTD-09 also included in R-4 for project CX04. BMDS Primary: • Provides old Block 06 BMDS functionality in a distributed environment with real tactical communications, hardware, and operational crews. • Assess BMDS ability to simultaneously execute multiple ESGs with old Block 06 scenarios and old Block 06 threats with end of CY 2009 baselines. • Multiple demo and assess objectives for AN-TPY-2 discrimination capability with C2BMC, GMD. • Exercise functionality of applicable old Block 06 ESGs with priority on AN/TPY-2 (FBM) as launch or engagement support sensor. • Demo and assess C2BMC`s sensor management, situational awareness and point to point engagement capability. BMDS Secondary: • Demonstration of MDSE (CHETS) enhancements

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008 PB)	594,190	586,150	620,104
Current President's Budget (FY 2009 PB)	584,615	621,861	665,445
Total Adjustments	-9,575	35,711	45,341
Congressional Specific Program Adjustments	0	40,000	0
Congressional Undistributed Adjustments	0	-4,289	0
Reprogrammings	-357	0	0
SBIR/STTR Transfer	-9,218	0	0
Adjustments to Budget Years	0	0	45,341

Note 1:

FY07 decrease of $9.575 million includes SBIR/STTR transfers and MDA reprogrammings.

FY08 increase of $35.711 million includes a Congressionally specific program increase of $40 million and a portion of the MDA Congressional undistributed reduction.

FY09 increase of $45.341 million reflects MDA programmatic changes to support program requirements.

Note 2: Ground Test after the GT-3 Series (i.e. GTD-3, GTI-3, GTX-3a) had their nomenclature changed to align to the calendar year. For example, old GT-4 Series (i.e. GTD-4, GTI-4, GTX-4a, etc..) in FY09 became GT-9 Series (i.e. GTD-9, GTI-9, GTX-9a, etc..).

Note 3: Summary of Changes, PB08 R-2 Test Events vs. PB09 R-2 Test Events (Flight Tests and Ground Tests):
Flight Tests:

FTT-05
PB08: 2Q FY 2007
PB09: 3Q FY 2007
Notes: Developmental schedule caused test schedule adjustment

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

ATM-48
PB08: 3Q FY 2007
PB09: 4Q FY 2008
Notes: Test date changed to accommodate Target Availability.

FTG-03a
PB08: Not in PB08 Submission
PB09: 4Q FY 2007
Notes: Test created after FTG-03. No test due to Target anomaly on FTG-03.

FTG-04
PB08: 4Q FY 2007
PB09: 2Q FY 2008
Notes: Event timeframe moved because of rippling effect caused by the addition of FTG-03a

FTT-08
PB08: 4Q FY 2007
PB09: 1Q FY 2008
Notes: Test schedule adjusted due to developmental program adjustments

FTX-03
PB08: 4Q FY 2007
PB09: Not in PB09 Submission
Notes: Test event was cancelled due to the feasibility of the test event

FTG-05
PB08: 1Q FY 2008
PB09: 4Q FY 2008
Notes: Event timeframe moved because of rippling effect caused by the addition of FTG-03a

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	Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FTT-09
PB08: 2Q FY 2008
PB09: 3Q FY 2008
Notes: Test schedule adjusted due to developmental program adjustments

FTG-06
PB08: 3Q FY 2008
PB09: 3Q FY 2009
Notes: Event timeframe moved because of rippling effect caused by the addition of FTG-03a

FTB-01
PB08: Not in PB08 Submission
PB09: 3Q FY 2008
Notes: FTM-14 was comprised of three separate events. FTM-14 Event 1 has been renamed FTB-01 and will occur in 3Q FY 2008 which was the date of the original FTM-14

FTM-14
PB08: 3Q FY 2008
PB09: 2Q FY 2009
Notes: FTM-14 was comprised of three separate events. FTM-14 Event 1 has been renamed FTB-01 and will occur in 3Q FY 2008 which was the date of the original FTM-14. FTM Event 2 has been renamed FTX-04 and will occur in 2Q FY 2009. FTM-14 Event 3 will occur as FTM-14 and will occur in 2Q FY 2009

FTS-01 (now designated as FTS-02)
PB08: 3Q FY 2008
PB09: 3Q FY 2009
Notes: Satellite launch dates were changed by program office

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FTS-02 (test no longer has designation as it is a Test of Opportunity with a Target of Opportunity)
PB08: 3Q FY 2008
PB09: Test of Opportunity
Notes: Test is now a Test of Opportunity with a Target of Opportunity, and as such has been removed from the PB09 Submissions as it is no longer a major event

FTK-01
PB08: 4Q FY 2008
PB09: 3Q FY 2009
Notes: Test schedule adjusted due to developmental program adjustments

FTS-03 (now designated as FTS-01)
PB08: 4Q FY 2008
PB09: 2Q FY 2009
Notes: Satellite launch dates were changed by program office

PAC3 7-2
PB08: Not in PB08 Submission
PB09: 4Q FY 2008
Notes: Test not in PB08 R-Docs R-2

FTX-04
PB08: 4Q FY 2008
PB09: 2Q FY 2009
Notes: FTX-04 was the name of THAAD's Developmental flight test (RDC-2) which was cancelled due to programmatic changes. Since the event name was not used, a decision was made to reuse FTX-04 in PB09. This new event was designed to accommodate what was FTM-14 Event 2.

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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

FTG-07
PB08: 1Q FY 2009
PB09: 4Q FY 2009
Notes: Event timeframe moved because of rippling effect caused by the addition of FTG-03a

FTS-04 (test no longer has designation as it is a Test of Opportunity with a Target of Opportunity)
PB08: 1Q FY 2009
PB09: Test of Opportunity
Notes: Test is now a Test of Opportunity with a Target of Opportunity, and as such has been removed from the PB09 Submissions as it is no longer a major event

FTT-11
PB08: 1Q FY 2009
PB09: 3Q FY 2009
Notes: Test schedule adjusted due to developmental program adjustments and target availability

FTT-12
PB08: 2Q FY 2009
PB09: 4Q FY 2009
Notes: Test schedule adjusted due to developmental program adjustments and target availability

FTT-13
PB08: 4Q FY 2009
PB09: 3Q FY 2010
Notes: Test schedule adjusted due to developmental program adjustments and target availability

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	Date
Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FTM-15
PB08: Not in PB08 Submission
PB09: 4Q FY 2009
Notes: Test not in PB08 R-Docs R-2

FTX-05
PB08: Not in PB08 Submission
PB09: 2Q FY 2009
Notes: Test not in PB08 R-Docs R-2

Ground Tests:

GTG-04.3
PB08: 2Q FY 2007
PB09: 3Q FY 2007
Notes: Test schedule adjusted due to developmental program adjustments

GTG 04.4a
PB08: 2Q FY 2007
PB09: 3Q FY 2007
Notes: Test schedule adjusted due to developmental program adjustments

GTX-03b
PB08: 2Q FY 2008
PB09: Not in PB09 Submission
Notes: Test objectives were merged with GTX-03a (increase in scope and complexity of GTX-3a) and test was cancelled

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

GTI-09
PB08: Not in PB08 Submission
PB09: 3Q FY 2009
Notes: Test not in PB08 R-Docs R-2

GTD-09
PB08: Not in PB08 Submission
PB09: 4Q FY 2009
Notes: Test not in PB08 R-Docs R-2

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		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0304 Test & Evaluation	221,855	0	0	0	0	0	0
RDT&E Articles Qty	2	0	0	0	0	0	0

Note:

1. RDT&E Articles: FY07 - Delivery of Two (2) Transportable Telemetry Systems.

2. Starting in FY08, funding for all content (with the exception of Concurrent Test, Training and Operations (CTTO)) in budget project 0304 is included within budget project YX04. Starting in FY08, funding for CTTO is included within budget project XX04.

3. The content in this budget project for FY07 supports the master system level test schedule which is included in the R-4 section of budget projects 0304 for FY07 and YX04 for FY08-FY13.

A. Mission Description and Budget Item Justification

The Test and Evaluation (T&E) projects provided consolidated Missile Defense Agency-wide (MDA) capabilities and resources to support the management and execution of Ballistic Missile Defense System (BMDS) and element level testing. With the evolution of the BMDS, testing needs have expanded beyond those of the individual elements to include testing of BMDS engagement sequences that rely on multiple BMDS elements. MDA's Responsible Test Organization (RTO) structure centralized all authority and responsibility for all BMDS testing. The RTO relied on BMD System Engineering to provide the system test objectives to test and assess BMDS capability. The RTO made use of a BMDS Combined Test Force (CTF) to plan, execute, analyze, and report BMD system test events. The RTO also developed the necessary test policy, test plans, and test infrastructure to conduct an effective test program. RTO activities are grouped into six functional areas; Test Policy and Strategy, BMDS CTF, Test Resources, Facilities, Siting, and Environmental management, BMDS Readiness, and Concurrent Test, Training and Operations (CTTO).

The Test Policy and Strategy program supported the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes which reflect the best practices of existing element processes. Mission Assurance is integrated into the entire MDA test program through the identification and application of T&E best practices into test processes and procedures for flight, software and ground testing. The Test Policy and Strategy program also developed strategic plans and International policy for the RTO. Target certification reports are developed to ensure that targets are suitable to meet test objectives. The Test Policy and Strategy program provided policy and guidance on Knowledge Management practices, establishing standardized documentation for test planning, test reporting, and data archiving. The program also developed, coordinated, and managed RTO inputs into the overall BMDS Program Plans. The Test Policy and Strategy program supported two major assessments of the BMDS: The BMDS Capability Assessment (BCA) team and System-Level Operational Test Assessments. The BCA team

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provided a non-advocate, independent assessment of the BMDS throughout its life-cycle. Where possible, BCA team-members recommended changes to the current test program and mitigation efforts to reduce performance degradation, implementation, and integration risks. Operational Test Agency (OTA) funding is consolidated within the RTO so they can provide operational assessments of the BMDS. The OTAs maintained their assessments in the OTA database which is a living document of the BMDS assessment.

The BMDS CTF plans, executes, analyzes, and reports BMDS test events. Government personnel plan and execute test events with the assistance of contractor support. CTF core activities consist of:
- Test Planning and Design (campaign-level test planning and design).
- Test Operations (detailed system level planning and execution for flight test (FT) and ground test (GT) events).
- Test Analysis and Reporting (system test event data collection, analysis and reporting and associated tool development for FTs and GTs).
- CTF Support performed Test Configuration Working Group (TCWG) secretariat functions, CTF integration functions, and responsibility for business management functions.

Test Planning and Design funds campaign-level planning and design functions for the BMDS Test Program Baseline to include the collection and adjudication of test objectives from MDA System Engineering, the OTAs and the Warfighters; validation of test venues and test scenarios; definition of test resource requirements, the establishment of a baseline test campaign timeline, and the interface with co-located OTA and Advanced Systems representatives. Theses efforts culminate in the development and publication of the Integrated Master Test Plan (IMTP). The IMTP is the overarching document that describes the BMDS test environment, supporting test organizations, developmental and operational test programs, and management of MDA test resources. Test Operations funded the execution teams for BMDS FT and GT to include detailed test planning, pre-test field integration and execution of all BMDS test program events, the staffing, management and execution of BMDS Task Forces (TF), ensured the fulfillment of all Executive Test Review requirements, and the interface with co-located OTA representatives. Under the BMDS TF construct, Test Operations currently consists of five distinct TFs: TF A (Ground-based ESG FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier Characterization), TF D (System GT), and TF E (Emerging Technologies). Test Operation products included, but are not limited to, detailed test planning and execution documentation, Operations Requirements, Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.

The CTF Test Analysis and Reporting (TA&R) division developed, integrated, and delivered all BMDS TA&R products for IMTP specified system FTs and GTs , and targets of opportunity. Maintained and executed all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

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CTF Support funds the business of the CTF through performance of CTF integration and organization management functions. Specifically, CTF Support leads the TCWG, which manages changes to the IMTP, conducts the Test Integration Council, executes CTF operations (action management, War Room, test program information management), manpower and security functions, and interfaces with co-located OTA representatives. The Chief of Staff Office has responsibility for business management functions.

The Test Resources Program developed, sustained, and modernized the core T&E facilities of the BMDS test bed to support system and element-level Flight and Ground testing and assessment. This included development, maintenance and modernization of the MDA mobile instrumentation tool box, BMD-unique ground test facilities, and MDA data centers. The mobile instrumentation tool box included telemetry, radar, and optical data collection assets such as three (3) test aircraft equipped with optical sensors, mobile telemetry systems, the Kwajalein Mobile Range Safety System, the Mobile Launch Platform (MLP), the Pacific Collector Mobile Instrumentation Ship and the X-Band Transportable Radar Ship (XTR-1) (under development). These assets are required to collect the spatial data needed to execute the Flight tests safely and collect the measurement data needed for BMDS performance evaluation. The Test Resources Program also made focused investments to improve MDA-unique capability at Major Range & Test Facility Base (MRTFB) activities including the NP-3D improvement program with the Navy. All of these assets enabled robust Flight Testing and support mandatory safety and analysis data requirements in support of BMDS test activities. Because this core test capability is corporately sustained, the individual BMDS elements paid only the direct costs associated with their specific test efforts. The Test Resources Program also provided for the development, maintenance and modernization of element Hardware In the Loop (HWIL) representations to support robust system-level ground testing. The Test Resources Program maintained a continuous analysis, which pits data collection requirements and test scenarios against existing and planned test assets, to identify the test infrastructure needed to test the BMDS elements as part of engagement sequences. The Test Resources Program also included the Pacific Range Support Team (PRST) to support the BMDS CTF with range mission planning and execution expertise, development of common standards and mission assurance, and to recommend development or modification of mobile instrumentation to support MDA testing.

The Facilities, Siting and Environmental program provided guidance, environmental analyses and documentation, real property facility siting, acquisition, and facility operational support for the BMDS. This program overseen facility acquisition of the Military Construction (MILCON) and RDT&E construction programs. This program also provided guidance and supported the Environmental Assessment and Environmental Impact Statement process, environmental compliance, pollution prevention, and other environmental efforts. This program ensured environmental compliance of all BMDS activities with federal, state, local, DOD and international law, treaties and regulations.

The BMDS Readiness program (formerly known as the Test Assurance program) is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The BMDS Readiness program is responsible for assuring test readiness, ensuring

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test realism, assessing test adequacy, and tracking test risk. The BMDS Readiness program assessed readiness processes and metrics for these programs and evaluated the outcomes. BMDS Readiness increased the efficiency and effectiveness of the BMDS test program by integrating key strategies and objectives into the Responsible Test Organization (RTO) test program by identifying and improving test processes. BMDS Readiness assessed test adequacy by conducting: Test assessments to provide input on data voids for assessment and unfulfilled objectives; Test design reviews ensured tests are configured to support assessment activity; and Mission planning meetings ensured the proper data will be collected for analysis and assessment.

The purpose of the BMDS Concurrent Test, Training, and Operations (CTTO) effort is to address the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance; training; and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO enabled continued BMDS incremental and spiral development and testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios while the system is in an operational state or "on alert."

The functions of the CTTO are as follows:
- Increase confidence in the BMDS through rigorous concurrent test, training, and operations.
- Enable BMDS testing and training in the field without degrading protection capability.
- Sustain Unified Combatant Commanders BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition to defend the United States, its deployed forces, friends, and allies.
- Safely inject consistent high fidelity test and evaluation threat data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations.
- Aid in AEGIS Ballistic Missile Defense, Terminal High Altitude Air Defense, Ground-based Midcourse Defense, Sensors, and Fire Control standardization evaluation and certification for all BMDS personnel and ensured all crews are highly qualified to perform their mission-specific tasks by conducting exercises and wargames executed from actual equipment and networked configurations.

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B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Resources	110,660	0	0
RDT&E Articles (Quantity)	2	0	0

The Test Resources program provided for operations, sustainment, and modernization of the core corporate test and evaluation infrastructure components of the BMDS Test Bed. This included ranges and instrumentation, airborne sensors, mobile launch platform, developmental ground test facilities and HWIL laboratories to support element- and system-level testing. This program continued to improve test infrastructure in terms of capability and quantity, as recommended from continuing MDA studies. These improvements built on the existing core test infrastructure to support element and system-level Flight and Ground testing.

FY07 Accomplishments:
- Provided level-of-effort funding to ranges (White Sands Missile Range (WSMR), Kauai Test Facility (KTF), Wake Island, Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Western Range / Vandenberg Air Force Base (VAFB), Naval Air Warfare Center (NAWC), Kodiak Launch Complex (KLC)) to maintain MDA-unique test facilities and instrumentation for MDA tests.
- Continued operating, maintaining and improving airborne sensors instrumentation platforms HALO-I, HALO-II and WASP to support IR measurement data collection for BMDS testing and development activities.
- Maintained the MDA-unique ground test facilities, including wind tunnels, space-environment chambers, light gas gun, ladar performance lab, rocket-plume sensor capabilities, and hardware-in-the-loop simulation facility supported component level Hardware in the Loop risk reduction testing.
- The PRST provided efficient planning, coordination and management of range resources and infrastructure in support of BMDS Flight Testing throughout the Pacific Test bed.
- Continued coordination with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that simplified target integration at the ranges.
- Maintained the MDA Data Centers Program to provide efficient data archived, accessed, distributed and furnished relevant expertise for MDA Mission oriented data.
- Awarded follow-on task order to Alaska Aerospace Development Corporation (AADC) which provided for operation and sustainment of the KLC which supported MDA target launches.
- Continued to operate and maintain the "Pacific Collector" as a mobile instrumentation ship which supported off-range BMDS testing and increasingly complex test scenarios.

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- Continued to operate, maintain and improve System Ground Test and HWIL Facilities, which included the C2BMC Integrated Test Center, System Test Laboratory 1 and the Space Based Infrared System Technical Support Center (SBIRS TSC) Laboratory.
- Continued support of the Test and Evaluation Data Analysis Capability (TEDAC) which provided test communications among the MDA ranges and test situational awareness to MDA HQ.
- Continued to operate and maintain the Transportable Telemetry Systems (TTS)which provided ultra high band width telemetry collection, processing, and real time test data transmission capability thereby supporting the data collection requirements of future BMDS missions.
- Continued development of the X-band Transportable Radar (XTR-1) which supported off-range BMDS testing and increasingly complex test scenarios.
- Completed upgrade of the Kwajalein Mobile Range Safety System (KMRSS), maintained Operations & Sustainment and conducted mission support.
- Coordinated MDA Major Range & Test Facilities Base (MRTFB) with OSD test resources community/programs (DTRMC, CTEIP, etc.). Codified agreement on the NP-3D upgrade program which provided three (3) aircraft that had the capability to support MDA operations.
- Completed upgrade of the Hypervelocity Ballistic Range G Light Gas Gun at AEDC which provided higher fidelity projectiles in support of BMDS Live Fire Test & Evaluation (LFT&E).
- Maintained and operated the Kauai Test Facility (KTF) which enabled the launch of target systems supporting BMD Test Activities (Congressional Earmark).
- Continued Upgrades to PMRF Sensors, Command and Control Systems, Data Analysis Tools, and Range Safety Systems which supported BMDS testing (Congressional Plus-up).
- Characterized advanced technology in the terrestrial neutron environments which allowed simulation of unique BMD Environments at the Indiana University Cyclotron Facility (Congressional Plus-up).

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	FY 2007	FY 2008	FY 2009
BMDS CTF Core	48,556	0	0
RDT&E Articles (Quantity)	0	0	0

The BMDS Combined Test Force (CTF) planned, executed, analyzed, and reported BMDS test events. The CTF core support provided core funding to support the block test program contained in projects 0804 and 0904 in FY07. The CTF performed four primary functions; Test Planning and Design, Test Operations (Flight Test (FT) and Ground Test (GT)), Test Analysis and Reporting and CTF Support located in Huntsville, Alabama. Some components of GT operations are located in Colorado Springs, CO.

The Test Planning and Design function performed campaign-level test planning and design. The Test Planning and Design function performed the following major tasks: (1) test requirements development, (2) test event design and (3) test planning integration and development of the Integrated Master Test Plan (IMTP).

The Test Operations function performed detailed specific test event procedure planning and test event execution through the use of a Task Force (TF) construct (TF A (Ground-based Engagement Sequence Group (ESG) FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier and Characterization), TF D (System GT), and TF E (Emerging Technologies)). The Test Operations function performed the following major tasks: (1) detailed test design, (2) detailed test event specific planning, (3) test integration and (4) test execution.

Test Analysis and Reporting function (TA&R) performed test event data management (for both truth and system data). TA&R developed, integrated and delivered all BMDS TA&R analysis products for IMTP specified system FTs, GTs and TOOs within a single integrated, standardized reporting process. The TA&R function performed the following major tasks: (1) Joint Analysis Teams (JAT), (2) Data Management, (3) development of Truth Data and (4) System Analysis.

The CTF Support function provided critical functional operations. This function provided the following support: (1) CTF integration; (2) BMDS test configuration control; (3) CTF test information management, control and dissemination, (4) CTF support services, and (5) CTF business management.

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FY07 Accomplishments:

- Achieved Full Operational Capability.
- Implemented core processes and standardization across both the CTF and BMDS tests.
- Operated and improved the Test Configuation Working Group (TCWG) change control process to control the content, configuration and schedule of BMDS test events.
- Provided the core contractor support/test teams that executed the BMDS block testing efforts described in exhibits 0804 and 0904.
- Revised and fully coordinated the Baseline BMDS IMTP, and began to provide quarterly updates.
- Completed a major revision of the BMDS IMTP that expanded the document to cover two years. Also, initiated a major revision to the IMTP including incorporation of the new MDA Block Structure, establishment of test campaigns mapped to the Directors knowledge points and fielding decisions, and also restructured to a FY timeline (FY08 - FY09).
- Prepared and coordinated Test Directives for budget projects 0804 and 0904 test events.
- Developed GT requirements and scenarios and initial FT scenarios for budget projects 0804 and 0904 test events.
- Developed and coordinated System Event Test Plans, Element Test Plans, Test Design Review packages and Mission Requirements Documents for budget project 0804 and 0904 test events.
- Developed Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings for budget 0804 and 0904 test events.
- Provided campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.
- Developed Pre-mission Analysis Plans, input to the National Ranges Universal Documentation System (UDS), and JAT Mission Logistics Plans.
- Developed, delivered, and briefed Quick Look Briefings (QLB), Executive Quick Look Briefings (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Reports.
- Developed Integrated Data Management Plans (IDMP), Data Handling Plans (DHP), Truth Data Requirements Document (TDRD)for budget project 0804 and 0904 test events.

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	FY 2007	FY 2008	FY 2009
Facilities, Siting & Environmental	3,515	0	0
RDT&E Articles (Quantity)	0	0	0

The Facilities, Siting and Environmental (FS&E) Program is comprised of two areas: the Civil Engineering Division and the Environmental Management Division. The Civil Engineering Division is the functional area for facility siting, real property acquisition, and facility sustainment and support for the BMDS. The Civil Engineering Division also oversees facility acquisition through the Military Construction (MILCON) and RDT&E construction programs. The Environmental Management Division is the functional area for BMDS environmental planning and compliance, pollution prevention, National Environmental Policy Act process support, and other environmental efforts. The Environmental Management Division ensures environmental compliance of all BMDS activities with Federal, state, local, DOD and international law, treaties and regulations.

FY07 Accomplishments:

The Civil Engineering Division:
- Provided oversight for real property acquisition of the Military Construction (MILCON) and RDT&E construction programs.
- Supported the construction execution of the Von Braun Complex II MILCON project on Redstone Arsenal, AL.
- Supported the construction award process of the FY07 facility MILCON Life Safety Upgrades, Launch Control Center on Meck Island, and supported the construction phase of the FY07 facility MILCON Emergency Services Facility on Meck Island.
- Supported obtaining OSD approval and Congressional notification for establishment of a Flexible Target Family Single Integration Facility Complex, Courtland, AL and start of construction.
- Supported actions to complete the THAAD MILCON project at PMRF, HI.
- Supported construction of facilities required for AN/TPY-2 (FB) Radar at Shariki, Japan.
- Programmed facilities requirements for a second OCONUS AN/TPY-2 (FB).
- Supported siting and design of Targets Program facilities at Reagan Test Site and Vandenberg AFB.
- Supported operations and maintenance of MDA-assigned facilities at USAKA.
- Supported Wake Island activities including Super Typhoon Ioke storm damage repairs, PACAF Intent to reduce island staffing planning, and the scheduled test campaign.
- Supported bed down actions and facility project design activities related to 1) KI test facilities at Hill AFB, UT, Vandenberg AFB, CA and Redstone Arsenal, AL, and 2) Hanscom AFB, MA.

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- Supported the MDA facility requirements in the 2005 BRAC process including new facilities on Redstone Arsenal, AL, Fort Belvoir, VA, and Dahlgren, VA.
- Supported the design charrette and RFP development for the MDA BRAC facility (Von Braun Complex III) at Redstone Arsenal, AL.
- Supported the requirements development, installation master plan siting process, design charrette and RFP development for the MDA BRAC facility (Headquarters Command Center) at Fort Belvoir, VA.
- Supported the siting, design and start of construction for AN/TPY-2 radar in Alaska.
- Supported construction completion of the Telemetry Building Addition, PMRF, HI; Range G Addition, AEDC, TN, and the Hangar 151 Wall Demolition, Edwards AFB, CA.
- Supported Ground-based Missile Missile Defense project requirements at Fort Greely, Alaska and OCONUS location.

The Environmental Management Division:
- Ensured that all MDA BMDS testing activities were conducted in compliance with all applicable federal, state, local, DOD and international law, treaties and regulations concerning environmental compliance.
- Provided guidance and supported MDA's compliance with the National Environmental Policy Act (NEPA), environmental management system requirements of E.O. 13148, and other environmental management efforts, including green procurement, pollution prevention, and permitting.
- Prepared / provided oversight on Records of Environmental Consideration (REC), Air Force 813s (AF 813), and Memoranda For the Record (MFR) for the following activities / events: AN/TPY-2 Radar Deployment to NOAA's TSMRI in Juneau, AK, Flexible Targets Family Program, KEI Stage 2 Static Fire Testing, FTM-11, VAFB Target Launches in Support of the STSS and NFIRE, ATM-48 Flight Test, FTX-02 Flight Test, FTG-02, -03, and -04, NFIRE 2a and 2b, Launch Facility Life-Safety Upgrades at Meck Island, AEGIS program relocation to Dahlgren, Siting and Operating PRST Equipment at Elmendorf AFB, Sea-Based X-Band Radar Operations in the Pacific, Microsatellite Radiation Testing, XTR-1 Radar Testing at MIT/LL, Net-Centric Air Defense Element (NCADE) Test at WSMR, FTM-12, MKV Carrier Vehicle DACS Test, MDA Beddown Activities at VAFB, Medium-Range Target Launch Facility at VAFB, THAAD FTT-08.
- Prepared / provided oversight on six Environmental Assessments (EA) for the following activities / events: Wake Island Supplemental EA, Courtland Target Assembly Facility EA, MDA Small Targets Launch Pad EA, KEI EA DOPAA, Airborne Laser Debris Management EA, Family of Flexible Targets EA.
- Finalized the MDA Programmatic Environmental Impact Statement (PEIS) for the Ballistic Missile Defense System (BMDS) - Revised the Perchlorate Appendix, and prepared the Record of Decision (ROD) and Notice of Availability (NOA). Prepared a background paper on the MDA BMDS PEIS for the MDA Director.
- Developed and utilized a Geographic Information System (GIS) for the Alaska Region.

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- Developed MDA Green Procurement Program (GPP) and audited items purchased by MDA.
- Documented MDA's Environmental Management System (EMS) and began implementing new procedures.
- Prepared MDA's Plant Property, and Equipment Annual Report and quarterly Environmental Liability Reports.
- Participated in DoD EMS and Environmental Liabilities Working Groups.
- Developed and began implementing a Corrective Action Plan for environmental liabilities material weakness.
- Prepared Corrective Action Plan for Plant, Property, and Equipment.(PP&E) Disposal and Closing Estimates, Submission of Appendix A to OUSD(C).
- Prepared MDA's draft Environmental Management Directive.
- Prepared White Paper for MKV Fueling Alternatives to Hypergolic propellant and loading.
- Conducted Debris Analysis for BMDS Flight Test.

	FY 2007	FY 2008	FY 2009
Test Policy and Strategy	43,699	0	0
RDT&E Articles (Quantity)	0	0	0

The Test Policy and Strategy program supported the development and implementation of test policy, standards, directives, and procedures for creating unified BMDS test processes. Efforts to achieve this mission included: applying best practices of existing Element processes for flight, ground and software testing; establishing standardized documentation for test planning, test reporting and data archiving; providing non-advocate, independent assessment of the BMDS throughout its life-cycle via the BMDS Capability Assessment team (BCA); providing for operational assessments of the BMDS via Operational Test Agency (OTA) participation; developing target accreditation reports to ensure targets meet test objectives; providing for test mission assurance; and developing strategic Planning and strategy for the RTO. Budget is increased in FY07 and FY08 due to the consolidation of funding which supports the OTA activities.

FY07 Accomplishments:
- Completed MDA Directive 3100.01, "International Test and Exercise Policy" dated 13 November 2006, to assign responsibilities and actions needed to conduct BMDS testing.
- BCA team continued to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.
- Prepared Target Accreditation Reports to included, but not limited to: FTM-12, FTG-03, FTG-03a, FTT-06, FTT-07, FTX-02, FTM-11, FTM-11 Event 4.

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- Continued to integrate mission assurance, best practices, and lessons learned into test policy, processes, procedures, training and certification plans.
- Continued communications and interaction between the BMDS development community and Operational Test Agencies (OTA). Continued funding BMDS Operational Assessment Efforts.
- Continued the development and implementation of test policy, standards, and procedures for creating unified BMD test processes.
- Completed MDA Directive 3200.03, "Test Review Policy: dated 22 March 2007.
- Continued to issue RTO Test Directives for flight and ground tests.
- Completed MDA Directive 3200.02, "Test Event Notification and Viewing" dated 23 March 2007.
- Completed BRAC transition plan for relocation of Test, Integration, and Fielding personnel to Huntsville and Colorado Springs.

	FY 2007	FY 2008	FY 2009
BMDS Readiness (Formerly Test Assurance)	8,560	0	0
RDT&E Articles (Quantity)	0	0	0

The BMDS Readiness program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The BMDS Readiness program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The BMDS Readiness program assesd readiness processes and metrics for these programs and evaluated the outcomes. BMDS Readiness increased the efficiency and effectiveness of the BMDS test program by integrating key strategies and objectives into the Responsible Test Organization (RTO) test program by identifying and improving test processes. BMDS Readiness assessed test adequacy by conducting: Test assessments which provided input on data voids for assessment and unfulfilled objectives; Test design reviews ensured tests are configured to support assessment activity; and Mission planning meetings ensured the proper data will be collected for analysis and assessment.

FY07 Accomplishments:
- Developed and implemented BMDS Test Incident Reporting.
- Completed transition to a BMDS Readiness organization.
- Established processes and metrics that support readiness to test, integrate and field.
- Identified options for processes that are missing or deficient.
- Tracked issues to ensure processes are developed and implemented where needed.
- Continued development and implementation of a Risk Management Program.
- Developed Kill Web Model that depicts BMDS capability.

Project: 0304 Test & Evaluation

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Established Independent Assessment Teams (IAT) to evaluate test effectiveness.

	FY 2007	FY 2008	FY 2009
Concurrent Test, Training and Operations	6,865	0	0
RDT&E Articles (Quantity)	0	0	0

Concurrent Test, Training, and Operations (CTTO) effort addressed the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance, training, and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO enabled continued BMDS incremental and spiral development and testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios while the system is in an operational state or "on alert." BMDS CTTO safely separated development, test, evaluation, and training venues from real-world activities; and allowed injection of high-fidelity simulations to run realistic scenarios on operational equipment and networks. CTTO enabled end-to-end testing of the BMDS and enabled BMDS training that allowed operators to exercise any or all BMDS elements, as needed.

FY07 Accomplishments:
- Established CTTO Project Office.
- Integrated MDA Element and Executive Support Staff into CTTO test and evaluation planning.
- Integrated Unified Combatant Commander and Operational Test Agency into CTTO planning.
- Enabled Responsible Engineering Organization establishment of CTTO Requirements Working Group to develop CTTO Concept Description, Design Requirements, Capability Matrix, Metrics, Safety Plan, Independent Verification and Validation plan.
- Conducted test, evaluation, and training planning for initial BMDS CTTO demonstration.
- Developed Architecture and System Use Cases.

Project: 0304 Test & Evaluation

MDA Exhibit R-2A (PE 0603888C)

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UNCLASSIFIED

			Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0304 Test & Evaluation

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

BMDS Test Program:

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasized testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of two year blocks. The RTO directed a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, Federally Funded Research and Development Centers, and other MDA programs executed the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

BMDS CTTO Program:

The CTTO systems design and acquisition followed the MDA's capability-based acquisition strategy that emphasized fielding capabilities that addressed particular threats. The design and development of the BMDS CTTO capability is a collaborative effort. The government is the task manager which integrated the technical effort and managed the contracting efforts. The government, used existing contract structures, established a CTTO Project Office, determined BMDS CTTO requirements and standardization, determined BMDS Core Protocol and Standards, upgrades, technology insertion points, and synchronize BMDS Element level activities, training exercises and events and capabilities. The long term acquisition strategy is to normalize CTTO requirements into existing contract structures. Led by a flag/general officer steering group, the CTTO Project Office task force will be comprised of government representative from the MDA Elements and Joint Functional Component Command for Integrated Missile Defense; defense industry partners; and Systems Engineering and Technical Assistance defense contractor(s). The intent is to develop a fully capable CTTO that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The CTTO approach supported evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.

Project: 0304 Test & Evaluation

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Resources								
Ground Test Facilities	Various	Army, Air Force/ AL, FL, MD, TN	46,762	0	N/A	0	N/A	46,762
Ranges and Instrumentation	Various	Various/ CA, HI, NM, Marshall Is, Alaska	264,853	0	N/A	0	N/A	264,853
Airborne Sensors	C/CPAF	L3 Communications/ CA, OK, NM	104,887	0	N/A	0	N/A	104,887
Congressional Adds	Various	Various/HI	55,789	0	N/A	0	N/A	55,789

Project: 0304 Test & Evaluation

MDA Exhibit R-3 (PE 0603888C)

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					Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**

APPROPRIATION/BUDGET ACTIVITY			R-1 NOMENCLATURE		
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)			**0603888C Ballistic Missile Defense Test and Targets**		

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Data Centers	Various	Various/ TN, CO, AL, CA	19,851	0	N/A	0	N/A	19,851
BMDS CTF Core								
Optical Data Analysis	Various	USASMDC, HANSCOM AFB & NAVSEA/ Huntsville,Huntsville, AL, MA & Crystal City, VA	19,325	0	N/A	0	N/A	19,325
Radar Data Analysis	Various	USASMDC, NAVSEA & HANSCOM AFB/ Huntsville, AL, Crystal City, VA & MA	17,586	0	N/A	0	N/A	17,586
Lethality	Various	USASMDC/ Huntsville, AL	13,832	0	N/A	0	N/A	13,832
Kill Assessment	Various	USASMDC/ Huntsville, AL	14,212	0	N/A	0	N/A	14,212
International Programs	Various	USASMDC, HANSCOM AFB, WRIGHT PATTERSON AFB & NAVSE/ Huntsville, AL, MA, OH & Crystal City, VA	4,334	0	N/A	0	N/A	4,334
Special Programs Tests	Various	MDA/ Washington, D.C.	6,054	0	N/A	0	N/A	6,054
Radar Exploitation	Various	USASMDC/ Huntsville, AL	11,204	0	N/A	0	N/A	11,204

Project: 0304 Test & Evaluation

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					FY 2008		FY 2009		
	Contract	Performing	Total		Award/		Award/		
	Method	Activity &	PYs	FY 2008	Oblg	FY 2009	Oblg	Total	

<table>
<tr><td colspan="2">Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis</td><td>Date
February 2008</td></tr>
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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
BMDS Strategic Planning	Various	USASMDC & MDA/ Huntsville, AL & Washington, D.C.	11,424	0	N/A	0	N/A	11,424
Test Configuration Control Board	Various	MDA/Washington, D.C./ Washington, D.C.	5,742	0	N/A	0	N/A	5,742
Test Assurance Directorate	Various	MDA/Washington, D.C./ Washington, D.C.	6,468	0	N/A	0	N/A	6,468
Test Policy and Strategy								
BCA	Various	Various/ NJ, CA, MD, MA	37,051	0	N/A	0	N/A	37,051
Operational Test Agency Participation in System Test	Various	OTAs/ Various	29,602	0	N/A	0	N/A	29,602
Target Certification	Various	USASMDC/ Huntsville, AL	2,384	0	N/A	0	N/A	2,384
BMDS Readiness (Formerly Test Assurance)								
Continuous Test Improvement	Various	Various	4,230	0	N/A	0	N/A	4,230
Subtotal Test and Evaluation			675,590	0		0		675590

Remarks

Details related to this content for FY08 and FY09 is located within the R-3 document of budget project YX04.

Project: 0304 Test & Evaluation

MDA Exhibit R-3 (PE 0603888C)

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					Date February 2008

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Resources								
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	3,514	0	N/A	0	N/A	3,514
Support Contracts	C/FFP	Northrop Grumman/ Arlington, VA	23,272	0	N/A	0	N/A	23,272
BMDS CTF Core								
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	18,093	0	N/A	0	N/A	18,093
Support Contracts	C/FFP	Various/ TASC, SPARTA, RNB Arlington, VA	59,350	0	N/A	0	N/A	59,350
Facilities, Siting & Environmental								
Support Contracts	C/FFP	ICF & SciComm/ VA & MD	13,535	0	N/A	0	N/A	13,535
Test Policy and Strategy								
Government Salaries	TM	Washington, DC	23,303	0	N/A	0	N/A	23,303
Support Contracts	C/FFP	TASC, SPARTA/ Arlington, VA	18,282	0	N/A	0	N/A	18,282
Travel	TM		2,716	0	N/A	0	N/A	2,716
International Programs	TM	Washington, DC	526	0	N/A	0	N/A	526
BMDS Readiness (Formerly Test Assurance)								
Support Contracts	C/FFP	Various	2,158	0	N/A	0	N/A	2,158
Subtotal Management Services			164,749	0		0		164749

Project: 0304 Test & Evaluation

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Remarks

Details related to this content for FY08 and FY09 is located within the R-3 document of budget project YX04.

Test Resources Notes:

- Ground Test Facility (GTF) Funding is issued from MDA to the Army and Air Force. The services provide funds to the Army Missile Optical Range (AMOR) in AL, the Kinetic Hardware in-the-loop (HITL) Simulator in FL, and the Arnold Engineering Development Center in TN. Each Facility then places funds on contract and/or retains funding to support on-site personnel.
- Ranges and Instrumentation funding is distributed to executing agents through the services and issued directly from MDA. The Army (SMDC) issues MDA funds for the Mobile Launch Platform (MLP) and MIPRs funds to the Reagan Test Site in the Marshall Islands for range operations, instrumentation upgrades, and various PRST efforts. The Air Force issues funding to Wake Island for test operations support. The remaining funds are issued directly from MDA. Funds are MIPRed to members of the Pacific Range Support Team (PRST) (Patrick AFB, Vandenberg AFB, Pacific Missile Range Facility, Naval Air Warfare Center/Patuxent River & Pt Mugu, White Sands Missile Range, and Sandia National Labs), MIT/LL (Airborne Sensor support, Test Infrastructure support, Flexible Target Family support, and XTR-1 development), NRL (BMDS Test Communications and NP-3D upgrades), and DOT/Maritime Administration (Texas Clipper Activation). Funds are placed directly on an MDA contract with the Alaska Aerospace Development Corporation (AADC) for Kodiak Launch Complex Operations and Sustainment.
- PMRF Upgrades is a Congressional Add. Funds are issue from MDA to the Navy. The Navy provides funding to various contractors providing support to PMRF.
- Environmental Radiation Effects Simulation is a Congressional Add.
- Data Center Funding is issued from MDA to the Army, Air Force, Navy, and the Joint National Integration Center (JNIC). The services provide funds to the Army Missile Signature Center in TN, Naval Surface Warfare/Weapons Center (Corona) in CA, Missile Defense Data Center in AL. The Data Centers place the funds on contract and/or retain funding to support on-site personnel.

Project Total Cost			840,339	0		0	840,339

Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTD-01	▽																											
GTX-02a		▽																										
GTG 04-3			◆																									
GTG 04-4.a			◆																									
GTI-02				▽																								
GTD-02					▽																							
GTX-03a						▽																						
GTI-03							▽																					
GTD-03								▽																				
System Flight Tests																												
FTM-11 (Test Failure)	▽																											
P6L-1	◆																											
P6L-2	◆																											

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▽	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: 0304 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

0502

	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
P6L-3	◆																											
AST-11		◆																										
AST-12		◆																										
FTT-06		◆																										
FTX-02		▽																										
GEM ATM 46 c/d		◆																										
RDC-01c		◆																										
FTG-03 (No Test)			▽																									
FTM-11 Event 4			▽																									
FTM-12			▽																									
FTT-05			◆																									
FTT-07			▽																									
PAC3 7-1			◆																									

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲▬▲	Complete Activity		△▬△	Planned Activity

Project: 0304 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-03a				▽																								
FTM-11a				◆																								
NFIRE-2a				◆																								
RDC-01d				◆																								
FTM-13					◆																							
FTT-08					◆																							
JFTM-01					◇																							
FTG-04						▽																						
NFIRE-2b						△—△																						
AST-13							▽																					
FTB-01							▽																					
FTT-09							◇																					
ATM-48								▽																				

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: 0304 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-05								▽																				
FTT-10								▽																				
PAC3 7-2								◇																				
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-193		▲																										
GT-198								△																				
Test Asset Upgrades																												
NP3 Upgrades	△———————————————————△																											
Wargames and Exercises																												
Vigilant Shield 07	▲																											
BMDS Overlay - Eagle Resolve		▲																										
BMDS Overlay 07 - Juniper Cobra 07			▲																									
BMDS Overlay 07 - Terminal Fury 07		▲																										

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: 0304 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

0505

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Wargames and Exercises																												
BMDS Overlay Exercise Keen Edge				▲																								
Exercise Assured Response	▲		▲																									
Ardent Sentry 07/Northern Edge 07			▲																									

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: 0304 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date February 2008

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Ground Tests							
GTD-01	1Q						
GTX-02a	2Q						
GTG 04-3	3Q						
GTG 04-4.a	3Q						
GTI-02	4Q						
GTD-02		1Q					
GTX-03a		2Q					
GTI-03		3Q					
GTD-03		4Q					
System Flight Tests							
FTM-11 (Test Failure)	1Q						
P6L-1	1Q						
P6L-2	1Q						
P6L-3	1Q						
AST-11	2Q						
AST-12	2Q						
FTT-06	2Q						
FTX-02	2Q						
GEM ATM 46 c/d	2Q						
RDC-01c	2Q						
FTG-03 (No Test)	3Q						
FTM-11 Event 4	3Q						
FTM-12	3Q						
FTT-05	3Q						
FTT-07	3Q						
PAC3 7-1	3Q						
FTG-03a	4Q						
FTM-11a	4Q						
NFIRE-2a	4Q						

Project: 0304 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail				Date **February 2008**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
RDC-01d	4Q						
FTM-13		1Q					
FTT-08		1Q					
JFTM-01		1Q					
FTG-04		2Q					
NFIRE-2b		2Q-3Q					
AST-13		3Q					
FTB-01		3Q					
FTT-09		3Q					
(PAC) 7-2		4Q					
ATM-48		4Q					
FTG-05		4Q					
FTT-10		4Q					
PAC3 7-2		4Q					
FTG 08-4			3Q				
Measurement Tests							
FTC-04		3Q					
Glory Trips (USAF Operational)/Potential BMDS Tests							
GT-193	2Q						
GT-198		4Q					
Test Asset Upgrades							
NP3 Upgrades	1Q-4Q	1Q-4Q	1Q-4Q				
Wargames and Exercises							
Vigilant Shield 07	1Q						
BMDS Overlay - Eagle Resolve	3Q						
BMDS Overlay 07 - Juniper Cobra 07	4Q						
BMDS Overlay 07 - Terminal Fury 07	3Q						
BMDS Overlay Exercise Keen Edge	4Q						
Exercise Assured Response	1Q-3Q						
Ardent Sentry 07/Northern Edge 07	3Q						

Project: 0304 Test & Evaluation

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
YX04 Test & Evaluation	0	285,692	260,427	252,223	259,370	272,251	273,853
RDT&E Articles Qty	0	1	1	0	0	0	0

Note:
1. RDT&E Articles: FY08 - X-Band Transportable Radar (XTR-1). FY09 - Radar Support Ship delivery.

2. Funding for content in budget project YX04 (FY08 thru FY13) was previously included in FY07 within budget project 0304 and the Test Planning and Design task within budget projects 0804 and 0904.

3. The content in this budget project for FY08-FY13 supports the master system level test schedule which is included in the R-4 section of budget project YX04.

A. Mission Description and Budget Item Justification

The Test and Evaluation (T&E) projects (contained in the new MDA Block Structure under Mission Area Investment) provide consolidated Missile Defense Agency-wide (MDA) capabilities and resources to support the management and execution of Ballistic Missile Defense System (BMDS) and Element-level testing. With the evolution of the BMDS, testing needs have expanded beyond those of the individual elements to include testing of BMDS engagement sequences that rely on multiple BMDS elements. MDA's Responsible Test Organization (RTO) structure centralizes all authority and responsibility for all BMDS testing. The RTO relies on the BMD System Engineering to provide the system test objectives to test and assess BMDS capability. The RTO makes use of a BMDS Combined Test Force (CTF) to plan, execute, analyze, and report BMD system test events. The RTO also develops the necessary test policy, test plans, and test infrastructure to conduct an effective test program. RTO activities are grouped into six functional areas; Test Policy and Strategy, BMDS CTF, Test Resources, Facilities, Siting, and Environmental management, BMDS Readiness, Concurrent Test, Training and Operations (CTTO), Fielding and Integration, and MDA Infrastructure.

The Test Policy and Strategy program supports the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes which reflect the best practices of existing element processes. The Test Policy and Strategy program also develops strategic plans, training and certification plans, and International policy for the RTO. Target certification reports are developed to ensure that targets are suitable to meet test objectives. The Test Policy and Strategy program provides policy and guidance on Knowledge Management (KM) practices, establishing standardized documentation for test planning, test reporting, and data archiving. The program also develops, coordinates, and manages RTO inputs into the overall BMDS Program Plans, RTO BRAC Transition Planning, and relocation of personnel. The Test Policy and Strategy

Project: YX04 Test & Evaluation

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

program supports two major assessments of the BMDS: The BMDS Capability Assessment (BCA) team and System-Level Operational test Assessments. The BCA team will provide a non-advocate, independent assessment of the BMDS throughout its life-cycle. Where possible, BCA team-members will recommend changes to the current test program and mitigation efforts to reduce performance degradation, implementation, and integration risks. Operational Test Agency (OTA) funding is consolidated within the RTO so they can provide operational assessments of the BMDS. The OTAs will maintain their assessments in the OTA database which is a living document of the BMDS assessment.

The BMDS CTF plans, executes, analyzes, and reports BMDS test events. Government personnel plan and execute test events with the assistance of contractor support. CTF core activities consist of:
- Test Planning and Design (campaign-level planning and design for flight tests (FTs) and ground tests (GTs)).
- Test Operations (detailed system level test planning and test execution).
- Test Analysis and Reporting (system test event data collection, analysis and reporting and associated tool development for FTs and GTs).
- CTF Support performs Test Configuration Working Group (TCWG) secretariat functions, CTF integration functions, and has responsibility for business management functions.

Test Planning and Design funds campaign-level planning and design functions for the BMDS Test Program Baseline to include the collection and adjudication of test objectives from MDA System Engineering, the OTAs and the Warfighters; validation of test venues and test scenarios; definition of test resource requirements, the establishment of a baseline test campaign timeline, and the interface with co-located OTA and Advanced Systems representatives. Theses efforts culminate in the development and publication of the Integrated Master Test Plan (IMTP). The IMTP is the overarching document that describes the BMDS test environment, supporting test organizations, developmental and operational test programs, and management of MDA test resources.

Test Operations funds the execution teams for both BMDS FTs and GTs to include detailed test planning, pre-test field integration and execution of all BMDS test program events, the staffing, management and execution of BMDS Task Forces (TF), ensuring the fulfillment of all Executive Test Review requirements, and the interface with co-located OTA representatives. Under the BMDS Task Force construct, Test Operations currently consists of five distinct TFs: TF A (Ground-based Engagement Sequence Group (ESG) FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier and Characterization), TF D (System GT), and TF E (Emerging Technologies). Test Operation products include, but are not limited to, detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs, and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

CTF Support funds the business of the CTF through performance of CTF integration and organization management functions. Specifically, CTF Support leads the TCWG, which manages changes to the IMTP, conducts the Test Integration Council, executes CTF operations (action management, War Room, test program information management), manpower and security functions, interfaces with co-located OTA representatives, and has responsibility for business management functions.

The Test Resources Program develops, sustains, and modernizes the core T&E facilities of the BMDS test bed to support system and element-level Flight and Ground testing and assessment. This includes development, maintenance and modernization of the MDA mobile instrumentation tool box, BMD-unique ground test facilities, and MDA data centers. The mobile instrumentation tool box includes telemetry, radar, and optical data collection assets such as three (3) test aircraft equipped with optical sensors, mobile telemetry systems, the Kwajalein Mobile Range Safety System, the Mobile Launch Platform (MLP), the Pacific Collector Mobile Instrumentation Ship and the X-Band Transportable Radar Ship (XTR-1) (under development). These assets are required to collect the spatial data needed to execute the Flight tests safely and collect the measurement data needed for BMDS performance evaluation. The Test Resources Program also makes focused investments to improve MDA-unique capability at Major Range & Test Facility Base activities including the NP-3D improvement program with the Navy. All of these assets enable robust Flight Testing and support mandatory safety and analysis data requirements in support of BMDS test activities. Because this core test capability is corporately sustained, the individual BMDS elements pay only the direct costs associated with their specific test efforts. The Test Resources Program also provides for the development, maintenance and modernization of element Hardware In the Loop (HWIL) representations to support robust system-level ground testing. The Test Resources Program maintains the engagement sequences as the basis to evaluate the future resource needs of the BMDS. A continuous analysis pitting data collection requirements and test scenarios against existing and planned test assets identifies the test infrastructure needed to test the BMDS elements as part of the engagement sequences. The Test Resources Program also includes the Pacific Range Support Team (PRST) to support the BMDS CTF with range mission planning and execution expertise, development of common standards and mission assurance, and to recommend development or modification of mobile instrumentation to support MDA testing.

The Facilities, Siting and Environmental program provides guidance, environmental analyses and documentation, real property facility siting, acquisition, and facility operational support for the BMDS. This program oversees facility acquisition of the Military Construction (MILCON) and RDT&E construction programs. This program also provides guidance and supports the Environmental Assessment and Environmental Impact

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Statement process, environmental compliance, pollution prevention, and other environmental efforts. This program ensures environmental compliance of all BMDS activities with federal, state, local, DOD and international law, treaties and regulations.

The BMDS Readiness program (formerly known as the Test Assurance program) is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The BMDS Readiness program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The BMDS Readiness program will assess readiness processes and metrics for these programs and evaluate the outcomes. BMDS Readiness increases the efficiency and effectiveness of the BMDS test program by integrating key strategies and objectives into the Responsible Test Organization (RTO) test program by identifying and improving test processes. BMDS Readiness assesses test adequacy by conducting: Test assessments to provide input on data voids for assessment and unfulfilled objectives; Test design reviews to ensure tests are configured to support assessment activity; and Mission planning meetings to ensure the proper data will be collected for analysis and assessment.

The Fielding and Integration program's mission is to manage and direct the integration of the BMDS including developing, testing and sustaining the fielded BMDS.

Funds in this project also consist of costs for Core IT services, Quality, Safety, and Mission Assurance, and Common Threat Engineering across the BMDS.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Resources	0	175,796	124,687
RDT&E Articles (Quantity)	0	1	1

The Test Resources program will provide for operations, sustainment, and modernization of the core corporate test and evaluation infrastructure components of the BMDS Test Bed. This includes ranges and instrumentation, airborne sensors, mobile launch platform, developmental ground test facilities and HWIL laboratories to support element- and system-level testing. This program will continue to improve test infrastructure in terms of capability and quantity, as recommended from continuing MDA studies. These improvements build on the existing core test infrastructure to support element and system-level Flight and Ground testing.

FY08 Planned Program:
- Develop, maintain, integrate and upgrade MDA unique range facilities and instrumentation at the following ranges in accordance with DTRMC Guidance: White Sands Missile Range (WSMR), Kauai Test Facility (KTF), Wake Island, Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Western Range / Vandenberg Air Force Base (VAFB), Naval Air Warfare Center (NAWC), and the Kodiak Launch Complex (KLC).
- Operate High Altitude Observatory II (HALO-II), WASP, High Altitude Observatory (HALO-I) for data collection services and services of BMD Flight Test. Study options to meet longer-range/endurance platform to support longer-range Flight Tests.
- Maintain and upgrade MDA unique Ground Test Facilities to support all the BMDS developmental program hardware and software testing. These facilities provide hardware in the loop capability, threat signature measurement capability, and sensor calibration standards.
- Continue to operate and maintain the "Pacific Collector" as a mobile instrumentation ship to support off-range BMDS testing and increasingly complex test scenarios.
- Use the PRST to provide efficient planning, coordination and management of range resources and infrastructure in support of BMDS Flight Testing throughout the Pacific Test bed.
- Continue development and independent verification and validation (IV&V) of the Range Safety Modeling Toolkit (RSMT) to provide common safety analysis tools.
- Continue coordinating with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges.
- Provide centralized data management, archival and distribution services to reduce the risks and cost of BMDS Block Development and Operational Deployment. The Data Centers comprise MDA's official archive for all MDA mission related scientific and technical data.
- Continue support of the Test and Evaluation Data Analysis Capability (TEDAC) to provide test communications among the MDA ranges and test situational awareness to MDA HQ.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

- Operate and maintain two Transportable Telemetry Systems (TTS) which provides long range missile telemetry acquisition, processing and archiving capability.
- Complete development of the X-band Transportable Radar (XTR-1) to support off-range BMDS testing and increasingly complex test scenarios; identify candidate host platforms to support XTR-1 mobile test support and modify as appropriate.
- Complete upgrade of the Kwajalein Mobile Range Safety System (KMRSS).
- Sustain the Mobile Range Safety System (MRSS) at PMRF.
- Coordinate with OSD test resources community/programs (DTRMC, CTEIP, etc.)
- Continue the NP-3 Upgrades in conjunction with OSD/CTEIP and the Navy to support off-range BMDS testing and increasingly complex test scenarios.
- Support Department of Engergy in maintaining and operate the KTF to enable the launch of target systems supporting BMD Test Activities.

FY09 Planned Program:
- Develop, maintain, integrate and upgrade MDA unique range facilities and instrumentation at the following ranges in accordance with DTRMC guidance: White Sands Missile Range (WSMR), Kauai Test Facility (KTF), Wake Island, Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Western Range / Vandenberg Air Force Base (VAFB), and the Kodiak Launch Complex (KLC).
- Operate High Altitude Observatory II (HALO-II), Wide Body Airborne Sensor Platform (WASP), High Altitude Observatory (HALO-I) for data collection services and services of BMD Flight Test.
- Maintain and upgrade MDA unique Ground Test Facilities to support all the BMDS developmental program hardware and software testing. These facilities provide hardware in the loop capability, threat signature measurement capability, and sensor calibration standards.
- Use the Pacific Range Support Team (PRST) to provide efficient planning, coordination and management of range resources and infrastructure in support of BMDS Flight Testing throughout the Pacific Test bed.
- Continue coordinating with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges.
- Provide centralized data management, archival and distribution services to reduce the risks and cost of BMDS Block Development and Operational Deployment. The Data Centers comprise MDA's official archive for all MDA mission related scientific and technical data.
- Sustain the Pacific Collector to support off-range BMDS testing and increasingly complex test scenarios.
- Operate two Transportable Telemetry Systems (TTS) which provides long range missile telemetry acquisition, processing and archiving capability.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue support of the Test and Evaluation Data Analysis Capability (TEDAC) to provide test communications among the MDA ranges and test situational awareness to MDA HQ.
- Utilize and enhance the X-band Transportable Radar (XTR-1) to support off-range BMDS testing and increasingly complex test scenarios.
- Coordinate with OSD test resources community/programs (DTRMC, CTEIP, etc.).
- Continue the NP-3D Upgrades in conjunction with OSD/CTEIP and the Navy to support off-range BMDS testing and increasingly complex test scenarios.
- Sustain the Kwajalein Mobile Range Safety System (KMRSS).
- Sustain the Mobile Range Safety System (MRSS) at PMRF.
- Maintain and operate the Kauai Test Facility (KTF) to enable the launch of target systems supporting BMD Test Activities.

	FY 2007	FY 2008	FY 2009
BMDS CTF Core	0	48,825	49,720
RDT&E Articles (Quantity)	0	0	0

The BMDS Combined Test Force (CTF) plans, executes, analyzes, and reports BMDS test events. The CTF core provides core support to the block test program contained in projects AX04, BX04, CX04, DX04, EX04, and WX04 for FY08-FY13. The CTF performs four primary functions; Test Planning and Design, Test Operations (Flight Test (FT) and Ground Test (GT)), Test Analysis and Reporting and CTF Support located in Huntsville, Alabama. Some components of GT operations are located in Colorado Springs, CO.

The Test Planning and Design function performs campaign-level test planning and design. The Test Planning and Design function performs the following major tasks: (1) test requirements development, (2) test event design and (3) test planning integration and development of the Integrated Master Test Plan (IMTP).

The Test Operations function performs detailed specific test event procedure planning and test event execution through the use of a Task Force (TF) construct (TF A (Ground-based Engagement Sequence Group (ESG) FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier and Characterization), TF D (System GT), and TF E (Emerging Technologies)). The Test Operations function performs the following major tasks: (1) detailed test design, (2) detailed test event specific planning, (3) test integration and (4) test execution.

Test Analysis and Reporting function (TA&R) performs test event data management (for both truth and system data). TA&R developes, integrates and deliveres all BMDS TA&R analysis products for IMTP specified system FTs, GTs and Targets of Opportunity (TOOs) within a single integrated,

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standardized reporting process. The TA&R function performs the following major tasks: (1) Joint Analysis Teams (JAT), (2) Data Management, (3) development of Truth Data and (4) System Analysis.

The CTF Support function provides critical functional operations. This function provides the following support: (1) CTF integration; (2) BMDS test configuration control; (3) CTF test information management, control and dissemination, (4) CTF support services, and (5) CTF business management.

FY08 Planned Program:
- Provide the core contractor support/test teams that execute the BMDS block testing efforts described in budget projects AX04, BX04, CX04, DX04, EX04, and WX04.
- Prepare and coordinate the Test Directives for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop GT requirements and scenarios and initial FT scenarios for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop and coordinate System Event Test Plans, Element Test Plans, Test Design Review packages, and Mission Requirements Documents for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Support target launch services and development for BMDS flight tests contained in budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Operate and enhance the change control process to control the content, configuration and schedule of BMDS test events.
- Revise, coordinate and provide regular updates to the IMTP.
- Provide campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.
- Develop Pre-mission Analysis Plans, input to the National Ranges Universal Documentation System (UDS), and JAT Mission Logistics Plans.
- Develop, deliver, and brief Quick Look Briefings (QLB), Executive Quick Look Briefings (EQLB), Mission Data Reviews (MDR), Executive Mission Data Reviews (EMDR), and Final Test Reports.
- Develop Integrated Data Management Plans (IDMP), Data Handling Plans (DHP), Truth Data Requirements Document (TDRD) for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop analysis data requirements documents, test objective letters & analysis criteria, data collection/distribution requirements, Analysis Execution Plans, end-to-end pre-test analysis for budget projects: AX04, BX04, CX04, DX04, EX04, and WX04 test events.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

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RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FY09 Planned Program

- Provide the core contractor support/test teams that execute the BMDS block testing efforts described in budget projects AX04, BX04, CX04, DX04, EX04, and WX04.
- Prepare and coordinate the Test Directives for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop GT requirements and scenarios and initial FT scenarios for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop and coordinate System Event Test Plans, Element Test Plans, Test Design Review packages, and Mission Requirements Documents for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Support target launch services and development for BMDS flight tests contained in budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Operate and enhance the change control process to control the content, configuration and schedule of BMDS test events.
- Revise, coordinate and provide regular updates to the IMTP.
- Provide campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.
- Develop Pre-mission Analysis Plans, input to the National Ranges UDS, and JAT Mission Logistics Plans.
- Develop, deliver, and brief Quick Look Briefings (QLB), Executive Quick Look Briefings (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Reports.
- Develop Integrated Data Management Plans (IDMP), Data Handling Plans (DHP), Truth Data Requirements Document (TDRD) for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.
- Develop analysis data requirements documents, test objective letter & analysis criteria, data collection/distribution requirements, Analysis Execution Plans, end-to-end pre-test analysis for budget projects: AX04, BX04, CX04, DX04, EX04, and WX04 test events.

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RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Facilities, Siting & Environmental	0	3,557	3,678
RDT&E Articles (Quantity)	0	0	0

The Facilities, Siting and Environmental (FS&E) Program is comprised of two areas: the Civil Engineering Division and the Environmental Management Division. The Civil Engineering Division is the functional area for facility siting, real property acquisition, and facility sustainment and support for the BMDS. The Civil Engineering Division also oversees facility acquisition through the Military Construction (MILCON) and RDT&E construction programs. The Environmental Management Division is the functional area for BMDS environmental planning and compliance, pollution prevention, National Environmental Policy Act process support, and other environmental efforts. The Environmental Management Division ensures environmental compliance of all BMDS activities with Federal, state, local, DOD and international law, treaties and regulations.

FY08/09 Planned Program:

Civil Engineering Division will:
- Provided oversight for real property acquisition of the Military Construction (MILCON) and RDT&E construction programs.
- Support the MDA facility requirements and programming in the 2005 BRAC and in the FY 10/11 PB.
- Support the construction award and execution of the BRAC Von Braun Complex III project on Redstone Arsenal, AL.
- Support construction of a Flexible Target Family Single Integration Facility Complex, Courtland, AL.
- Support completion of construction of facilities required for AN/TPY-2 (FB) Radar at Shariki, Japan.
- Support design and construction award of Targets Program facilities at RTS and Vandenberg AFB.
- Support operations and maintenance of MDA-assigned facilities at USAKA.
- Support Wake Island facility requirements and scheduled test campaign.
- Support bed down actions and facility project design activities related to the KI test facilities.
- Support the MDA facility requirements in the 2005 BRAC process including new facilities on Redstone Arsenal, AL and Fort Belvoir, VA.
- Support the RFP development and construction contract award for the MDA BRAC MILCON facility (Headquarters Command Center) at Fort Belvoir, VA.
- Support the construction of the FY07 facility MILCON Life Safety Upgrades, Launch Control Center on Meck Island and support completion of construction of the FY07 facility MILCON Emergency Services Facility on Meck Island.
- Support the MDA Construction-In Process financial reporting process, real property predominate use reconsolidation with the Services and capture of real property account transfer information when a facility construction is complete.

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- Support the construction completion for AN/TPY-2 radar in Alaska.
- Support MDA requirements to transition from RDT&E construction to MILCON starting in FY 09.
- Support site survey and bed-down approval process, launch facilities designs, and award of construction contracts.
- Participate in pre-campaign test missions meetings.

Environmental Management Division will:

- Manage and execute MDA's activities and assets in a proactive and environmentally sound manner to sustain our national defense mission.
- Use the vision, mission, and goals of the MDA's Strategic Plan for Environmental Management, which provides the basis for developing environmental goals and objectives, to guide MDA's environmental management decision-making.
- Use MDA's environmental management system (EMS) in mission planning and execution to ensure environmental compliance across all MDA operations and activities.
- Plan, program, and budget to achieve, monitor, and maintain compliance with all applicable environmental requirements.
- Integrate environmental factors, issues, and values in MDA's acquisition decision-making process throughout a system's life cycle to mitigate risk to cost, schedule, and performance while protecting the environment.
- Comply with applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders (E.O.), binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment.
- Plan for continual improvement of MDA's management of environmental issues through the setting of goals and objectives and the annual review of progress towards meeting these goals and objectives.
- Promote awareness and understanding of environmental management in all phases of MDA's acquisition mission and provide appropriate training to all MDA personnel.
- Issue the Record of Decision for the BMDS Programmatic Environmental Impact Statement (PEIS).
- Prepare / provide oversight on the following EAs:
  o KEI Environmental Assessment.
  o Flexible Target Family Environmental Assessment.
  o FBX-T Radar #2 OCONUS Deployment Environmental Review.
- Complete numerous RECs, AF 813s, and MRFs for programs/tests including: KEI, Aegis FTM events, GMD FTG events, FTF Targets, THAAD events, NFIRE, STSS, MKV, Micro Satellites, and CMCM-4.
- Continue developing and utilizing a GIS for the Pacific Ocean Region.
- Validate the GMD Extended Test Range EIS findings.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to prepare quarterly Environmental Liabilities Reports.
- Continue implementation of MDA's Corrective Action Plan for environmental liabilities.
- Continue preparation of the Presidential Budget Special Exhibit 28 "Funds Budgeted for Environmental Quality".
- Continue developing and monitoring MDA's Green Procurement Program (GPP).

	FY 2007	FY 2008	FY 2009
Test Policy and Strategy	0	42,312	47,011
RDT&E Articles (Quantity)	0	0	0

The Test Policy and Strategy program supports the development and implementation of test policy, standards, directives, and procedures for creating unified BMDS test processes. Efforts to achieve this mission include: applying best practices of existing Element processes for flight, ground and software testing; establishing standardized documentation for test planning, test reporting and data archiving; providing non-advocate, independent assessment of the BMDS throughout its life-cycle via the BMDS Capability Assessment (BCA) team; providing for operational assessments of the BMDS via Operational Test Agency (OTA) participation; developing target accreditation reports to ensure targets meet test objectives; providing for test mission assurance; and developing strategic Planning and strategy for the RTO. Budget is increased in FY07 and FY08 due to the consolidation of funding which supports the OTA activities.

FY08 Planned Program:
- Prepare Target Accreditation Reports for appropriate major flight tests in Exhibit R-4 for FY08 and early FY09.
- Continue to integrate mission assurance and best practices and lessons learned into test policy, processes, procedures and training and certification plans.
- Continue communications and interaction between the BMDS development community and Operational Test Agencies (OTA). Continue funding BMDS Operational Assessment Efforts.
- Continue the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes.
- Continue to update transition of test functions from the NCR to Huntsville and Colorado Springs and fund relocations (BRAC).
- BCA team will continue to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.

Project: YX04 Test & Evaluation   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FY09 Planned Program
- Prepare Target Accreditation Reports for appropriate major flight tests in Exhibit R-4 for FY09 and early FY10.
- Continue to integrate mission assurance and best practices and lessons learned into test policy, processes, procedures and training and certification plans.
- Continue communications and interaction between the BMDS development community and OTA. Continue funding BMDS Operational Assessment Efforts.
- Continue the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes.
- Continue to update transition of test functions from the NCR to Huntsville and Colorado Springs and fund relocations (BRAC).
- BCA team will continue to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.

	FY 2007	FY 2008	FY 2009
BMDS Readiness	0	7,079	7,239
RDT&E Articles (Quantity)	0	0	0

The BMDS Readiness program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The BMDS Readiness program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The BMDS Readiness program will assess readiness processes and metrics for these programs and evaluate the outcomes. BMDS Readiness increases the efficiency and effectiveness of the BMDS test program by integrating key strategies and objectives into the Responsible Test Organization (RTO) test program by identifying and improving test processes. BMDS Readiness assesses test adequacy by conducting: Test assessments to provide input on data voids for assessment and unfulfilled objectives; Test design reviews to ensure tests are configured to support assessment activity; and Mission planning meetings to ensure the proper data will be collected for analysis and assessment.

FY08 Planned Program:
- Develop processes and metrics that support BMDS evaluation strategy.
- Publish BMDS evaluation strategy.
- Establish Independent Assessment Team (IAT) for Kinetic Energy Interceptor (KEI) and STSS.
- Identify options for processes that are missing or deficient.
- Track issues to ensure processes are developed and implemented where needed.
- Complete development and implementation of a DT/DF Risk Management Program.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

FY09 Planned Program:
- Assess processes and metrics that support readiness to test, integrate and field.
- Identify options for processes that are missing or deficient.
- Track issues to ensure processes are developed and implemented where needed.
- Maintain Risk Management Program.
- Establish additional IAT's as needed.

	FY 2007	FY 2008	FY 2009
Test Planning and Design	0	8,123	8,346
RDT&E Articles (Quantity)	0	0	0

Test Planning and Design includes campaign-level planning and design functions for the BMDS Test Program to include the collection and adjudication of test objectives from MDA System Engineering, the OTAs and the Warfighters, validation of test venues and test scenarios, definition of test resource requirements, the establishment of a baseline test campaign timeline, and the interface with collocated OTA and Advanced Systems representatives. These efforts culminate in the development and publication the IMTP. The IMTP is the overarching document that describes the BMDS test environment, supporting test organizations, developmental and operational test programs, and management of MDA test resources.

FY08 Planned Program:
- Coordinate, revise and provide quarterly updates to the BMDS Integrated Master Test Plan (IMTP).
- Provide campaign test planning, mapped to knowledge points and fielding decisions identified for the new block construct, Capability Development, and Sustainment.
- Provide test scenario designs for the IMTP, requirements for long-range test architecture and operational comparison analysis for MDA.
- Generate test event data for planning, performance analysis prediction and feasibility studies for MDA elements.

FY09 Planned Program:
- Coordinate, revise and provide quarterly updates to the BMDS Integrated Master Test Plan (IMTP).
- Provide campaign test planning, mapped to knowledge points and fielding decisions identified for the new block construct, Capability Development, and Sustainment.
- Generate test event data for planning, performance analysis predictions, and feasibility test studies for MDA elements.
- Provide test scenario designs for the IMTP, requirements for long-range test architecture and operational comparison analysis for MDA.

Project: YX04 Test & Evaluation

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	

	FY 2007	FY 2008	FY 2009
Fielding and Integration	0	0	7,064
RDT&E Articles (Quantity)	0	0	0

Prior to FY09, Fielding and Integration content and related funding was included within the Management Headquarters Program Element 0901598C.

The Fielding and Integration program's mission is to manage and direct the integration of the BMDS including developing, testing and sustaining the fielded BMDS. This is accomplished by conducting BMDS integration planning and execution in support of the BMDS Program Directive via the Integration and Synchronization Center (ISC). The Fielding and Integration program also executes the Change Control Management process for the six components of the BMDS Baseline. Additionally, the Fielding and Integration program coordinates the execution of the Master Fielding Plan. The Fielding and Integration program is organized into three mutually supporting teams focused on Integration and Synchronization Center Operations and Change Management, Block Integration and Fielding and Strategic Integration Opportunities.

FY09 Planned Program:
- Continue conducting integrated BMDS integration planning and execution.
- Continue updating of the BMDS Master Fielding Schedule and Master Fielding Plan.
- Continue to execute the BMDS Change Management process.

	FY 2007	FY 2008	FY 2009
MDA Infrastructure	0	0	12,682
RDT&E Articles (Quantity)	0	0	0

This project supports Infrastructure efforts in the areas of Information Technology, Quality Assurance, and common Threat Engineering efforts.

FY09 Planned Program:
- Provide Quality, Safety, and Mission Assurance to BMD test program.
- Provide Dedicated Information Technology services for mission specific research and test efforts to include classified and unclassified networks, software licenses, sustainment and information assurance certification..
- Provide Common Threat Engineering data to support BMDS test and assessment planning to include (trajectory and signature data to directly support system and sub-system requirements).

Project: YX04 Test & Evaluation

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

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RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the Missile Defense Agency's (MDA) capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of blocks and capability development. The RTO directs a team of various internal staff (Government and SETA), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, Federally Funded Research and Development Centers (FFRDC), and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Resources								
Ground Test Facilities	Various	Army, Air Force/ AL, FL, MD, TN,	0	15,747	1Q	12,631	1Q	28,378
Ranges and Instrumentation	Various	Various/ CA, HI, NM, Marshall Is, Alaska	0	113,495	1Q	66,655	1Q	180,150
Airborne Sensors	C/CPAF	L3 Communications/ CA, OK, NM	0	22,753	1Q	24,100	1Q	46,853
Data Centers	Various	Various, TN, CO, AL, CA	0	10,076	1Q	8,690	1Q	18,766
BMDS CTF Core								

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UNCLASSIFIED

					FY 2008		FY 2009	

UNCLASSIFIED

			Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Targets	Various	Various	0	9,825	N/A	9,791	N/A	19,616
Test Policy and Strategy								
BCA	Various	Various/ NJ, CA, MD, MA	0	9,437	1Q	9,615	1Q	19,052
Operational Test Agency Participation in System Test	Various	OTAs/Various	0	12,103	1Q	13,734	1Q	25,837
Target Certification	Various	USASMDC/ Huntsville, AL	0	636	1Q	659	1Q	1,295
BMDS Readiness								
Continuous Process Improvement	Various	Various	0	3,700	1Q	3,365	1Q	7,065
Independent Assessment	Various	Various	0	1,426	N/A	1,545	N/A	2,971
Test Planning and Design								
Test Planning & Design			0	8,123	1Q	8,346	1Q	16,469
MDA Infrastructure								
MDA Infrastructure	C/Various		0	0	N/A	6,048	1Q	6,048
HSV IT O&M	C/CPAF	Advanced Systems Development/ Huntsville, AL	0	0	N/A	3,197	1Q	3,197
Defend Systems & Networks	C/CPAF	Northrop Grumman/CO	0	0	N/A	1,478	2Q	1,478
Service/IM/IT	MIPR	Advanced Systems Development/ Huntsville, AL	0	0	N/A	896	1Q	896
Information Assurance C&A	CPFF	General Dynamics Information Technology/VA	0	0	N/A	1,063	3Q	1,063
Subtotal Test and Evaluation			0	207,321		171,813		379134

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Test Resources Notes:

- Ground Test Facility (GTF) Funding is issued from MDA to the Army and Air Force. The services provide funds to the Army Missile Optical Range (AMOR) in AL, the Kinetic Hardware in-the-loop (HITL) Simulator in FL, and the Arnold Engineering Development Center in TN. Each Facility then places funds on contract and/or retains funding to support on-site personnel.
- Ranges and Instrumentation funding is distributed to executing agents through the services and issued directly from MDA. The Army (SMDC) issues MDA funds for the Mobile Launch Platform (MLP) and MIPRs funds to the Reagan Test Site in the Marshall Islands for range operations, instrumentation upgrades, and various PRST efforts. The Air Force issues funding to Wake Island for test operations support. The remaining funds are issued directly from MDA. Funds are MIPRed to members of the Pacific Range Support Team (PRST) (Patrick AFB, Vandenberg AFB, Pacific Missile Range Facility, Naval Air Warfare Center/Patuxent River & Pt Mugu, White Sands Missile Range, and Sandia National Labs), MIT/LL (Airborne Sensor support, Test Infrastructure support, Flexible Target Family support, and XTR-1 development), NRL (BMDS Test Communications and NP-3D upgrades), and DOT/Maritime Administration (Texas Clipper Activation). Funds are placed directly on an MDA contract with the Alaska Aerospace Development Corporation (AADC) for Kodiak Launch Complex Operations and Sustainment.
- Data Center Funding is issued from MDA to the Army, Air Force, Navy, and the Joint National Integration Center (JNIC). The services provide funds to the Army Missile Signature Center in TN, Naval Surface Warfare/Weapons Center (Corona) in CA, Missile Defense Data Center in AL. The Data Centers place the funds on contract and/or retain funding to support on-site personnel.
- Project includes Congressional additions in FY08 for test and training range support and upgrades.

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Resources								
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	0	2,425	1Q	0	4Q	2,425
Support Contracts	C/FFP	Northrop Grumman/ Arlington, VA	0	11,300	1Q	12,611	1Q	23,911
BMDS CTF Core								
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	0	656	1Q	659	1Q	1,315

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					Date		
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APPROPRIATION/BUDGET ACTIVITY | R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P) | **0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Support Contracts	C/FFP	Various/ TASC, SPARTA, RNB Arlington, VA	0	38,344	1Q	39,270	1Q	77,614
Facilities, Siting & Environmental								
Support Contracts	C/FFP	ICF & SciComm/ VA & MD	0	3,557	N/A	3,678	N/A	7,235
Test Policy and Strategy								
TE Government Salaries	TM	Wash, DC	0	11,028	1Q	13,028	1Q	24,056
Support Contracts	C/FFP	TASC, SPARTA/ Arlington, VA	0	7,172	1Q	7,771	1Q	14,943
TE Travel	TM		0	1,162	1Q	1,287	1Q	2,449
International Programs	TM	Wash, DC	0	774	4Q	917	4Q	1,691
BMDS Readiness								
Support Contracts	C/FFP	Various/TASC, SPARTA Arlington, VA	0	1,953	1Q	2,329	1Q	4,282
Fielding and Integration								
Government Salaries	TM	Wash, DC	0	0	N/A	924	1Q	924
Support Contracts	C/CPAF	Computer Sciences Corp./ Falls Church, VA	0	0	N/A	6,140	1Q	6,140
Subtotal Management Services			0	78,371		88,614		166985

Remarks

Project Total Cost			0	285,692		260,427		546,119

Remarks

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planned COCOM and BMDS Exercises																												
Exercise Global Lightning 08					△																							
Exercise Series ASSURED RESPONSE 07B					△																							
Exercise Vigilant Shield 08					△																							
Exercise Series ASSURED RESPONSE 08-1						△																						
Exercise TERMINAL FURY 08						△																						
Exercise ARDENT SENTRY 08							△																					
Exercise Eagle Resolve 08							△																					
Exercise Global Storm 08							△																					
Exercise KEEN EDGE Bridge Event 08							△																					
Exercise NIMBLE TITAN 08							△																					
Exercise Series ASSURED RESPONSE 08-2							△																					
Exercise Global Thunder 08								△																				
Exercise JPOA/JPOW X								△																				

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▽	System Level Test (complete)		▽	System Level Test (planned)
▲▲	Complete Activity		△—△	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planned COCOM and BMDS Exercises																												
Exercise Series ASSURED RESPONSE 09-1									△																			
Exercise TERMINAL FURY 09										△																		
Exercise ARDENT SENTRY 09											△																	
Exercise Eagle Resolve 09											△																	
Exercise JUNIPER COBRA 09									△——————△																		
Exercise Series ASSURED RESPONSE 10-1													△															
Exercise TERMINAL FURY 10														△														
Exercise ARDENT SENTRY 10															△													
Exercise Eagle Resolve 10															△													
Exercise NIMBLE TITAN 10															△													
Exercise Series ASSURED RESPONSE 10-2															△													
Exercise Series ASSURED RESPONSE 11-1																	△											
Exercise TERMINAL FURY 11																		△										

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: YX04 Test & Evaluation

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	Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planned COCOM and BMDS Exercises																												
Exercise ARDENT SENTRY 11																			Δ									
Exercise Eagle Resolve 11																			Δ									
Exercise Series ASSURED RESPONSE 11-2																			Δ									
Exercise JUNIPER COBRA 11																	Δ—————Δ											
Exercise Series ASSURED RESPONSE 12-1																					Δ							
Exercise TERMINAL FURY 12																						Δ						
Exercise ARDENT SENTRY 12																							Δ					
Exercise Eagle Resolve 12																							Δ					
Exercise NIMBLE TITAN 12																							Δ					
Exercise Series ASSURED RESPONSE 12-2																							Δ					
Exercise Series ASSURED RESPONSE 13-1																									Δ			
Exercise TERMINAL FURY 13																										Δ		
Exercise ARDENT SENTRY 13																											Δ	

Legend

	Significant Event (complete)		Significant Event (planned)
▲	Significant Event (complete)	Δ	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲━▲	Complete Activity	Δ━Δ	Planned Activity

Project: YX04 Test & Evaluation

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planned COCOM and BMDS Exercises																												
Exercise Eagle Resolve 13																											△	
Exercise Series ASSURED RESPONSE 13-2																											△	
Exercise JUNIPER COBRA 13																									△			△
System Ground Tests																												
GTD-02					▼																							
GTG-03a					◇																							
GTX-03a						▽																						
GTI-03							▽																					
GTD-03/GTG-03b.2								▽																				
GTX-09a									▽																			
GTX-09b										▽																		
GTI-09											▽																	
GTD-09												▽																

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTX-10a													▽															
GTX-10b														▽														
GTI-10															▽													
GTD-10																▽												
GTX-11a																	▽											
GTX-11b																		▽										
GTI-11																			▽									
GTD-11																				▽								
GTX-12a																					▽							
GTX-12b																						▽						
GTI-12																							▽					
GTD-12																								▽				
GTX-13a																									▽			

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTX-13b																										▽		
GTI-13																											▽	
GTD-13																												▽
System Flight Tests																												
FTM-13					◆																							
FTT-08					◆																							
JFTM-01					◆																							
FTG-04						▽																						
NFIRE-2b						△—△																						
AST-13							▽																					
FTB-01							▽																					
FTT-09							◇																					
ATM-48								▽																				

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-05								▽																				
FTT-10								▽																				
PAC3 7-2								◇																				
JFTM-02									◇																			
FTG-06										▽																		
FTM-14										▽																		
FTS-01										▽																		
FTX-04										▽																		
PAC3 7-3										◇																		
FTK-01											◇																	
FTS-02											▽																	
FTT-11											◇																	
PAC/Caravan-2											▽																	

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-07												▽																
FTL-01												◇																
FTM-15												▽																
FTT-12												◇																
FTX-05												▽																
PATRIOT 16-2												◇																
JFTM-03													▽															
DS-01														△														
FTG-08														▽														
FTL-02														▽														
FTP-01														▽														
FTT-13														◇														
FTL-03															▽													

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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		Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTT-14															▽													
FTX-06/FTS-03															▽													
DS-02																△												
FTG-09																▽												
FTM-16																▽												
FTK-02																	◇											
FTL-04																	▽											
JFTM-04																	▽											
FTG-10																		▽										
FTL-05																		▽										
FTP-02																		▽										
FTS-04																		△										
FTT-15 (pending to be combined with another test)																		▽										

Legend

	Significant Event (complete)		Significant Event (planned)
▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲——▲	Complete Activity	△——△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
DS-03																			△									
FTG-11																			▽									
FTM-17																			▽									
FTX-07																				▽								
FTK-03																					◇							
FTG-12																						▽						
FTP-03																						▽						
FTT-16 (pending to be combined with another test)																						▽						
FTL-06																							▽					
FTM-18																							▽					
FTG-13																								▽				
FTL-07																								▽				
FTX-08																								▽				

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▽	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-14																										▽		
FTK-04																										◇		
FTP-04																										▽		
FTT-17 (pending to be combined with another test)																										▽		
FTL-08																											▽	
FTM-19																											▽	
FTG-15																												▽
FTL-09																												▽
FTX-09																												▽
Measurement Tests																												
FTC-05														△														
FTC-06																		△										
FTC-07																						△						

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—	Complete Activity	△—△	Planned Activity

Project: YX04 Test & Evaluation

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Measurement Tests																												
FTC-08																										△		
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-196						△																						
GT-197							△																					
GT-198								△																				
GT-199									△																			
GT-200											△																	
GT-201												△																
GT-202														△														
GT-203															△													
GT-204																	△											
GT-205																			△									
GT-206																				△								

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: YX04 Test & Evaluation

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-XX (GT-207)																							△					
GT-XX (GT-208)																											△	
Test Asset Upgrades																												
NP3 Upgrades	△											△																
X-Band Trans Radar (XTR-1) Complete						△																						
Radar Ship Delivery												△																

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: YX04 Test & Evaluation

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MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail			Date **February 2008**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**			R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Planned COCOM and BMDS Exercises							
Exercise Global Lightning 08		1Q					
Exercise Series ASSURED RESPONSE 07B		1Q					
Exercise Vigilant Shield 08		1Q					
Exercise Series ASSURED RESPONSE 08-1		2Q					
Exercise TERMINAL FURY 08		2Q					
Exercise ARDENT SENTRY 08		3Q					
Exercise Eagle Resolve 08		3Q					
Exercise Global Storm 08		3Q					
Exercise KEEN EDGE Bridge Event 08		3Q					
Exercise NIMBLE TITAN 08		3Q					
Exercise Series ASSURED RESPONSE 08-2		3Q					
Exercise Global Thunder 08		4Q					
Exercise JPOA/JPOW X		4Q					
Exercise Series ASSURED RESPONSE 09-1			1Q				
Exercise TERMINAL FURY 09			2Q				
Exercise ARDENT SENTRY 09			3Q				
Exercise Eagle Resolve 09			3Q				
Exercise JUNIPER COBRA 09			1Q-4Q				
Exercise Series ASSURED RESPONSE 10-1				1Q			
Exercise TERMINAL FURY 10				2Q			
Exercise ARDENT SENTRY 10				3Q			
Exercise Eagle Resolve 10				3Q			
Exercise NIMBLE TITAN 10				3Q			
Exercise Series ASSURED RESPONSE 10-2				3Q			
Exercise Series ASSURED RESPONSE 11-1					1Q		
Exercise TERMINAL FURY 11					2Q		
Exercise ARDENT SENTRY 11					3Q		
Exercise Eagle Resolve 11					3Q		
Exercise Series ASSURED RESPONSE 11-2					3Q		

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail				Date **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Exercise JUNIPER COBRA 11					1Q-4Q		
Exercise Series ASSURED RESPONSE 12-1						1Q	
Exercise TERMINAL FURY 12						2Q	
Exercise ARDENT SENTRY 12						3Q	
Exercise Eagle Resolve 12						3Q	
Exercise NIMBLE TITAN 12						3Q	
Exercise Series ASSURED RESPONSE 12-2						3Q	
Exercise Series ASSURED RESPONSE 13-1							1Q
Exercise TERMINAL FURY 13							2Q
Exercise ARDENT SENTRY 13							3Q
Exercise Eagle Resolve 13							3Q
Exercise Series ASSURED RESPONSE 13-2							3Q
Exercise JUNIPER COBRA 13							1Q-4Q
System Ground Tests							
GTD-02		1Q					
GTG-03a		1Q					
GTX-03a		2Q					
GTI-03		3Q					
GTD-03/GTG-03b.2		4Q					
GTX-09a			1Q				
BMDS Overlay 09 - Juniper Cobra			1Q-4Q				
GTX-09b			2Q				
GTI-09			3Q				
GTD-09			4Q				
GTX-10a				1Q			
GTX-10b				2Q			
GTI-10				3Q			
GTD-10				4Q			
GTX-11a					1Q		
GTX-11b					2Q		
BMDS Overlay 11-2					3Q,4Q		

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail				Date **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2011	FY 2012	FY 2013
GTI-11				3Q		
GTD-11				4Q		
GTX-12a					1Q	
GTX-12b					2Q	
GTI-12					3Q	
GTD-12					4Q	
GTX-13a						1Q
GTX-13b						2Q
GTI-13						3Q
GTD-13						4Q
System Flight Tests						
FTM-13		1Q				
FTT-08		1Q				
JFTM-01		1Q				
FTG-04		2Q				
NFIRE-2b		2Q-3Q				
AST-13		3Q				
FTB-01		3Q				
FTT-09		3Q				
(PAC) 7-2		4Q				
ATM-48		4Q				
FTG-05		4Q				
FTT-10		4Q				
PAC3 7-2		4Q				
JFTM-02			1Q			
FTG-06			2Q			
FTM-14			2Q			
FTS-01			2Q			
FTX-04			2Q			
PAC3 7-3			2Q			
FTG 08-4			3Q			

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	**February 2008**

APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		**0603888C Ballistic Missile Defense Test and Targets**	

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTK-01			3Q				
FTS-02			3Q				
FTT-11			3Q				
PAC/Caravan-2			3Q				
FTG-07			4Q				
FTL-01			4Q				
FTM-15			4Q				
FTT-12			4Q				
FTX-05			4Q				
PATRIOT 16-2			4Q				
JFTM-03				1Q			
DS-01				2Q			
FTG-08				2Q			
FTL-02				2Q			
FTP-01				2Q			
FTT-13				2Q			
FTL-03				3Q			
FTT-14				3Q			
FTX-06/FTS-03				3Q			
DS-02				4Q			
FTG-09				4Q			
FTM-16				4Q			
FTK-02					1Q		
FTL-04					1Q		
JFTM-04					1Q		
FTG-10					2Q		
FTL-05					2Q		
FTP-02					2Q		
FTS-04					2Q		
FTT-15 (pending to be combined with another test)					2Q		
DS-03					3Q		

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail				Date **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**		
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTG-11					3Q		
FTM-17					3Q		
FTX-07					4Q		
FTK-03						1Q	
FTG-12						2Q	
FTP-03						2Q	
FTT-16 (pending to be combined with another test)						2Q	
FTL-06						3Q	
FTM-18						3Q	
FTG-13						4Q	
FTL-07						4Q	
FTX-08						4Q	
FTG-14							2Q
FTK-04							2Q
FTP-04							2Q
FTT-17 (pending to be combined with another test)							2Q
FTL-08							3Q
FTM-19							3Q
FTG-15							4Q
FTL-09							4Q
FTX-09							4Q
Measurement Tests							
FTC-04		3Q					
FTC-05				3Q			
FTC-06					2Q		
FTC-07						2Q	
FTC-08							2Q
Glory Trips (USAF Operational)/Potential BMDS Tests							
GT-196		2Q					
GT-197		3Q					

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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			Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail			**February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
GT-198		4Q					
GT-199			1Q				
GT-200			3Q				
GT-201			4Q				
GT-202				3Q			
GT-203				4Q			
GT-204					1Q		
GT-205					2Q		
GT-206					4Q		
GT-XX (GT-207)						4Q	
GT-XX (GT-208)							3Q
Test Asset Upgrades							
NP3 Upgrades	1Q-4Q	1Q-4Q	1Q-4Q				
X-Band Trans Radar (XTR-1) Complete		2Q					
Radar Ship Delivery			4Q				

Project: YX04 Test & Evaluation

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0804 Test & Evaluation Block 2006	120,381	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:
Starting in FY08, funding for all content (with the exception of Test Planning and Design and Targets) in budget projects 0804 and 0904 is included within budget projects AX04, BX04, CX04, EX04, and WX04. Budget project DX04 contains funding for 3rd Site and Two-Stage Booster Testing starting in FY10. Starting in FY08, funding for Test Planning and Design is included within budget project YX04.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing:
The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS); 2) to collect data to demonstrate and assess the block capability; 3) to identify areas where technology can increase overall system performance; 4) to identify BMDS Issues; 5) to provide anchoring and validation data for modeling and simulation (M&S) tools; and 6) to support early, partial, and full capability readiness decisions.

MDA structures the BMDS T&E program around two-year, capability-based block increments with upgrades and fielding opportunities for new capabilities occurring throughout the block. These blocks are focused on a specific threat scenario that may be encountered in defending the US and its allies against ballistic missile threats. The T&E activities to be performed in each block are determined by progress made toward developing BMDS capabilities in previous blocks, with each block offering more complex and more realistic scenarios for system-level tests. Beginning in FY08 a new block construct has been developed which is described in budget projects AX04, BX04, CX04, DX04, EX04, and WX04.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, Engagement Sequence Group (ESG) test environments, testing methodologies (i.e., M&S, ground testing, flight testing), and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data, that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

T&E Block Funding:

Funding levels identified support all BMDS Flight Tests (FTs) (to include any Critical Measurements and Countermeasure (CMCM) Tests, Lethality and Ground Tests (GT)). Funding provides manpower, range and logistics support to perform specific system FT and GT planning, integration, execution, data collection, analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs and Risk Reduction/Target of Opportunity (TOO) FTs.

Test Operations:

Test Operations consists of the FT and GT execution teams which perform detailed test planning, pre-test field integration and execution of all BMDS test program events, the staffing, management and execution of BMDS Task Forces (TF), ensuring the fulfillment of all Executive Test Review requirements and interface with collocated Operational Test Agency (OTA) representatives. Under the BMDS TF construct Test Operations currently consists of five distinct TFs: TF A (Ground-based ESG FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier and Characterization), TF D (BMDS GT) and TF E (Emerging Technologies). Test Operation products include, but not limited to, detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include:

- TOOs: Events (e.g., Minuteman FT, Air Force Space Command operations, or approved foreign launches) that afford the opportunity to exercise some portion of BMDS, to conduct on-board and off-board experiments, and to gather phenomenology data on representative objects and events. These events can be categorized as domestic, foreign cooperative, or non-cooperative tests. TOOs support developmental risk reduction for BMDS FTs through early identification of test integration issues. Specifically, TOOs provide a cost-effective means of exercising and collecting data on component interfaces in a real-time environment; communication links and connectivity, real-time element loading, timing, cueing, tracking capabilities, algorithm development, and test checklists for the Integrated Test Team.
- Critical Measurements and Counter Measures (CMCM) FTs: Events that provide a venue for risk reduction for BMDS block testing, addressing phenomenology, countermeasures and counter-countermeasures requirements, providing critical measurements to support development and validation of algorithms, M&S, discrimination, and new technology demonstrations. CMCM FTs augment various MDA and elements test programs and ensure a coherent, complete, cost effective, and disciplined approach to collecting data/measurements to support characterization of the BMDS mission space (i.e., provide an understanding of how the BMDS visible, infrared and radar sensors perform when observing ballistic missile targets and countermeasures during flight). Requirements are allocated to specific tests.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

- The CTF Lethality Program seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory GTs and FTs tests are defined and executed in response to the MDA system engineer's requirement for data on the resultant space, atmospheric debris and ground effects of engaging high explosive and weapon of mass destruction payloads. FTs data requirements are achieved by leveraging planned BMDS intercept or Measurements Program test events with alternative targets, supplemental payloads and ancillary sensor coverage. The CTF integrates lethality testing across MDA and coordinates with related programs (e.g. PAC-3) to establish an efficient, requirements-driven approach to BMDS lethality characterization. Requirements are allocated to specific test events.

System GTs:
A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware in the loop tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT consist of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.
- BMDS Distributed GTs (GTD) are test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.
- BMDS Focused GTs Other (GTX) are typically short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as a risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2006)	51,503	0	0
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. BMDS FTs also include TOOs, CMCM FTs, and the CTF Lethality Program.

FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY07 Accomplishments:
- Planned and executed, the following tests to include but not limited to: FTM-11, FTX-02, FTT-07, FTM-11 Event 4, FTG-03 (No test), FTG-03a, FTM-12, FTT-08 (1Q FY08), FTM-11a, GT-193, FTT-05, FTT-06, RDC-1c, RDC-1d and NFIRE-2a.
- Conducted planning for FY07 BMDS FTs, included but not limited to: FTM-13, JFTM-1, FTT-09, FTT-10, FTM-14, ATM-48, FTG-04, FTX-03, GT-198, and FTG-05.
- Supported BMDS elements in execution of their FY07 program-specific FTs and planning of FY 08 FTs.
- Coordinated planning and integration of multiple elements and components into BMDS level FT events.
- Refined scenario designs for BMDS FTs to support ESGs identified in the BMDS Integrated Master Test Plan (IMTP).
- Provided system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and pre-mission analysis and studies.
- Completed development of Kill Assessment Fireball Sensor (KAFS) and performed KAFS and Kill Assessment Dual-band Imager measurements planning, reduction and analysis of data measurements collected by these sensors on various FTs.
- Coordinated targets requirements/design to support launch services and supported target planning and development for future flight tests.
- Populated the BMDS Test Database with test data to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provided validation data for M&S.

		Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	
	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2006)	44,832	0	0
RDT&E Articles (Quantity)	0	0	0

GT, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware in the loop tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GTs consist of BMDS Integrated GTs (GTI), BMDS Distributed GTs (GTD), and BMDS GTs Other (GTX).

FY07 Accomplishments:
- Planned and executed the following major GTs, to include but not limited to: GTD-01, GTI-02, GTX-02a and began GTD-02.
- Planned and executed in 1Q FY08 GTD-02, a fully integrated BMDS GT using operational assets [GMD, AN/TPY-2, 2 Aegis Ships, Space-Based Infrared Systems (SBIRS) and 3 Command and Control, Battle Management, Communication (C2BMC) nodes] as well as HWIL assets (PATRIOT, THAAD).
- Supported Warfighter requirements during GTI-02 (including 94th Army Air and Missile Defense Command) with a Cheyenne Mountain Operations Center representation.
- Planned and conducted a GTX-02a that focused on the integration of the THAAD Hardware-in-the-Loop (HWIL) representation into the BMDS.
- Conducted first fully integrated GT (GTD-01) with operational assets (GMD, AN/TPY-2, 2 Aegis ships, SBIRS and 3 C2BMC nodes).
- Refined scenario designs for BMDS GTs to support ESGs identified in the BMDS Integrated Master Test Plan (IMTP).
- Performed detailed planning for GT-03 test campaign.
- Populated the BMDS Test Database with test data to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provided validation data for M&S.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2006)	18,797	0	0
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:
- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provides truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives (e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters). Develop Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:
Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.

Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY07 Accomplishments:
- Provided TA&R product development and delivery to include but not limited to the following tests: GTD-01, FTM-11 Event 4, FTM-11a, GT-193, FTX-02, FTT-07, GTG-04-3, GTX-02a, FTG-03, FTG-03a, NFIRE 2a and GTI-02.
- Planned, scheduled and facilitated the integration of BMDS analysis activities within joint venues.
- Continued standardization of TA&R tools and processes.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Test Planning and Design (Block 2006)	5,249	0	0
RDT&E Articles (Quantity)	0	0	0

Note: Starting in FY08, funding for Test Planning and Design is included within budget project YX04.

Test Planning and Design includes campaign-level planning and design functions for the BMDS Test Program to include the collection and adjudication of test objectives from MDA System Engineering, the OTAs and the Warfighters, validation of test venues and test scenarios, definition of test resource requirements, the establishment of a baseline test campaign timeline, and the interface with collocated OTA and Advanced Systems representatives. These efforts culminate in the development and publication of the IMTP. The IMTP is the overarching document that describes the BMDS test environment, supporting test organizations, developmental and operational test programs, and management of MDA test resources.

FY07 Accomplishments:
- Continued to revise and fully coordinate the BMDS IMTP.
- Completed a major revision of the BMDS IMTP that expanded the document to cover two years. Also, initiated a major revision to the IMTP including incorporation of the new MDA block structure, establishment of test campaigns mapped to the Director's knowledge points and fielding decisions, and also restructured to a FY timeline covering FY08-FY09.
- Performed test planning and design to include but not limited too the GT Campaign 3 (GT-03) and FTG-04 FT, FTX-05, PATRIOT participation in THAAD and Aegis BMDS FT at PMRF, Space Tracking Survelliance System TOO FTs, and Discrimination FTs.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888

Project: 0804 Test & Evaluation Block 2006

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date **February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**					R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding through the use of two year blocks. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance (SETA)), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

	Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Block 2006)								
BMDS FT	Various	USASMDC, WSMR, MITLL, JNIC, & VAFB/ AL, NM, MA, HI & CA	98,146	0	N/A	0	N/A	98,146
BMDS Risk/ECPS	Various	Various	3,824	0	N/A	0	N/A	3,824
Targets			24,891	0	N/A	0	N/A	24,891
Test Operations BMDS Ground Tests (Block 2006)								

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					Date			
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**			

APPROPRIATION/BUDGET ACTIVITY					R-1 NOMENCLATURE			
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					**0603888C Ballistic Missile Defense Test and Targets**			

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
BMDS GT/MDIE	Various	JNIC/ Colorado Springs, CO	131,678	0	N/A	0	N/A	131,678
Exercise Overlays	Various	JNIC/ Colorado Springs, CO	17,529	0	N/A	0	N/A	17,529
Test Analysis and Reporting (Block 2006)								
FTC-02/FTX-05	Various	USASMDC/ Huntsville, AL	15,719	0	N/A	0	N/A	15,719
Test Analysis and Reporting		CTF TA&R/ Huntsville, AL	19,987	0	N/A	0	N/A	19,987
Test Planning and Design (Block 2006)								
Test Planning and Design	Various	Boeing/ Huntsville, AL	7,311	0	N/A	0	N/A	7,311
Subtotal Test and Evaluation			319,085	0		0		319085

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			319,085	0		0		319,085

Remarks

Project: 0804 Test & Evaluation Block 2006   MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTM-11 (Test Failure)	▼																											
P6L-2	◆																											
P6L-3	◆																											
P6L-1	◆																											
AST-11		◆																										
AST-12		◆																										
FTT-06		◆																										
FTX-02		▼																										
GEM ATM 46 c/d		◆																										
RDC-01c		◆																										
FTG-03 (No Test)			▼																									
FTM-11 Event 4			▼																									
FTM-12			▼																									

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTT-05			◆																									
FTT-07			▽																									
PAC3 7-1			◆																									
FTG-03a				▽																								
FTM-11a				◆																								
NFIRE-2a				◆																								
RDC-01d				◆																								
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-193		▲																										
System Ground Tests																												
GTD-01	▽																											
GTX-02a		▽																										
GTG 04-3			◆																									

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▽	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTG 04-4.a			◆																									
GTI-02				▽																								
GTD-02					▽																							

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲——▲	Complete Activity	△——△	Planned Activity

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTM-11 (Test Failure)	1Q						
P6L-1	1Q						
P6L-2	1Q						
P6L-3	1Q						
P6L-l	1Q						
AST-11	2Q						
AST-12	2Q						
FTT-06	2Q						
FTX-02	2Q						
GEM ATM 46 c/d	2Q						
RDC-01c	2Q						
FTG-03 (No Test)	3Q						
FTM-11 Event 4	3Q						
FTM-12	3Q						
FTT-05	3Q						
FTT-07	3Q						
PAC3 7-1	3Q						
FTG-03a	4Q						
FTM-11a	4Q						
NFIRE-2a	4Q						
RDC-01d	4Q						
Glory Trips (USAF Operational)/Potential BMDS Tests							
GT-193	2Q						
System Ground Tests							
GTD-01	1Q						
GTX-02a	2Q						
GTG 04-3	3Q						
GTG 04-4.a	3Q						

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-4A (PE 0603888C)

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		Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
GTI-02	4Q						
GTD-02		1Q					

Project: 0804 Test & Evaluation Block 2006

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0904 Test & Evaluation Block 2008	36,282	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:
Starting in FY08, funding for all content (with the exception of Test Planning and Design and Targets) in budget projects 0804 and 0904 is included within budget projects AX04, BX04, CX04, EX04, and WX04. Budget project DX04 contains funding for 3rd Site and Two-Stage Booster Testing starting in FY10. Starting in FY08, funding for Test Planning and Design is included within budget project YX04.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing:
The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS); 2) to collect data to demonstrate and assess the block capability; 3) to identify areas where technology can increase overall system performance; 4) to identify BMDS Issues; 5) to provide anchoring and validation data for modeling and simulation (M&S) tools; and 6) to support early, partial, and full capability readiness decisions.

MDA structures the BMDS T&E program around two-year, capability-based block increments with upgrades and fielding opportunities for new capabilities occurring throughout the block. These blocks are focused on a specific threat scenario that may be encountered in defending the US and its allies against ballistic missile threats. The T&E activities to be performed in each block are determined by progress made toward developing BMDS capabilities in previous blocks, with each block offering more complex and more realistic scenarios for system-level tests. Beginning in FY08 a new block construct has been developed which is described in budget projects AX04, BX04, CX04, DX04 EX04, and WX04.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, Engagement Sequence Group (ESG) test environments, testing methodologies (i.e., M&S, ground testing, flight testing), and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data, that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

T&E Block Funding:

Funding levels identified support all BMDS Flight Tests (FTs) (to include any Critical Measurements and Countermeasure (CMCM) Tests, Lethality and Ground Tests (GT)). Funding provides manpower, range and logistics support to perform specific system FT and GT planning, integration, execution, data collection, analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs and Risk Reduction/Target of Opportunity (TOO) FTs.

Test Operations:

Test Operations consists of the FT and GT execution teams which perform detailed test planning, pre-test field integration and execution of all BMDS test program events, the staffing, management and execution of BMDS Task Forces (TF), ensuring the fulfillment of all Executive Test Review requirements and interface with collocated Operational Test Agency (OTA) representatives. Under the BMDS TF construct Test Operations currently consists of five distinct TFs: TF A (Ground-based ESG FT), TF B (Aegis & THAAD ESG FT), TF C (Lower Tier and Characterization), TF D (BMDS GT) and TF E (Emerging Technologies). Test Operation products include, but not limited to, detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include:

- TOOs: Events (e.g., Minuteman FT, Air Force Space Command operations, or approved foreign launches) that afford the opportunity to exercise some portion of BMDS, to conduct on-board and off-board experiments, and to gather phenomenology data on representative objects and events. These events can be categorized as domestic, foreign cooperative, or non-cooperative tests. TOOs support developmental risk reduction for BMDS FTs through early identification of test integration issues. Specifically, TOOs provide a cost-effective means of exercising and collecting data on component interfaces in a real-time environment; communication links and connectivity, real-time element loading, timing, cueing, tracking capabilities, algorithm development, and test checklists for the Integrated Test Team.
- Critical Measurements and Counter Measures (CMCM) FTs: Events that provide a venue for risk reduction for BMDS block testing, addressing phenomenology, countermeasures and counter-countermeasures requirements, providing critical measurements to support development and validation of algorithms, M&S, discrimination, and new technology demonstrations. CMCM FTs augment various MDA and elements test programs and ensure a coherent, complete, cost effective, and disciplined approach to collecting data/measurements to support characterization of the BMDS mission space (i.e., provide an understanding of how the BMDS visible, infrared and radar sensors perform when observing ballistic missile targets and countermeasures during flight). Requirements are allocated to specific tests.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- The CTF Lethality Program seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory GTs and FTs tests are defined and executed in response to the MDA system engineer's requirement for data on the resultant space, atmospheric debris and ground effects of engaging high explosive and weapon of mass destruction payloads. FTs data requirements are achieved by leveraging planned BMDS intercept or Measurements Program test events with alternative targets, supplemental payloads and ancillary sensor coverage. The CTF integrates lethality testing across MDA and coordinates with related programs (e.g. PAC-3) to establish an efficient, requirements-driven approach to BMDS lethality characterization. Requirements are allocated to specific test events.

System GTs:

A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware in the loop tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT consist of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.

- BMDS Distributed GTs (GTD) are test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.

- BMDS Focused GTs Other (GTX) are typically short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as a risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2008)	12,536	0	0
RDT&E Articles (Quantity)	0	0	0

GTs, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GTprogram brings together a variety of controllable and flexible testing venues to include high fidelity hardware in the loop tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GTs consist of BMDS GTIs, BMDS GTDs, and BMDS GTXs.

FY07 Accomplishments:
- Conducted planning activities for GTX-03a, a test focusing on theater automated battle management.
- Conducted initial planning activities for GTI-03, a fully integrated ground test and the subsequent distributed test GTD-03.
- Refined scenario designs for BMDS Ground Tests to support Engagement Sequence Groups (ESGs) in the Integrated Master Test Plan (IMTP).
- Supported elements in planning FY-08 ground tests.
- Began planning and coordinating element participation in GT-09 (in FY09) campaign.

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2008)	20,258	0	0
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. BMDS FTs also include TOOs test events, CMCM FTs, and the CTF Lethality Program.

FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

Project: 0904 Test & Evaluation Block 2008

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

FY07 Accomplishments:
- Supported and continued coordination efforts / integration activities for BMDS system level efforts and the elements in the execution of their FY07 program specific FTs.
- Continued planning for FY08 FTs.
- Completed and integrated a Instrumented Lethality package into the MBRV-3 RV for use on PAC-3 FT 7-2 Associated Operation (AO).
- Installed telemetry receiver for PAC-3 FT 7-2 and provided initial planning and integration for PAC-3 FT 7-2 AO.
- Collected and assessed debris from THAAD LFT&E sled tests (high-fidelity test articles).
- Refined scenario designs for BMDS Flight Tests to support Engagement Sequence Groups (ESGs) in the Integrated Master Test Plan (IMTP).
- Support target planning and development for future flight tests.

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2008)	2,107	0	0
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs, and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:
- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases [Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package] to OTA, BMDS Capability Assessment, C2BMC, and Element Primes IAW IDMP.

- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.

- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives (e.g., Systems Engineering Based Objectives, ESG, Characterization Points and System Performance Parameters). Develop Analysis Execution Plans to document test analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in post test analysis process. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:
Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.

Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed test analysis and reporting community [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, Federally Funded Research and Development Center (FFRDC), etc.]. Develop and maintain System Security Authorization Agreements for all TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

FY07 Accomplishments:
- Developed and integrated a remote TA&R facility at the MDIOC with the virtual TA&R construct enabling collaborative analysis across the distributed flight and ground test analysis workforce.
- Planned, scheduled and facilitated integration of BMDS analysis activities within joint venues.
- Continued standardization of TA&R tools and processes.
- Supported data analysis and data products for GT-02 and GT-03 testing.

	FY 2007	FY 2008	FY 2009
Test Planning and Design (Block 2008)	1,381	0	0
RDT&E Articles (Quantity)	0	0	0

Note: Starting in FY08, funding for Test Planning and Design is included within budget project YX04.

Test Planning and Design includes campaign-level planning and design functions for the BMDS Test Program to include the collection and adjudication of test objectives from MDA System Engineering, the OTAs and the Warfighters, validation of test venues and test scenarios, definition of test resource requirements, the establishment of a baseline test campaign timeline, and the interface with collocated OTA and Advanced Systems representatives. These efforts culminate in the development and publication the IMTP. The IMTP is the overarching document that describes the BMDS test environment, supporting test organizations, developmental and operational test programs, and management of MDA test resources.

FY07 Accomplishments:
- Completed a major revision of the BMDS IMTP that expanded the document to cover two years. Also, initiated a major revision to the IMTP including incorporation of the new MDA block structure, establishment of test campaigns mapped to the Director's knowledge points and fielding decisions, and also restructured to a FY timeline covering FY08-FY09.
- Performed test planning and design to include but not limited too the GT Campaign (GT-3) and GBI LO AN/TPY-2, PATRIOT at PMRF, FTX-05 (Fylingdales characterization test), FY08 flight tests, and discrimination FT Campaign.
- Initiated coordination of GT threat data production.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0904 Test & Evaluation Block 2008

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding through the use of two year blocks. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance (SETA)), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Ground Tests (Block 2008)								
BMDS GT/MDIE		JNIC/Colorado Springs, CO	3,630	0	N/A	0	N/A	3,630
Exercise Overlays		JNIC/Colorado Springs, CO	670	0	N/A	0	N/A	670
Test Operations BMDS Flight Tests (Block 2008)								
BMDS FT		CTF, Huntsville, AL & various MDA Elements	16,185	0	N/A	0	N/A	16,185

Project: 0904 Test & Evaluation Block 2008   MDA Exhibit R-3 (PE 0603888C)

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					Date		
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**		

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE			
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603888C Ballistic Missile Defense Test and Targets**			

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Targets		MDA/ Washington, D.C.	19,790	0	N/A	0	N/A	19,790
BMDS Risk/ECPs	Various	Various	312	0	N/A	0	N/A	312
Test Analysis and Reporting (Block 2008)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	2,347	0	N/A	0	N/A	2,347
Test Planning and Design (Block 2008)								
Test Planning and Design		CTF TP&D/ Huntsville, AL	2,053	0	N/A	0	N/A	2,053
Subtotal Test and Evaluation			44,987	0		0		44987

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			44,987	0		0		44,987

Remarks

Project: 0904 Test & Evaluation Block 2008   MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTM-13					◆																							
FTT-08					◆																							
JFTM-01					◇																							
FTG-04						▽																						
FTB-01							▽																					
ATM-48								▽																				
FTG-05								▽																				
FTT-10								▽																				
PAC3 7-2								◇																				
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-198								△																				
System Ground Tests																												

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: 0904 Test & Evaluation Block 2008

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTX-02a		▼																										
GTI-02				▼																								
GTD-02					▼																							
GTX-03a						▽																						
GTI-03							▽																					
GTD-03								▽																				

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: 0904 Test & Evaluation Block 2008

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTM-13		1Q					
FTT-08		1Q					
JFTM-01		1Q					
FTG-04		2Q					
FTB-01		3Q					
ATM-48		4Q					
FTG-05		4Q					
FTT-10		4Q					
PAC3 7-2		4Q					
Glory Trips (USAF Operational)/Potential BMDS Tests							
GT-198		4Q					
System Ground Tests							
GTX-02a	2Q						
GTI-02	4Q						
FTM-13		1Q					
GTD-02		1Q					
GTX-03a		2Q					
GTI-03		3Q					
GTD-03		4Q					

Project: 0904 Test & Evaluation Block 2008

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
AX04 Test & Evaluation Block 1.0	0	40,082	27,936	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:

1. Funding for content in budget project AX04 (FY08 thru FY13) was previously included (where applicable) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Block 1.0 fielding and development efforts are directed toward defending the U.S. from limited North Korean long-range threats. The Combined Test force (CTF) supports the developmental and integration efforts thru test and assessment of ESGs attributed to Block 1.0.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing: The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS); 2) to collect data to demonstrate and assess the block capability; 3) to identify areas where technology can increase overall system performance; 4) to identify BMDS issues; 5) to provide anchoring and validation data for modeling and simulation (M&S) tools; and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG test environments, testing methodologies [i.e., M&S, Flight Test (FT), ground tests (GT)], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

T&E Block 1.0 Funding:

Funding levels identified in this task support all BMDS FT and GTs in support of Block 1.0 efforts to defend the U.S. from limited North Korean long-range threats. Funding provides manpower, range and logistics support to perform system FT and GT planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include the Integrated Measurements Program which is a combination of previous Lethality and Kill Assessment programs and seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead.

System GTs:

A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware-in-the-loop (HWIL) tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT campaigns will encompass multiple blocks consisting of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.

- BMDS Distributed GTs (GTD) are test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.

- BMDS Focused GTs Other (GTX) are typically short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 1.0)	0	9,899	10,881
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY08 Planned Program for budget project AX04:
- Complete detailed test planning and execute FY08 major BMDS system level test events for budget project AX04.
- Support BMDS elements in planning and execution of their budget project AX04 program specific FTs.
- Conduct early planning for FY09 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program for budget project AX04:
- Complete detailed test planning and execute FY09 major BMDS system level test events for budget project AX04.
- Support BMDS elements in planning and execution of their budget project AX04 program specific FTs.
- Conduct early planning for FY10 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 1.0)	0	18,513	11,827
RDT&E Articles (Quantity)	0	0	0

GT, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GT program brings together a variety of controllable and flexible testing venues to include high fidelity HWIL tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GTs campaigns will encompass multiple blocks consisting of BMDS Integrated GTs (GTI), BMDS Distributed GTs (GTD), and BMDS GTs Other (GTX).

FY08 Planned Program for budget project AX04:
- Plan and execute budget project AX04 BMDS GTs.
- Continue to execute the GT-3 campaign.
- Integrate element representation and the test support team for system GT.
- Support Warfighter's requirements during GT-3 campaign.
- Conduct fully integrated GT campaign (GT-3) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program for budget project AX04:
- Plan and execute budget project AX04 BMDS GTs.
- Execute the GT-9 campaign.
- Continue to integrate element representation and the test support team for system GT
- Support Warfighter's requirements during GT-9 campaign.
- Conduct fully integrated GT campaign (GT-9) with all MDA Elements represented via HWIL.

Project: AX04 Test & Evaluation Block 1.0   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 1.0)	0	11,670	5,228
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Note: FY08 funding includes Radar Data Exploitation efforts. Starting in FY09, Radar Data Exploitation content and related funding is included within a new budget project named WX02 Hercules Capability Development within the Program Element 0603897C.

Functional Products and Processes:
- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.

- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters. Develop Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.
- Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY08 Planned Program for budget project AX04:
- Provide TA&R product development and delivery for budget project AX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-2A (PE 0603888C)

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project AX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project AX04.
- Continue the Radar Exploitation (RDE) efforts to support BMDS data collection objectives, conduct mission planning, perform data analysis on BMDS tests conducted during FY08, explore phenomenology to improve future BMD systems and new mission areas, and provide characterization and assessment for Measurements and BMDS flight test programs.

FY09 Planned Program for budget project AX04:
- Provide TA&R product development and delivery for budget project AX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project AX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project AX04.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620

Project: AX04 Test & Evaluation Block 1.0 | MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification								Date **February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**					R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**				

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and capability development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance (SETA)), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Block 1.0)								
BMDS FT	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	9,899	1Q	10,881	1Q	20,780
Test Operations BMDS Ground Tests (Block 1.0)								
BMDS GT	Various	MDOIC/Colorado Springs, CO	0	18,513	1Q	11,827	1Q	30,340

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-3 (PE 0603888C)

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					Date			
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**					R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Analysis and Reporting (Block 1.0)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	11,670	1Q	5,228	1Q	16,898
Subtotal Test and Evaluation			0	40,082		27,936		68018

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	40,082		27,936		68,018

Remarks

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

System Flight Tests

FTG-04, FTG-05, FTG-06, FTS-01, FTS-02, FTG-07

System Ground Tests

GTX-03a, GTI-03, GTD-03, GTX-09b, GTI-09, GTD-09

Legend

Significant Event (complete)	Significant Event (planned)
Milestone Decision (complete)	Milestone Decision (planned)
Element Test (complete)	Element Test (planned)
System Level Test (complete)	System Level Test (planned)
Complete Activity	Planned Activity

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Legend

	Significant Event (complete)		Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-4 (PE 0603888C)

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		Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTG-04		2Q					
FTG-05		4Q					
FTG-06			2Q				
FTS-01			2Q				
FTS-02			3Q				
FTG-07			4Q				
System Ground Tests							
GTD-02		1Q					
GTX-03a		2Q					
GTI-03		3Q					
GTD-03		4Q					
GTX-09b			2Q				
GTI-09			3Q				
GTD-09			4Q				

Project: AX04 Test & Evaluation Block 1.0

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BX04 Test & Evaluation Block 2.0	0	35,227	28,333	3,968	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:

1. Funding for content in budget project BX04 (FY08 thru FY13) was previously included (where applicable) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Block 2.0 fielding and development efforts are directed toward defending U.S. allies from and deployed forces from short-to-medium range threats in one region/theater. The Combined Test Force (CTF) supports the developmental and integration efforts thru test and assessment of ESGs attributed to Block 2.0.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing: The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS), 2) to collect data to demonstrate and assess the block capability, 3) to identify areas where technology can increase overall system performance, 4) to identify BMD System Issues, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG test environments, testing methodologies [i.e., M&S, Flight Test (FT), ground tests (GT)], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

T&E Block 2.0 Funding:
Funding levels identified in this task support all BMDS FT and GTs in support of Block 2.0 efforts to defend U.S. allies and deployed forces from short-to-medium range threats in one region/theater. Funding provides manpower, range and logistics support to perform system FT and GT

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs.

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include the Integrated Measurements Program which is a combination of previous Lethality and Kill Assessment programs and seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead.

System GTs:

A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware-in-the-loop (HWIL) tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT campaigns will encompass multiple blocks consisting of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.
- BMDS Distributed GTs (GTD) are typically test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.
- BMDS Focused GTs Other (GTX) are short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

Project: BX04 Test & Evaluation Block 2.0

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2.0)	0	13,143	12,916
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT.

FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY08 Planned Program for budget project BX04:
- Complete detailed test planning and execute FY08 major BMDS system level test events for budget project BX04.
- Support BMDS elements in planning and execution of their budget project BX04 program specific FTs.
- Conduct early planning for FY09 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program for budget project BX04:
- Complete detailed test planning and execute FY09 major BMDS system level test events for budget project BX04.
- Support BMDS elements in planning and execution of their budget project BX04 program specific FTs.
- Conduct early planning for FY10 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2.0)	0	10,214	9,199
RDT&E Articles (Quantity)	0	0	0

GT, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GT program brings together a variety of controllable and flexible testing venues to include high fidelity HWIL tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GTs campaigns will encompass multiple blocks consist of BMDS Integrated GTs (GTI), BMDS Distributed GTs (GTD), and BMDS GTs Other (GTX).

FY08 Planned Program:
- Plan and execute budget project BX04 BMDS GTs.
- Continue to execute the GT-3 campaign.
- Integrate element representation and the test support team for system GTs.
- Support Warfighter's requirements during GT-3 campaign.
- Conduct fully integrated GT campaign (GT-3) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program:
- Plan and execute budget project BX04 BMDS GTs.
- Execute the GT-9 campaign.
- Integrate element representation and the test support team for system GTs.

Project: BX04 Test & Evaluation Block 2.0   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Support Warfighter's requirements during GT-9 campaign.
- Conduct fully integrated GT campaign (GT-9) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2.0)	0	11,870	6,218
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs GTs, and TOOs. Maintain and execute all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:
- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.

- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters. Develop Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.
- Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY08 Planned Program:
- Provide TA&R product development and delivery for budget project BX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.

Project: BX04 Test & Evaluation Block 2.0

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project BX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project BX04.

FY09 Planned Program:
- Provided TA&R product development and delivery for budget project BX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project BX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project BX04.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559

Project: BX04 Test & Evaluation Block 2.0

MDA Exhibit R-2A (PE 0603888C)

								Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification								**February 2008**

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE				
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603888C Ballistic Missile Defense Test and Targets**				

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capability Development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

Project: BX04 Test & Evaluation Block 2.0

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<tr><td colspan="6">APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)</td><td colspan="4">R-1 NOMENCLATURE
0603888C Ballistic Missile Defense Test and Targets</td></tr>
</table>

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Block 2.0)								
BMDS FT	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	13,143	1Q	12,916	1Q	26,059
Test Operations BMDS Ground Tests (Block 2.0)								
BMDS GT	Various	MDOIC/ Colorado Springs, CO	0	10,214	1Q	9,199	1Q	19,413

Project: BX04 Test & Evaluation Block 2.0

MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Analysis and Reporting (Block 2.0)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	11,870	1Q	6,218	1Q	18,088
Subtotal Test and Evaluation			0	35,227		28,333		63560

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	35,227		28,333		63,560

Remarks

Project: BX04 Test & Evaluation Block 2.0   MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTM-13					◆																							
FTT-08					◆																							
FTB-01							▽																					
FTT-09							◇																					
FTT-10								▽																				
FTM-14										▽																		
FTX-04										▽																		
FTT-11											◇																	
FTM-15												▽																
FTT-12												◇																
FTT-13														◇														
FTT-14															▽													
System Ground Tests																												

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲▬▲	Complete Activity		△▬△	Planned Activity

Project: BX04 Test & Evaluation Block 2.0

MDA Exhibit R-4 (PE 0603888C)

0602

		Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTX-03a						▽																						
GTI-03							▽																					
GTD-03/GTG-03b.2								▽																				
GTX-09a									▽																			
GTI-09										▽																		
GTD-09											▽																	

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: BX04 Test & Evaluation Block 2.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date February 2008

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTM-13		1Q					
FTT-08		1Q					
FTB-01		3Q					
FTT-09		3Q					
FTT-10		4Q					
FTM-14			2Q				
FTX-04			2Q				
FTT-11			3Q				
FTM-15			4Q				
FTT-12			4Q				
FTT-13				2Q			
FTT-14				3Q			
System Ground Tests							
GTX-03a		2Q					
GTI-03		3Q					
GTD-03/GTG-03b.2		4Q					
GTX-09a			1Q				
GTI-09			3Q				
GTD-09			4Q				

Project: BX04 Test & Evaluation Block 2.0

MDA Exhibit R-4A (PE 0603888C)

0604

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CX04 Test & Evaluation Block 3.0	0	14,211	38,802	53,938	45,048	46,979	49,068
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:

1. Funding for content in budget project CX04 (FY08 thru FY13) was previously included (where applicable) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Block 3.0 fielding and development efforts are directed toward expanding defense of the U.S. to include limited Iranian long-range threats. The Combined Test Force (CTF) supports the developmental and integration efforts thru test and assessment of ESGs attributed to Block 3.0.

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS), 2) to collect data to demonstrate and assess the block capability, 3) to identify areas where technology can increase overall system performance, 4) to identify BMD System issues, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG, test environments, testing methodologies [i.e., M&S, Flight Test (FT), ground test (GT)], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

T&E Block 3.0 Funding:
Funding levels identified in this task support all BMDS FT and GTs in support of Block 3.0 efforts directed toward expanding defense of the U.S. to include limited Iranian long-range threats. Funding provides manpower, range and logistics support to perform system FT and GT planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs.

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include the Integrated Measurements Program which is a combination of previous Lethality and Kill Assessment programs and seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead.

System GTs:

A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware-in-the-loop (HWIL) tests and nondestructive tests performed in a controlled repeatable environment. BMDS GT campaigns will encompass multiple blocks consisting of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.

- BMDS Distributed GTs (GTD) are test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.

- BMDS Focused GTs Other (GTX) are typically short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 3.0)	0	2,100	12,157
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY08 Planned Program:
- Complete detailed test planning and execute FY08 major BMDS system level test events for budget project CX04.
- Support BMDS elements in planning and execution of their budget project CX04 program specific FTs.
- Conduct early planning for FY09 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS system tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program:
- Complete detailed test planning and execute FY09 major BMDS system level test events for budget project CX04.
- Support BMDS elements in planning and execution of their budget project CX04 program specific FTs.
- Conduct early planning for FY10 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS system tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 3.0)	0	10,214	20,821
RDT&E Articles (Quantity)	0	0	0

GT, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GT program brings together a variety of controllable and flexible testing venues to include high fidelity HWIL tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT campaigns will encompass multiple blocks consisting of BMDS Integrated GTs (GTI), BMDS Distributed GTs (GTD), and BMDS GTs Other (GTX).

FY08 Planned Program:
- Plan and execute budget project CX04 BMDS GTs.
- Continue to execute the GT-3 campaign.
- Integrate element representation and the test support team for system GT.
- Support Warfighter's requirements during GT-3 campaign.
- Conduct fully integrated GT campaign (GT-3) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program:
- Plan and execute budget project CX04 BMDS GTs.
- Execute the GT-9 campaign.
- Integrate element representation and the test support team for system GTs.
- Support Warfighter's requirements during GT-9 campaign.
- Conduct fully integrated GT campaign (GT-9) with all MDA Elements represented via HWIL.

Project: CX04 Test & Evaluation Block 3.0   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 3.0)	0	1,897	5,824
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs, and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:

- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and MD test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.

- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters. Develop Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:

- Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.
- Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY08 Planned Program:

- Provided TA&R product development and delivery for budget project CX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project CX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project CX04.

Project: CX04 Test & Evaluation Block 3.0   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

FY09 Planned Program:
- Provided TA&R product development and delivery for budget project CX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project CX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project CX04.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060

Project: CX04 Test & Evaluation Block 3.0   MDA Exhibit R-2A (PE 0603888C)

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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
								Date **February 2008**

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification

APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)

R-1 NOMENCLATURE
0603888C Ballistic Missile Defense Test and Targets

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capability Development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Block 3.0)								
BMDS FT	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	2,100	1Q	12,157	1Q	14,257
Test Operations BMDS Ground Tests (Block 3.0)								
BMDS GT	Various	MDOIC/Colorado Springs, CO	0	10,214	1Q	20,821	1Q	31,035

Project: CX04 Test & Evaluation Block 3.0   MDA Exhibit R-3 (PE 0603888C)

0613

					Date	
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**	

APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)

R-1 NOMENCLATURE
0603888C Ballistic Missile Defense Test and Targets

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Analysis and Reporting (Block 3.0)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	1,897	1Q	5,824	1Q	7,721
Subtotal Test and Evaluation			0	14,211		38,802		53013

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	14,211		38,802		53,013

Remarks

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTX-05												▽																
FTG-08														▽														
FTX-06/FTS-03															▽													
FTG-11																			▽									
FTG-12																						▽						
FTG-13																								▽				
FTX-08																								▽				
FTG-14																										▽		
FTG-15																												▽
System Ground Tests																												
GTI-03							▽																					
GTD-03								▽																				
GTX-09b									▽																			

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTI-09											▽																	
GTD-09												▽																
GTX-10a													▽															
GTI-10															▽													
GTD-10																▽												
GTX-11a																		▽										
GTI-11																				▽								
GTD-11																					▽							
GTX-12a																							▽					
GTI-12																									▽			
GTD-12																										▽		
GTX-13a																											▽	
GTI-13																												▽

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲——▲	Complete Activity	△——△	Planned Activity

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTD-13																												▽

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲━▲	Complete Activity		△━△	Planned Activity

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTX-05			4Q				
FTG-08				2Q			
FTX-06/FTS-03				3Q			
FTG-11					3Q		
FTG-12						2Q	
FTG-13						4Q	
FTX-08						4Q	
FTG-14							2Q
FTG-15							4Q
System Ground Tests							
GTI-03		3Q					
GTD-03		4Q					
GTX-09b			2Q				
GTI-09			3Q				
GTD-09			4Q				
GTX-10a				1Q			
GTI-10				3Q			
GTD-10				4Q			
GTX-11a					1Q		
GTI-11					3Q		
GTD-11					4Q		
GTX-12a						1Q	
GTI-12						3Q	
GTD-12						4Q	
GTX-13a							1Q
GTI-13							3Q
GTD-13							4Q

Project: CX04 Test & Evaluation Block 3.0

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
DX04 Test & Evaluation Block 4.0	0	0	0	6,518	24,854	28,061	32,748
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:
1. Funding for content in budget project AX04 (FY08 thru FY13) was previously included (where applicable) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Block 4.0 3rd Site Testing efforts are directed toward defending U.S allies and deployed forces in Europe against limited Iranian long-range missile threats while simultaneously expanding protection of the U.S homeland. The Combined Test Facility (CTF) supports the developmental and integration efforts thru test and assessment of ESGs attributed to Block 4.0.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing: The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS), 2) to collect data to demonstrate and assess the block capability, 3) to identify areas where technology can increase overall system performance, 4) to identify BMD System issues, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG test environments, testing methodologies [i.e., M&S, Flight Test (FT), ground test (GT)], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

The European Component (EC) of the BMDS is comprised of a third interceptor site, a European Midcourse Radar (EMR), and a European Forward-based Radar (EFBR). The European Interceptor Site will be comprised of a two-stage variant of the Ground-based Interceptor fielded in Alaska and California. The EMR will be the Ground-based Radar-Prototype unit from the Reagan Test Site (RTS) re-located to the European host site. The EFBR will be a forward-deployed AN/TPY-2 (FBM) unit. BMDS testing of the EC will involve vigorous ground testing of the European elements

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

combining the focused exercise of the elements as well as integrated exercise of the EC capability. Funding in this block supports EC testing as well as the development of the OVB-2 Booster as related to the EC site.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Funding Begin in FY 2010	0	0	0
RDT&E Articles (Quantity)	0	0	0

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527

Project: DX04 Test & Evaluation Block 4.0   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**				

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the Missile MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of blocks and capability development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, Federally Funded Research and Development Centers (FFRDC), and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

Project: DX04 Test & Evaluation Block 4.0   MDA Exhibit R-2A (PE 0603888C)

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost								

Remarks

Project: DX04 Test & Evaluation Block 4.0

MDA Exhibit R-3 (PE 0603888C)

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTG-09																▽												
FTG-10																		▽										
FTX-07																				▽								
System Ground Tests																												
GTX-11a																	▽											
GTI-11																			▽									
GTD-11																				▽								
GTX-12a																					▽							
GTI-12																							▽					
GTD-12																								▽				
GTX-13a																									▽			
GTI-13																											▽	
GTD-13																												▽

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: DX04 Test & Evaluation Block 4.0

MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
FTG-09				4Q			
FTG-10					2Q		
FTX-07					4Q		
System Ground Tests							
GTX-11a					1Q		
GTI-11					3Q		
GTD-11					4Q		
GTX-12a						1Q	
GTI-12						3Q	
GTD-12						4Q	
GTX-13a							1Q
GTI-13							3Q
GTD-13							4Q

Project: DX04 Test & Evaluation Block 4.0

MDA Exhibit R-4A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
EX04 Test & Evaluation Block 5.0	0	9,576	17,712	31,526	41,189	45,267	40,901
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:

1. Funding for content in budget project EX04 (FY08 thru FY13) was previously included (where applicable) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Block 5.0 fielding and development efforts are directed toward expanding defense of allies and deployed forces from short-to-intermediate range threats in two regions/theaters. The Combined Test Facility (CTF) supports the developmental and integration efforts thru test and assessment of ESGs attributed to Block 5.0.

A. Mission Description and Budget Item Justification

Test & Evaluation (T&E) Block Testing: The MDA T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS), 2) to collect data to demonstrate and assess the block capability, 3) to identify areas where technology can increase overall system performance, 4) to identify BMD System issues, 5) to provide anchoring and validation data for modeling and simulations (M&S) tools, and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG test environments, testing methodologies [i.e., M&S, Flight Test (FT), ground test (GT)], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

T&E Block 5.0 Funding:
Funding levels identified in this task support all BMDS FT and GTs in support of Block 5.0 efforts directed toward expanding defense of allies and deployed forces from short-to-intermediate range threats in two regions/theaters. Funding provides manpower, range and logistics support to perform

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

system FT and GT planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs.

System FTs:

System FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS FT events also include the Integrated Measurements Program which is a combination of previous Lethality and Kill Assessment programs and seeks to characterize the effectiveness of BMDS engagements and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead.

System GTs:

A vigorous System GT program brings together a variety of controllable and flexible testing venues to include high fidelity hardware-in-the-loop (HWIL) tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT campaigns will encompass multiple blocks consisting of the following:

- BMDS Integrated GTs (GTI) are test event integration exercises that use a test environment to determine the impact of specific threats on a wide variety of proposed engagement scenarios and to provide data for multiple ESGs and multiple threats across a range of environmental conditions. Within the performance and threat space envelope, GTIs provide a wider range of data than can be obtained from flight testing for integration, characterization, verification, and assessment. In addition, data from the GTIs support FT risk reduction and benchmarking of existing M&S that provide insight for improvements of the models used for end-to-end system level performance assessment.
- BMDS Distributed GTs (GTD) are test events that typically follow a GTI where they combine the fielded hardware and software of BMDS Elements to exercise the BMDS communication networks and communication links. During GTDs, actual element sensors are stimulated where possible to obtain data to evaluate both the element and system test objectives. Since GTDs can closely represent the actual BMDS, it is possible that following a GTD and corresponding quick look report some ESGs will become candidates for early delivery to the warfighter.
- BMDS Focused GTs Other (GTX) are typically short duration integration exercises that focus on specific ESGs or functionality. A GTX can test a subset of the BMDS configuration, focusing on specific ESGs with only the required elements participating in the test. Typically, one or more GTXs will precede a GTI as risk reduction test for the GTI. Additionally, a GTX can be used to test a new capability that was not available during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to schedule adjustments and unplanned test requirement needs.

Project: EX04 Test & Evaluation Block 5.0

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 5.0)	0	0	2,966
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY09 Planned Program:
- Complete detailed test planning and execute FY09 major BMDS system level test events for budget project EX04.
- Support BMDS elements in planning and execution of their budget project EX04 program specific FTs.
- Conduct early planning for FY10 major BMDS system level test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS system tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

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		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 5.0)	0	9,576	13,345
RDT&E Articles (Quantity)	0	0	0

GT, using M&S that have been validated using anchoring data from FTs, is the primary method for verifying and validating functional block capability. GTs are conducted to collect data for BMDS characterization and assessment, component and element integration, and exploration of scenarios where flight testing is either impractical or impossible. GT allows examination of mature designs and identification and efficient correction of performance anomalies based on the capability to test all ESGs using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A robust GT program brings together a variety of controllable and flexible testing venues to include high fidelity HWIL tests and nondestructive tests performed in a controlled, repeatable environment. BMDS GT campaigns wil encompass multiple blocks consisting of BMDS Integrated GTs (GTI), BMDS Distributed GTs (GTD), and BMDS GTs Other (GTX).

FY08 Planned Program:
- Plan and execute budget project EX04 BMDS GTs.
- Continue to execute the GT-3 campaign.
- Integrate element representation and the test support team for system GT.
- Support Warfighter's requirements during GT-3 campaign.
- Conduct fully integrated GT campaign (GT-3) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

FY09 Planned Program:
- Plan and execute budget project EX04 BMDS GTs.
- Execute the GT-9 campaign.
- Integrate element representation and the test support team for system GTs.
- Support Warfighter's requirements during GT-9 campaign.
- Conduct fully integrated GT campaign (GT-9) with all MDA Elements represented via HWIL.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

Project: EX04 Test & Evaluation Block 5.0   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 5.0)	0	0	1,401
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTP specified system FTs, GTs, and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:

- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.
- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.
- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters. Develop

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:

- Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.
- Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY09 Planned Program:

- Provided TA&R product development and delivery for budget project EX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize of TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project EX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project EX04.

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-2A (PE 0603888C)

		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: EX04 Test & Evaluation Block 5.0   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capabilty Development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Block 5.0)								
BMDS FT	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	0	N/A	2,966	1Q	2,966
Test Operations BMDS Ground Tests (Block 5.0)								
BMDS GT	Various	MDOIC/Colorado Springs, CO	0	9,576	1Q	13,345	1Q	22,921

Project: EX04 Test & Evaluation Block 5.0   MDA Exhibit R-3 (PE 0603888C)

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			Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis			

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Analysis and Reporting (Block 5.0)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	0	N/A	1,401	1Q	1,401
Subtotal Test and Evaluation			0	9,576		17,712		27288

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	9,576		17,712		27,288

Remarks

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
PAC/Caravan-2										▽																		
FTM-15												▽																
FTM-16																▽												
FTT-15 (pending to be combined with another test)																		▽										
FTM-17																			▽									
FTT-16 (pending to be combined with another test)																						▽						
FTM-18																							▽					
FTT-17 (pending to be combined with another test)																										▽		
FTM-19																											▽	
FTX-09																												▽
System Ground Tests																												
GTX-03a					▽																							
GTI-03							▽																					

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲▁▲	Complete Activity		△▁△	Planned Activity

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTD-03								▽																				
GTX-09a									▽																			
GTX-09b										▽																		
GTI-09											▽																	
GTX-10b														▽														
GTI-10															▽													
GTD-10																▽												
GTX-11b																		▽										
GTI-11																			▽									
GTD-11																				▽								
GTX-12b																						▽						
GTI-12																							▽					
GTD-12																								▽				

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲——▲	Complete Activity		△——△	Planned Activity

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Ground Tests																												
GTX-13b																										▽		
GTI-13																											▽	
GTD-13																												▽

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
PAC/Caravan-2			3Q				
FTM-15			4Q				
FTM-16				4Q			
FTT-15 (pending to be combined with another test)					2Q		
FTM-17					3Q		
FTT-16 (pending to be combined with another test)						2Q	
FTM-18						3Q	
FTT-17 (pending to be combined with another test)							2Q
FTM-19							3Q
FTX-09							4Q
System Ground Tests							
GTX-03a		2Q					
GTI-03		3Q					
GTD-03		4Q					
GTX-09a			1Q				
GTX-09b			2Q				
GTI-09			3Q				
GTX-10b				2Q			
GTI-10				3Q			
GTD-10				4Q			
GTX-11b					2Q		
GTI-11					3Q		
GTD-11					4Q		
GTX-12b						2Q	
GTI-12						3Q	
GTD-12						4Q	
GTX-13b							2Q
GTI-13							3Q
GTD-13							4Q

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-4A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
WX04 Test & Evaluation Capability Development	0	5,329	15,522	42,143	40,276	45,364	46,579
RDT&E Articles Qty	0	0	0	0	0	0	0

Note:

1. Funding for content in budget project WX04 (FY08 thru FY13) was previously included (where appropriate) in FY07 within budget projects 0804, 0904, 0004, R104, and R204.

2. Budget project WX04 funds Capability Development efforts which is a category designated in the new Block Construct that addresses technologies, functionalities and capabilities not mature enough for fielding under the Block Construct, are experimental in nature or do not support one of the five blocks. The Combined Test force (CTF) supports the developmental and integration efforts through test and assessment of Engagement Sequence Groups (ESGs) attributed to budget project WX04.

A. Mission Description and Budget Item Justification
Test & Evaluation (T&E) Capability Development Testing:

The Missile Defense Agency (MDA) T&E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS); 2) to collect data to demonstrate and assess the block capability; 3) to identify areas where technology can increase overall system performance; 4) to identify BMDS issues; 5) to provide anchoring and validation data for modeling and simulation (M&S) tools; and 6) to support early, partial, and full capability readiness decisions.

The BMDS developmental and operational test program encompasses all T&E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&E program describes test methods and approaches that the CTF uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&E program provides test data to support assessments used to document and determine BMDS effectiveness. The BMDS testing approach addresses the system wide test objective development process, ESG test environments, testing methodologies [i.e., M&S, Flight Testing (FT), GT], and identifies the test resources (e.g., Test Bed, M&S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, will contribute to verification of the BMDS capability.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

T&E Capability Development Funding:

Funding levels identified in this task support all BMDS FT in support of Capability Development efforts. Capability development efforts addresses technologies, funtionalities and capabilities not mature enough for fielding under the Block Construct, are experimental in nature or do not support one of the five blocks. Funding provides manpower, range and logistics support to perform system FT planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element FTs where appropriate and non-element specific testing. Funding levels also support BMDS Flight Test Targets of Opportunity and experimental flight tests to support Capability Development.

System FTs:

System FTs in Capability Development related to such programs as STSS, ABL, Arrow, KEI, etc.. examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). In addition, BMDS Flight Tests related to Capability Devlopment also include but are not limited too:

- Targets of Opportunity (TOO)s: Events (e.g., Minuteman FT, Air Force Space Command operations, or approved foreign launches) that afford the opportunity to exercise some portion of BMDS, to conduct on-board and off-board experiments, and to gather phenomenology data on representative objects and events. These events can be categorized as domestic, foreign co-operative, or non-cooperative tests. TOOs support developmental risk reduction for BMDS FTs through early identification of test integration issues. Specifically, TOOs provide a cost-effective means of exercising and collecting data on component interfaces in a real-time environment; communication links and connectivity, real-time element loading, timing, cueing, tracking capabilities, algorithm development, and test checklists for the Integrated Test Team.
- Critical Measurements and Counter Measures (CMCM) FTs: Events that provide a venue for risk reduction for BMDS block testing, addressing phenomenology (understanding the physics of what was observed during a test event and its effects on BMDS sensors), countermeasures and counter-countermeasures requirements, providing critical measurements to support development and validation of algorithms, M&S, discrimination, and new technology demonstrations. CMCM FTs augment various MDA and elements test programs and ensure a coherent, complete, cost effective, and disciplined approach to collecting data/measurements to support characterization of the BMDS mission space (i.e., provide an understanding of how the BMDS visible, infrared and radar sensors perform when observing ballistic missile targets and countermeasures during flight). These tests are planned beginning in FY10.
- The Integrated Measurements Program is a combination of previous Lethality and Kill Assessment programs and seeks to characterize the effectiveness of BMDS engagements (i.e., determining the fate of threat targets post-engagement) and assure 10 USC 2366 requirements for BMDS lethality Live Fire Test and Evaluation are achieved, and investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory GTs and FTs tests are defined and executed in response to the MDA system engineer's requirement for data on the

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

resultant space, atmospheric debris and ground affects of engaging high explosive and weapon of mass destruction payloads. FTs data requirements are achieved by leveraging planned BMDS intercept or Measurements Program test events with alternative targets, supplemental payloads and ancillary sensor coverage. The CTF integrates lethality testing across MDA and coordinates with related programs (e.g. PAC-3) to establish an efficient, requirements-driven approach to BMDS lethality characterization.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Capability Development)	0	2,800	10,466
RDT&E Articles (Quantity)	0	0	0

FTs examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex ESGs. These projects also provide analysis of each system test event through the JAT. BMDS Capability Development FTs also include TOOs, CMCM FTs, and the CTF Integrated Measurements Program.

FTs are planned and executed to provide anchoring data for M&S tools, to collect test data to further characterize the BMDS, and to demonstrate BMDS operational capability in whole or in part. Even though FTs are conducted in realistic operational environments and are critical to achieving system verification requirements, they only examine a single scenario/vignette and parts of ESGs and do have environmental and safety constraints.

FY08 Planned Program:
- Complete detailed test plans and execute FY08 major BMDS System Level Capability Development Flight Test events for Budget Project WX04.
- Support BMDS elements in planning and execution of their budget project WX04 program specific FTs.
- Conduct early planning for FY09 major BMDS System Level Capability Development test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS Integrated Master Test Plan (IMTP).
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

FY09 Planned Program:

- Complete detailed test plans and execute FY09 major BMDS System Level Capability Development Flight Test events for Budget Project WX04.
- Support BMDS elements in planning and execution of their budget project WX04 program specific FTs.
- Conduct early planning for FY10 major BMDS System Level Capability Development test events.
- Coordinate integration of multiple elements, OTA and Warfighter into BMDS tests.
- Refine scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.
- Conduct planning for CMCM test.
- Support target launch services and development specifically related to Capability Development tests and experiments.
- Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&S.

	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Capability Development)	0	2,529	5,056
RDT&E Articles (Quantity)	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all BMDS TA&R products for IMTB specified system FTs, GTs and TOOs. Maintains and executes all critical path TA&R functions, tools, processes, and infrastructures supporting development and delivery of TA&R products within a single, integrated, standardized reporting process.

Functional Products and Processes:

- JATs - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system analysis and reporting activities. Develop, deliver, and brief all TA&R products to senior leadership: Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Final Test Report.
- Data Management - Develop and publish Integrated Data Management Plans (IDMP), coordinating and documenting all component and system data products and requests. Develop Data Handling Plans and provide event specific data distribution reports, synchronized with Missile Defense Data Center, to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System to ensure availability of critical data supporting TA&R conduct.

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Data Collection - Enables collaboration and leveraging of element and system level data collection assets to create efficiencies in availability and distribution of IDMP products addressing system analysis requirements.
- Data Processing - Process all raw data files and test configurations into integrated TA&R databases to support truth and system analysis and reporting activities. Deliver databases (Integrated System Configuration Database, Truth Data Package (TDP), and Integrated Analysis Data Package) to OTA, BMDS Capability Assessment, C2BMC, and element primes IAW IDMP.
- Truth Data - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and TDP creation are captured in the IDMP, OR, and test resource documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for mission architecture development. Develop pre-mission prediction packages (metric, optical, and radar) and deliver to truth sensors in support of their pre-mission test support planning. Develop and deliver post-mission TDP to data requestors as captured in the IDMP as an integrated truth source to anchor post-mission analysis activities. Plan, schedule, and execute post mission truth summits to coordinate auxiliary sensor inputs to post-mission executive briefs and data reviews. Conduct post-mission truth sensor data quality assessments to determine the quality and quantity of data sources with respect to truth analysis requirements, and capture lessons learned for future truth data collection and analysis activities.
- Analysis - Develop analysis data requirements documents to ensure IDMP contains all products required to support analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives, ESG, Characterization Points and System Performance Parameters. Develop Analysis Execution Plans to document analysis process, timelines, and areas of responsibility. Develop analysis processes to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure execution for use in test analysis. Develop and deliver all post test analysis reports (Final Test Report, BMDS Characterization Brief/Report). Develop and deliver analysis content in support of the QLB, EQLB, MDR, and EMDR. Develop and submit system level Test Incident Reports found during TA&R process.

Distributed Analysis Tools and Infrastructures:
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the TA&R process of the evolving BMDS test program and associated data products. Tools include: Data Management System for data management, Checklist for Online Observation and Reporting for test analysis observations, All Sensors Truth Evaluation and Reporting for truth analysis, Modular Analysis and Reporting Suite for system analysis and PHOENIX for common tool framework.
- Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures, to include the Joint Data Analysis Center (JDAC), supporting timely data distribution, processing, and analysis across a distributed TA&R community; [i.e., JDAC, Missile Defense Integration and Operations Center (MDIOC), test ranges, (Federally Funded Research and Development Centers (FFRDCs), etc.]. Develop and maintain System Security Authorization Agreements for all test TA&R tools and nodes to ensure risk mitigation IAW latest

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

BMDS information assurance guidance and continued authority to operate in support of on ongoing TA&R operations. Maintain hardware and software configuration management of all TA&R tools and systems.

FY08 Planned Program:
- Provide TA&R product development and delivery for budget project WX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project WX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project WX04.

FY09 Planned Program:
- Provide TA&R product development and delivery for budget project WX04 test events.
- Develop and facilitate requirements and implementation of virtual TA&R nodes enabling distributed, collaborative analysis across all block nodes.
- Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.
- Standardize TA&R tools and processes.
- Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above for test events in budget project WX04.
- Develop, integrate, test, train, deploy, and operate spiral releases of software tools as identified above for test events in budget project WX04.

Project: WX04 Test & Evaluation Capability Development

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: WX04 Test & Evaluation Capability Development

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

The Responsible Test Organization (RTO) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capability Development. The RTO directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

Project: WX04 Test & Evaluation Capability Development

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Flight Tests (Capability Development)								
BMDS FT	Various	USASMDC, WSMR, MITLL, MDOIC/ VAFB/AL, NM, MA, HI & CA	0	2,800	1Q	10,466	1Q	13,266
Test Analysis and Reporting (Capability Development)								
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	2,529	1Q	5,056	1Q	7,585
Subtotal Test and Evaluation			0	5,329		15,522		20851

Project: WX04 Test & Evaluation Capability Development

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	5,329		15,522		20,851

Remarks

Project: WX04 Test & Evaluation Capability Development

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
JFTM-01					◆																							
NFIRE-2b						△—△																						
AST-13							▽																					
ATM-48								▽																				
PAC3 7-2								◇																				
JFTM-02									◇																			
FTS-01										▽																		
PAC3 7-3										◇																		
FTK-01											◇																	
FTS-02											▽																	
FTL-01												◇																
PATRIOT 16-2												◇																
JFTM-03													▽															

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: WX04 Test & Evaluation Capability Development

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
DS-01														△														
FTL-02														▽														
FTP-01														▽														
FTL-03															▽													
FTX-06/FTS-03															▽													
DS-02																△												
FTK-02																	◇											
FTL-04																	▽											
JFTM-04																	▽											
FTL-05																		▽										
FTP-02																		▽										
FTS-04																		▽										
DS-03																			△									

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲—▲	Complete Activity		△—△	Planned Activity

Project: WX04 Test & Evaluation Capability Development

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Flight Tests																												
FTK-03																					◇							
FTP-03																						▽						
FTL-06																							▽					
FTL-07																								▽				
FTK-04																									◇			
FTP-04																									▽			
FTL-08																											▽	
FTL-09																												▽
Measurement Tests																												
FTC-05															△													
FTC-06																			△									
FTC-07																						△						
FTC-08																										△		

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	△—△	Planned Activity

Project: WX04 Test & Evaluation Capability Development

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Glory Trips (USAF Operational)/Potential BMDS Tests																												
GT-196						△																						
GT-197							△																					
GT-198								△																				
GT-199									△																			
GT-200										△																		
GT-201												△																
GT-202															△													
GT-203																△												
GT-204																	△											
GT-205																		△										
GT-206																				△								
GT-207																								△				
GT-208																											△	

Legend

▲	Significant Event (complete)		△	Significant Event (planned)
★	Milestone Decision (complete)		☆	Milestone Decision (planned)
◆	Element Test (complete)		◇	Element Test (planned)
▼	System Level Test (complete)		▽	System Level Test (planned)
▲▬▲	Complete Activity		△▬△	Planned Activity

Project: WX04 Test & Evaluation Capability Development

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Legend

▲	Significant Event (complete)	△	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: WX04 Test & Evaluation Capability Development

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests							
JFTM-01		1Q					
NFIRE-2b		2Q-4Q					
AST-13		3Q					
ATM-48		4Q					
PAC3 7-2		4Q					
JFTM-02			1Q				
FTS-01			2Q				
PAC3 7-3			2Q				
FTK-01			3Q				
FTS-02			3Q				
FTL-01			4Q				
PATRIOT 16-2			4Q				
JFTM-03				1Q			
DS-01				2Q			
FTL-02				2Q			
FTP-01				2Q			
FTL-03				3Q			
FTX-06/FTS-03				3Q			
DS-02				4Q			
FTK-02					1Q		
FTL-04					1Q		
JFTM-04					1Q		
FTL-05					2Q		
FTP-02					2Q		
FTS-04					2Q		
DS-03					3Q		
FTK-03						1Q	
FTP-03						2Q	
FTL-06						3Q	

Project: WX04 Test & Evaluation Capability Development

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTL-07						4Q	
FTK-04							2Q
FTP-04							2Q
FTL-08							3Q
FTL-09							4Q
Measurement Tests							
FTC-05				3Q			
FTC-06					2Q		
FTC-07						2Q	
FTC-08							2Q
Glory Trips (USAF Operational)/Potential BMDS Tests							
GT-196		2Q					
GT-197		3Q					
GT-198		4Q					
GT-199			1Q				
GT-200			3Q				
GT-201			4Q				
GT-202				3Q			
GT-203				4Q			
GT-204					1Q		
GT-205					2Q		
GT-206					4Q		
GT-207						4Q	
GT-208							3Q

Project: WX04 Test & Evaluation Capability Development

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
XX04 Concurrent, Test, Training & Ops (CTTO)	0	41,359	37,701	35,722	32,969	8,946	9,047
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Funding for content in budget project XX04 (FY08 thru FY13) was previously included in FY07 within budget projects 0817, 0917, 0017, and R117.

A. Mission Description and Budget Item Justification

The purpose of the BMDS Concurrent Test, Training, and Operations (CTTO) effort is to address the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance; training; and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO will enable continued BMDS incremental and spiral development and testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios while the system is in an operational state or "on alert." The functions of the CTTO are to:

- Increase confidence in the BMDS through rigorous concurrent test, training, and operations.
- Enable BMDS testing and training in the field without degrading protection capability.
- Sustain Unified Combatant Commanders BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition to defend the United States, its deployed forces, friends, and allies.
- Safely inject consistent high fidelity test and evaluation threat data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations.
- Aid in AEGIS Ballistic Missile Defense, Terminal High Altitude Air Defense, Ground-based Midcourse Defense, Sensors, and Fire Control standardization evaluation and certification for all BMDS personnel and ensures all crews are highly qualified to perform their mission-specific tasks by conducting exercises and wargames executed from actual equipment and networked configurations.

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-2A (PE 0603888C)
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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
DMETS	0	12,757	10,793
RDT&E Articles (Quantity)	0	0	0

DMETS will specifically address the high priority Unified Combatant Commanders requirement to conduct distributed, high fidelity, and end-to-end training for missile defense operations that incorporates missile warning activity in any or all of the BMDS elements. The system will allow for scalable testing of the BMDS over the operational architecture as well as allow operators to train where they fight using a parallel architecture either physically separated or logically separated from the operational one; training will be scalable as well; from individual BMD assets to regional BMDS capabilities to the full BMDS global community; safely separate training venues from real-world activities; and inject high-fidelity simulations to run realistic scenarios on operational equipment and networks.

FY08 Planned Program:
- Operate & Sustain DMETS training and exercise suites and associated hardware and software at 50 hours per week. Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.
- Expand the integrated training audience - coordinate and field system hardware/software at scheduled Unified Combatant Commanders locations. Complete AEGIS Phase 2 (pierside) connectivity to interface AEGIS at pierside for Pacific Fleet to include providing truth injection to Aegis to provide a common integrated truth picture. Integrate THAAD and PATRIOT training facilities. Install Global Engagement Manager server and associated computer network equipment at the MDIOC to provide training for USPACOM crews. Establish connectivity with BMDS Training and Education Center. Integrate National Guard units.
- Improve training availability - add the necessary equipment, i.e. servers, workstations to increase training availability for Unified Combatant Commanders. A DMETS integration Environment will be built with the capability of integrating DMETS scenarios and integration activities with Element trainers. A second DMETS Control Center will be built at the MDIOC to execute two concurrent training events. An additional GMD Fire Control (GFC) training capability will be interfaced with DMETS and DMETS GFC and Aegis White Cells will be built at the MDIOC DMETS Control Center. Automated training configuration will be implemented within the Run Time Infrastructure (RTI) to establish a secure training session.
- Improve training effectiveness - deploy system enhancements to include continued RTI development and a capability to replay training sessions to support assessments of human control interactions.
- Improve realism, to include cross-mission functionality - add more dynamic features to provide realistic training for the Unified Combatant Commanders. Improvement to the RTI will allow for dynamic changes to scenarios. Identify requirements for enhancements to Element stimulators and simulations and submit such requirements to their sponsors.

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-2A (PE 0603888C)
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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs. Procure and deliver a Commercial Off-The-Shelf (COTS)-based Network Management System (NMS) capability that provides continuous real-time network monitoring and automated alerting of network performance issues.
- Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS. Coordinate with C2BMC X-Lab personnel to propose feasibility demonstrations and experiments to be performed on the DMETS.

FY09 Planned Program:
- Operate & Sustain DMETS training and exercise suites and associated hardware and software at 80 hours per week. Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.
- Expand the integrated training audience - coordinate and field system hardware/software at scheduled Unified Combatant Commanders locations. Implement AEGIS Phase 3 capability to include integrating DMETS to Aegis ships at sea (underway). Provide truth injection to enable integrated training with Aegis Maritime BMD at pier side for Atlantic Fleet. Integrate radar sensors such as UEWR and SBX into the DMETS architecture. Establish an interface at the MDIOC to send tagged-as-training threat messages over the Integrated Broadcast Service to other systems at Unified Combatant Commander and Operations Centers sites for integrated training sessions.
- Improve training availability - adding the necessary equipment to increase training availability for the Unified Combatant Commanders. Provide a USPACOM enclave to allow stand alone training addressing their Area of Responsibility mission. Coordinate with GMD to identify the data and voice training networks and equipment, functions, and Concept of Operations for support of support GMD training with the third fire control node.
- Improve training effectiveness - enhance the performance of the system over a broad spectrum. Continue RTI development and C2BMC Spiral 8.2 will be added to one of the DMETS C2BMC servers.
- Improve realism, to include cross-mission functionality - identify requirements for enhancements to Element stimulators and simulations and submit such requirements to their sponsors.
- Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs. Leverage the MDA¿s Voice Over Internet Protocol (VOIP) system to plan and implement a VOIP system to support training coordination among DMETS participating locations.
- Improve the quality of integrated training - build an integrated training operator handbook and related training course materials for DMETS operators and warfighters to use the DMETS web-based training submission program and training control with the RTI.

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS. Coordinate with C2BMC X-Lab personnel to propose feasibility demonstrations and experiments to be performed on the DMETS. Conduct a pathfinding experiment in the area of Computer Network Defense.

	FY 2007	FY 2008	FY 2009
CTTO	0	28,602	26,908
RDT&E Articles (Quantity)	0	0	0

CTTO will specifically address the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance; training; and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO will concurrently maintain operational capability while conducting testing and training using current and upgraded systems on BMDS operational-site communications networks by stimulating with live-fly test targets, targets of opportunity, and high fidelity simulated scenarios. CTTO will allow for vertical and horizontal scalability of the BMDS over the operational architecture using a parallel architecture either physically separated or logically separated from the operational one. BMDS CTTO will safely separate test, evaluation, and training venues from real-world activities; and allow injection of high-fidelity simulations to run realistic scenarios on operational equipment and networks. CTTO will enable end-to-end testing of the BMDS and enable BMDS training that allows operators to exercise any or all BMDS elements, as needed.

FY08 Planned Program:
- Coordinate and integrate BMDS CTTO Element-level activities and capabilities.
- Finalize CTTO requirements and prepare a Concept Description, Design Document, and specification change notices for all impacted elements.
- Align Ground-based Midcourse Defense Simultaneous Training and Operations test infrastructure and investment strategy with the comparable products for the Command, Control, Battle Management, and Communications Parallel Staging Network.
- Standardize the BMDS CTTO System States and Modes. Standardize the BMDS CTTO Message Tagging and Routing. Certify the BMDS CTTO approach with Safety and Information Assurance.
- Prototype the Truth Interface Unit (TIU) for the AN/TPY-2 radar.

FY09 Planned Program:
- Conduct a phased implementation for Data Labeling.
- Prototype on-site stimulation for AN/TPY-2.

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	

- Demonstrate redundant Command and Control, Battle Management, and Communications Network Interface Processors to support rapid recall times.
- Prototype a dynamic asset control capability that will allow element components to be assigned to the operations, test, or training domains/networks.
- Prototype an improved truth network in order to facilitate test execution and transitioning to and from tests.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-2A (PE 0603888C)

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		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The CTTO systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes fielding capabilities that address particular threats. The design and development of the BMDS CTTO capability is a collaborative effort. The government is the task manager to integrate the technical effort and manage the contracting efforts. The government, using existing contract structures, established a CTTO Project Office, determine BMDS CTTO requirements and standardization, determine BMDS Core Protocol and Standards, upgrades, technology insertion points, and synchronize BMDS Element level activities, training exercises and events and capabilities. The long term acquisition strategy is to normalize CTTO requirements into existing contract structures. Led by a flag/general officer steering group, the CTTO Project Office task force will be comprised of government representative from the MDA Elements and Joint Functional Component Command for Integrated Missile Defense; defense industry partners; and Systems Engineering and Technical Assistance defense contractor(s). The intent is to develop a fully capable CTTO that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.

Project: XX04 Concurrent, Test, Training & Ops (CTTO)

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					Date	
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**	

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE		
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603888C Ballistic Missile Defense Test and Targets**		

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
DMETS								
Integrated Training Operation and Sustainment	C/CPAF	JJNIC/GM/BOEING/MNTB/ Colorado Springs, CO/Huntsville, AL/Arlington, VA	0	7,199	1/4Q	7,093	1/4Q	14,292
Expand Integration Training Audience	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	1,300	1/4Q	1,000	1/4Q	2,300
Improve Training Availability	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	1,958	2/3Q	1,400	2/3Q	3,358
Improve Training Effectiveness	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	2,000	2/3Q	1,000	2/3Q	3,000
Improve Training Quality	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	300	1/4Q	300	1/4Q	600
CTTO								
Integrated Training Operation and Sustainment	C/CPAF	JJNIC/GM/BOEING/MNTB/ Colorado Springs, CO/Arlington, VA/Huntsville, AL	0	7,901	1/4Q	7,790	1/4Q	15,691
Expanded Integration Training Audience	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	5,100	1/4Q	4,818	1/4Q	9,918
Improve Training Availability	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	3,300	2/3Q	3,100	2/3Q	6,400

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Improve Training Effectiveness	C/CPAF	MNTB/Arlington, VA	0	7,300	2/3Q	6,500	2/3Q	13,800
Improve Training Quality	C/CPAF	JNIC/MNTB/Colorado Springs, CO/Arlington, VA	0	1,301	1/4Q	1,200	1/4Q	2,501
Improve Operability and Reliability	C/CPAF	MNTB/Arlington, VA	0	2,500	1/4Q	2,400	1/4Q	4,900
Pathfinders	C/CPAF	GM/BOEING/Huntsville, AL	0	1,200	1/4Q	1,100	1/4Q	2,300
Subtotal Product Development			0	41,359		37,701		79060

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-3 (PE 0603888C)

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				Date			
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis				**February 2008**			

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	41,359		37,701		79,060

Remarks

Project: XX04 Concurrent, Test, Training & Ops (CTTO)

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CTTO

- Expand Integration Training Audience
- Improve Training Effectiveness
- Integrated Training Operation & Sustainment
- Improve Training Availability
- Sustain Training Capability
- CTTO Rapid Prototyping
- Initial CTTO Staging and Integration
- Initial Training with Operations and Test
- Initial CTTO Fielding to COCOM`s
- CTTO Fielding Complete

Legend

	Significant Event (complete)		Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲▬▲	Complete Activity	△▬△	Planned Activity

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-4 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CTTO							
Expand Integration Training Audience		1Q-4Q	1Q-4Q				
Improve Training Effectiveness		1Q-4Q	1Q-4Q				
Integrated Training Operation & Sustainment		1Q-4Q	1Q-4Q				
Improve Training Availability		2Q-4Q	1Q-3Q				
Sustain Training Capability		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
CTTO Rapid Prototyping		1Q-4Q	1Q-4Q	1Q-4Q			
Initial CTTO Staging and Integration			4Q	1Q-4Q			
Initial Training with Operations and Test				3Q-4Q	1Q-4Q		
Initial CTTO Fielding to COCOM`s				3Q-4Q	1Q-4Q		
CTTO Fielding Complete						2Q-4Q	1Q-4Q

Project: XX04 Concurrent, Test, Training & Ops (CTTO)   MDA Exhibit R-4A (PE 0603888C)

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0305 Targets & Countermeasures Core	20,272	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Starting in FY08, funding for all content within budget project 0305 is included within budget project YX05 in accordance with MDA's revised block structure.

A. Mission Description and Budget Item Justification

Targets & Countermeasures Core Support included program office and field activity support. This included the management of design, prototyping, development, product improvement, and qualification testing of Ballistic Missile Defense System (BMDS) targets in order to complete, verify, and test targets for the Initial Defensive Capability, and enhance the targets to test the BMDS capability. Since this project is comprised of entirely Program Management costs associated with Targets and Countermeasures Block development, no article quantities are reported.

The Accomplishments and Planned Program efforts identified below are on-going level of effort activities, which are cyclical and occur every year.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Program Operations	20,272	0	0
RDT&E Articles (Quantity)	0	0	0

FY07 Accomplishments:
- Funded government personnel salaries for program management, project support, project costs and travel.
- Supported activities for on-site Targets and Countermeasures field activity personnel to include rent, equipment, travel, security and base infrastructure necessary to conduct daily operations.

Project: 0305 Targets & Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date **February 2008**	

APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)

R-1 NOMENCLATURE
0603888C Ballistic Missile Defense Test and Targets

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
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PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
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PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
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PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0305 Targets & Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

Because the majority of activities funded in this Project 0305 are considered direct government costs necessary to maintain and sustain Targets and Countermeasures personnel in the field, a particular acquisition strategy is not applicable. Funds are sent directly to government Targets and Countermeasures receiving entities in the field and executed accordingly. A minimal amount of Firm Fixed Price and Cost Plus Award Fee contracts are in place for administrative, computer, logistics, program management, and systems engineering support activities.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Operations								
Government Personnel		Wash., DC	8,868	0	N/A	0	N/A	8,868
Government Travel		Wash., DC	2,025	0	N/A	0	N/A	2,025

Project: 0305 Targets & Countermeasures Core   MDA Exhibit R-3 (PE 0603888C)

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Date **February 2008**

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Government Support	C/FFP	SPARTA/ Wash., DC	5,382	0	N/A	0	N/A	5,382
Field Activity Support	C/CPAF	Various/Kirtland AFB, NM/ Huntsville, AL	3,997	0	N/A	0	N/A	3,997
Subtotal Management Services			20,272	0		0		20272

Remarks

Project Total Cost			20,272	0		0		20,272

Remarks

Project: 0305 Targets & Countermeasures Core

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0805 Targets & Countermeasures Block 2006	157,126	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Starting in FY08, funding for all content within budget project 0805 is included within budget project YX05 in accordance with MDA's revised block structure.

The content in this budget project for FY07 supports the master system level test schedule which is included in the R-4 section of budget project 0304. The master system level test schedule for FY08-FY13 in budget project YX04 is provided as reference only.

A. Mission Description and Budget Item Justification
The Targets and Countermeasures program provided capability-based targets to support Block 2006 integrated and layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this project enhanced the BMDS capability by providing short, medium, and long range capability-based targets with enhanced payloads. Based on the Systems Engineering assessments of possible threat scenarios, the targets and countermeasures program supported the Engagement Sequence Group (ESG) by launching targets to test the performance of the BMDS, ultimately enabling a weapon to engage a target. Funding for this program supported the continuation of targets prime contract activities, and the design, prototyping, development, certification, product improvement, and qualification testing of BMDS Block 2006 targets and associated payloads. It also supported the maintenance, aging surveillance, refurbishment, and routine testing of existing Government Furnished Equipment (GFE) boosters, as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components.

The targets prime contractor will develop all future target configurations with an emphasis on developing product lines of common target components, rather than unique individual target systems. The Prime Contract will maximize the use of existing government furnished equipment, to include the use of Foreign Material Acquisitions (FMA's) when appropriate, while minimizing the number of new developments. The Prime Contract will optimize the use of existing designs, provide capability-based and common component upgrades, and pursue target portfolio commonality in booster stages, inter stages, avionics, launch support equipment, counter-measures, and re-entry vehicles. It is anticipated this product line approach and target component commonality will reduce both cycle time (e.g., concept definition to launch) and cost.

Project: 0805 Targets & Countermeasures Block 2006

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Systems Engineering	88,525	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided the Missile Defense Agency (MDA) with Target Program Technical Direction and analyzed target requirements cost, schedule, and technical performance of target systems development. This effort utilized the spiral development process for long-range plans initiating new developments. Conducted functional allocation to product lines, product line specifications/interfaces and established guidelines for the conductibility of design reviews. Performed target system analysis with new concepts to verify system performance. Defined target program baseline, controls flight test configuration, and conducted pre and post-flight analysis and documentation. Identified treaty and environmental issues and developed plans for issue resolution. Development of the Flexible Target Family (FTF) is an initiative that emphasized commonality and modularity of components that span across target system representations within the family of target sets that can be rapidly integrated to support MDA flight tests. Accordingly, FTF will be composed of Target Sets that exhibit various degrees of threat emulation and have a broad range of performance characteristics and features that present flexible target behavior to test the multiple Ballistic Missile Defense System (BMDS) capabilities.

FY07 Accomplishments:

Spiral I
Updated development to Spiral I FTF system specifications

Completed Spiral I Development of Enhanced Capability Products, including the following:
- Final Loads Cycle analysis for FTF I (Closure)
- Break-up Analysis of Spiral I FTF
- Upgraded to Payload Deployment Module, final design to accommodate instrumented countermeasures design
- Re-Entry Vehicle Adaptor with High Delta - Velocity Separation System Design

Spiral II
Continued Spiral II Development of Enhanced Capability Products, including the following:
- LV-2 Two-stage Strategic Target System
- Common Avionics System
- Common Support Equipment

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

- Common Transporter Erector
- Universal Payload Deployment Module
- New suite of countermeasures
- FTF Strategic Air-Launched Target System

Conducted Integrated Baseline Reviews (IBR) on effort placed on contract in FY07, including the following:
- Modified Ballistic Re-Entry Vehicle-2 (MBRV-2)
- AEGIS FTM-12 Flight Mission
- FTF LV-2 Effort
- Modified Ballistic Re-Entry Vehicle-3 (MBRV-3)

Continued development of advanced instrumentation and telemetry concepts including:
- Sensor Pointing Platform (SPP)
- Spatial Distribution Sensor
- Wireless Local Area Network (LAN) system

	FY 2007	FY 2008	FY 2009
Launch Vehicles	5,697	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided MDA with all launch delivery vehicles including boosters, interstages and avionics (guidance and flight computers). This task included conducting decomposition for booster, interstage and avionics requirements, characterizing and qualifying boosters, interstages, and avionics. Conducted necessary design reviews. Ensured boosters, interstages and avionics adhere to interface specifications.

FY07 Accomplishments:
- Procured two (2) SR19 Flexseals for future BMDS flight missions
- Performed studies/analysis and future LV capabilities designs
- Established contract for Caster IVb motors from ATK
- Began acquisition, development and qualification of FTF 72" launch vehicle components

Project: 0805 Targets & Countermeasures Block 2006   MDA Exhibit R-2A (PE 0603888C)

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Data and Instrumentation	575	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided funding for program management and development of: 1) unique target instrumentation as well as optical on-target data collection instrumentation used for algorithm development/evaluation, intercept viewing and payload characterization; 2) development of Midcourse Fly Along Sensor Package (M-FASP) flight units for BMDS testing; and 3) development of advanced instrumentation systems/techniques to include data collection and transmission techniques.

FY07 Accomplishments:
These efforts have been moved to Systems Engineering Programs

	FY 2007	FY 2008	FY 2009
Countermeasures	3,850	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided program management and development of prototype countermeasure systems used to test the capability space of the BMDS; Integration of countermeasure systems on BMDS flight tests; and Characterization and ground testing of countermeasure systems. Supported requirement decomposition and analysis as applicable for the countermeasures activities. Program reviews and technical interchange meetings are held regularly to ensure mission success. The funding supported pre- and post-mission data analysis.

FY07 Accomplishments:
- Solved interface issues to insure new countermeasure designs from National Labs are compatible with the Prime Contractor Flexible Target Family vehicles.
- Developed the FTF Payload Deployment Module to Countermeasure Interface Control Document (ICD).
- Developed techniques, materials, and processes for new prototype countermeasures.
- Completed Radar Cross Section measurements to characterize the Family 2D countermeasure.
- Conducted the Preliminary Design Reviews for the Family 1C and 2D countermeasures. Developed an execution path to CDR.

Project: 0805 Targets & Countermeasures Block 2006

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		Date	
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**	

APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		**0603888C Ballistic Missile Defense Test and Targets**	

	FY 2007	FY 2008	FY 2009
Logistics	30,692	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided MDA with inventory, launch support equipment, and transportation of targets and countermeasures hardware in support of BMDS testing. These efforts were essential in providing a dependable and accurate target system that BMDS has come to and continues to rely on for the success of their interceptor program. This task included integrated logistics support for all targets and countermeasure material, including facilities, inventory maintenance, spare parts, aging and surveillance, as well as special testing for target rocket motor propellants and other hazardous material handling. This task provided management and execution of the Consolidated Missile Asset Reuse for Targets (CMART) Program. Provided all required facilities and monitored for explosive storage and Foreign Military Assets fuel calibration and storage.

FY07 Accomplishments:
- Stored, maintained and conducted aging and surveillance program for 84 Pershing II Reentry Vehicles and other components, 94 Lance Missiles, 14 Polaris A-3 motors, 6 Orbus motors, Minuteman motors, 11 FMA's, 72 Terrier motors, 2 MLRS motors, 1 MBRV warhead and 4 Castor IVB motors.
- Maintained existing support equipment and facilities at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex and Pacific Missile Range Facility.
- Stored and maintained Trident C-4 motor hardware for future target use.
- Took custody of eight (8) GEM 40 rocket motors from BV+ Program for future flight test.
- Took custody of sixteen (16) ORBUS 1A rocket motors from BV+ Program for future flight test.

Project: 0805 Targets & Countermeasures Block 2006   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Integration	11,088	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided MDA with all target configuration, integration, launch services and mission assurance supporting BMDS testing. This task included developing of flight safety documentation; conducting trajectory flyout analysis; and supporting environmental studies and reviews. Integrated product line components into designated target configuration and tests systems. Provided schedule status, final target checkout, and target launch services for mission assurance.

FY07 Accomplishments:
- Provided mission assurance for hardware integration for all BMDS element targets in support of FY07 tests.
- Managed integration services of Prime contract.
- Provided support for the Single Integration Capability, located at Courtland, AL.
- Managed target integration services on legacy contracts.
- Provided target studies, analysis support, and launch vehicle components.

	FY 2007	FY 2008	FY 2009
Mission Management	13,026	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided MDA with target mission management and execution for overall mission assurance. Conducted mission planning, documentation, development of scenario plans in accordance with mission requirements. Controlled target management (scheduling, configuration modifications) in support of BMDS and Element testing. Conducted safety operations specific to the mission and in conjunction with ranges. Planned and conducted target Mission readiness reviews and monitored environmental execution.

FY07 Accomplishments:
Conducted any remaining retrograde or analysis activities associated with the FTT-04.

Prepared for, conducted, or analyzed:
- Aegis-BMD target mission (FTM-11).

Project: 0805 Targets & Countermeasures Block 2006   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- GMD target missions (FTX-02 , FTG-3a , FTG-4).
- STSS missions (NFIRE-2a , NFIRE-2b).
- THAAD target missions (FTT-06, RDC-1c, FTT-07, FTT-08, RDC-1d).

	FY 2007	FY 2008	FY 2009
Re-entry Vehicles	3,673	0	0
RDT&E Articles (Quantity)	0	0	0

This effort included Re-Entry (RV) and Payload Deployment Module (PDM) requirements decomposition and analysis; RV and PDM characterization, qualification, and performance measurements; mission support; and pre-and post-mission data analysis. Provided interface standardization and ensured product adherence to interface specifications for successful integration and launch of RV and PDM products. Conducted RV and PDM design reviews and supported other product design reviews that provided product and mission assurance.

FY07 Accomplishments:

Coordinated buildup and delivery of:
- Five (5) MBRV-3s for FT-7-02, FTT-06, FTT-07, FTT-08 and FT 7-3.
- One (1) GROW RV with Payload Deployment Module (PDM) for FTG-03a.
- Three (3) new design MBRV-2s for FTM-14, FTS-01, and JFTM-2.
- Executed contractual action for procurement of three (3) MBRV-1s supporting THAAD and AEGIS testing.
- Supported Spiral Development activities with Lockheed Martin Space Systems.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0805 Targets & Countermeasures Block 2006

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasized testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The targets prime contractor will continue to emphasize target product lines that develop target components such as booster stages, avionics, countermeasures, etc. As target developments and existing contracts are completed under Project 0705 (Block 2004), the prime contractor will optimize target designs and developments completed for Block 2004 and incorporate them as necessary to support Block 2006 development. The prime contractor will also continue to provide capability-based and commonality target upgrades, as well as pursue target portfolio commonality in order to reduce cycle time and cost of BMDS target systems. Under this Project (0805), the four year base period of performance will expire. The government will either exercise the first option to continue with the prime, or re-compete the effort. As with Project 0705 (Block 2004), the government will continue to maintain system responsibility and will ensure successful management of targets execution.

Project: 0805 Targets & Countermeasures Block 2006

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						Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Systems Engineering								
System Engineering	C/CPAF	Lockheed Martin/ Denver, CO	80,614	0	N/A	0	N/A	80,614
System Engineering Support	C/FFRDC	John Hopkins Applied Research Lab/Maryland	2,462	0	N/A	0	N/A	2,462
System Engineering Support	C/CPAF	Kelly AFB/AEDC/NAW C/SMC/Lakeland AFB/Arnold AFB/China Lake, CA	1,401	0	N/A	0	N/A	1,401
System Engineering	C/FFRDC	Sandia National Lab/Albuquerque, NM	3,948	0	N/A	0	N/A	3,948
Field Activity Support	C/CPAF	JNIC /Colorado	100	0	N/A	0	N/A	100
Launch Vehicles								
Launch Vehicles	C/CPAF	Northrop Grumman/ Albuquerque, NM	5,000	0	N/A	0	N/A	5,000
Launch Vehicles	C/CPAF	Northrop Grumman/ Ogden, UT	697	0	N/A	0	N/A	697
Data and Instrumentation								
Data & Instrumentation	C/MIPR	DoD/WHS/ Washington, DC	18	0	N/A	0	N/A	18
Data & Instrumentation	C/CPFF	Boeing/ Huntsville, AL	57	0	N/A	0	N/A	57

Project: 0805 Targets & Countermeasures Block 2006

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					Date **February 2008**

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Data & Instrumentation	C/FFRDC	Sandia National Lab/ Albuquerque, NM	500	0	N/A	0	N/A	500
Countermeasures								
Countermeasures Development	C/FFRDC	Sandia National Lab/ Albuquerque, NM	3,600	0	N/A	0	N/A	3,600
Countermeasures Development	C/CPFF	Signature Research Associates/ Huntsville, AL	250	0	N/A	0	N/A	250
Logistics								
Logistics	C/CPFF	Battelle/ Kennesaw, GA	3,955	0	N/A	0	N/A	3,955
Logistics	SS/CPFF	Alliant Techsystems/ Magna, UT	617	0	N/A	0	N/A	617
Logistics	SS/CPFF	Physical Science Laboratory/ Las Cruces, NM	1,108	0	N/A	0	N/A	1,108
Logistics	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	5,234	0	N/A	0	N/A	5,234
Logistics	C/MIPR	Various/Various	1,854	0	N/A	0	N/A	1,854
Logistics	C/Various	Various/ Albuquerque, NM	2,993	0	N/A	0	N/A	2,993
Logistics	C/CPAF	Locheed Martin/ Denver, CO	13,081	0	N/A	0	N/A	13,081
Logistics	C/MIPR	SWFPAC/ Bangor, WA	610	0	N/A	0	N/A	610

Project: 0805 Targets & Countermeasures Block 2006

MDA Exhibit R-3 (PE 0603888C)

					Date		
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**		

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE			
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603888C Ballistic Missile Defense Test and Targets**			

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Logistics	C/MIPR	AMCOM/ Huntsville, AL	1,240	0	N/A	0	N/A	1,240
Integration								
Integration	C/CPAF	Northrop Grumman/ Albuquerque, NM	9,258	0	N/A	0	N/A	9,258
Integration	C/FP	Teledyne Solutions, Inc./Huntsville, AL	1,830	0	N/A	0	N/A	1,830
Mission Management								
Mission Management	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	13,026	0	N/A	0	N/A	13,026
Re-entry Vehicles								
Re-Entry Vehicles	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	3,308	0	N/A	0	N/A	3,308
Re-Entry Vehicles	C/CPAF	NASA/ MSFC, AL	365	0	N/A	0	N/A	365
Subtotal Product Development			157,126	0		0		157126

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

Project: 0805 Targets & Countermeasures Block 2006   MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date **February 2008**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**					R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			157,126	0		0		157,126

Remarks

Project: 0805 Targets & Countermeasures Block 2006

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0905 Targets & Countermeasures Block 2008	17,898	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Starting in FY08, funding for all content within budget project 0905 is included within budget project YX05 in accordance with MDA's revised block structure.

The content in this budget project for FY07 supports the master system level test schedule which is included in the R-4 section of budget project 0304. The master system level test schedule for FY08-FY13 in budget project YX04 is provided as reference only.

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provided capability-based targets to support Block 2008 integrated and layered Ballistic Missile Defense Systems (BMDS) testing. Targets developed under this project tested and enhanced the BMDS capability by providing short, medium, and long range capability based targets with more complex payloads. Based on system engineering assessments of possible threat scenarios, the targets and countermeasures program supported the Engagement Sequence Group (ESG) by launching targets to test the performance of the BMDS, ultimately enabling a weapon to engage a target. Funding for this program supported the continuation of targets prime contract activities, and the design, prototyping, development, certification, product improvement, and qualification testing of BMDS Block 2008 targets and associated payloads. It also supported the maintenance, aging surveillance, refurbishment, and routine testing of existing Government Furnished Equipment (GFE) boosters, as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components. This program also provided the technical support of mission management for Element flight tests. Similar to Project 0805 (Block 06), this Project (0905) continue to rely upon the targets prime contractor to develop new target systems, as well as develop product lines of common target components. Existing designs, government furnished equipment, and Foreign Material Acquisition (FMA's) will continue to be utilized as necessary to minimize new developments, contain costs, and reduce cycle time.

		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Systems Engineering	11,401	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided the Missile Defense Agency with Target Program Technical Direction and analyzed target requirements cost, schedule, technical performance of target systems development. This effort utilized the spiral development process for long-range plans initiating new developments. Conducted functional allocation to product lines, product line specifications/interfaces and established guidelines for conductibility of design reviews. Performed target system analysis with new concepts to verify system performance. Defined target program baseline, controlled flight test configuration, and conducted pre and post-flight analysis and documentation. Identified treaty and environmental issues and developed plans for issue resolution. The Flexible Targets Family (FTF) is composed of Target Sets that exhibit various degrees of threat emulation and have a broad range of performance characteristics and features that present flexible target behavior to test the multiple Ballistic Missile Defense System capabilities.

FY07 Accomplishments:

Spiral II:
Conducted Integrated Baseline Reviews (IBR) on effort placed on contract in FY07 including the following:
• AEGIS Ballistic Missile Defense (BMD) (JFTM-1).
• Theater High Altitude Air Defense (THAAD) (FTT-09).

Spiral III:
FTF Enhanced Studies (Development of Enhanced Capability Products)
• Developed modification of Infrared and Radar Cross Section Signatures for Re-Entry Vehicles (RV) in endo and last stage.
• Developed technology transfer of countermeasures, sensors, and advanced instrumentation.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Countermeasures	6,497	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provides program management and development of various countermeasure systems for BMDS flight testing, including characterization and ground testing of those countermeasure systems.

FY07 Accomplishments:

- Conducted initial electrical interface testing between the countermeasures and the FTF PDM electrical/communications system.
- Developed materials and processes for new prototype countermeasures to support BMDS Block 08 system testing. Trade studies completed and countermeasure designs down-selected to proceed to prototype build and flight qualification to support Block 08 system tests.
- Completed the Preliminary Design Reviews for the Family 1C and 2D countermeasures. Path to CDR defined and implemented to support FY08 CDR dates.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928

Project: 0905 Targets & Countermeasures Block 2008

MDA Exhibit R-2A (PE 0603888C)

								Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification								

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasized testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The targets prime contractor will continue to develop targets for use in MDA BMDS testing, with a continued emphasis on product line development and target component commonality. It is expected that the prime contractor will continue to refine and streamline the activities for which it is under contract, and as described in Section A of this Project. Under this Project (0905) the Prime Contractor's first two year option period will expire, and the government will either exercise a second two year option, or re-compete the effort. As with Project 0805 (Block 2006), the government will continue to maintain system responsibility and will ensure successful management of targets execution.

	Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Systems Engineering								
System Engineering	C/CPAF	Lockheed Martin Space Systems/ Denver, CO	11,401	0	N/A	0	N/A	11,401
Countermeasures								
Countermeasures Development	C/FFRDC	Sandia National Lab/ Albuquerque, NM	6,497	0	N/A	0	N/A	6,497
Subtotal Product Development			17,898	0		0		17898

Remarks

Integration Various - The Program Office intends to award the Low Cost Assessment Target efforts to a Prime Contractor in Fiscal Year 07.

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

Project: 0905 Targets & Countermeasures Block 2008

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			Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis			**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			17,898	0		0		17,898

Remarks

Project: 0905 Targets & Countermeasures Block 2008

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		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0005 Targets & Countermeasures Block 2010	2,659	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Starting in FY08, funding for all content within budget project 0005 is included within budget project YX05 in accordance with MDA's revised block structure.

The content in this budget project for FY07 supports the master system level test schedule which is included in the R-4 section of budget project 0304. The master system level test schedule for FY08-FY13 in budget project YX05 is provided as reference only.

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provided capability-based targets to support Block 2010 integrated and layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this project tested and enhanced the BMDS capability by providing short, medium, and long range capability based targets with more complex payloads. Based on systems engineering assessments of possible threat scenarios, the targets and countermeasures program supported the Engagement Sequence Group (ESG) by launching targets to test the performance of the BMDS, ultimately enabling a weapon to engage a target.

Funding for this program supported the continuation of targets prime contract activities, and the design, prototyping, development, certification, product improvement, and qualification testing of BMDS Block 2010 targets and associated payloads. It also supported the maintenance, aging surveillance, refurbishment, and routine testing of existing government furnished equipment (GFE) boosters, as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components. This effort provided funding for program management and the development of various countermeasures for BMDS flight testing, including characterization and ground testing of those countermeasure systems. This program also provided the technical support of mission management/mission assurance for all Element flight tests and advanced development for long range strategic targets. Similar to Project 0905 (Block 08), this Project (0005) continue to rely upon the targets prime contractor to develop new target systems, as well as develop product lines of common target components. Existing designs, government furnished equipment, and Foreign Material Acquisition (FMA's) will continue to be utilized as necessary to minimize new developments, contain costs, and reduce cycle time.

Project: 0005 Targets & Countermeasures Block 2010   MDA Exhibit R-2A (PE 0603888C)
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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Countermeasures	2,659	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provided funding for program management and development of countermeasure systems for BMDS flight testing, including characterization and ground testing of those countermeasure systems.

FY07 Accomplishments:
- Developed techniques, materials and processes for new prototype countermeasures.
- Developed a series of new materials (and corresponding manufacturing techniques) that will expand the countermeasure capability space to meet evolving requirements through the Block 10 timeframe.
- Conducted system requirements reviews and preliminary design reviews for several countermeasure development activities in preparation for progression to CDR.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928

Project: 0005 Targets & Countermeasures Block 2010   MDA Exhibit R-2A (PE 0603888C)

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						Date	
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						**February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**			

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasized testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The targets prime contractor will continue to develop targets for use in MDA BMDS testing, with a continued emphasis on product line development and target component commonality. It is expected that the prime contractor will continue to refine and streamline the activities for which it is under contract. Under this Project (0005), the second two year option period of performance, for the prime contractor will expire, and the government will either exercise a third two year option, or re-compete the effort. As with Projects 0805 (Block 2006) and 0905 (Block 2008), the government will continue to maintain system responsibility and will ensure successful management of targets execution.

	Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Countermeasures								
Countermeasures Development	C/FFRDC	Sandia National Lab/Albuquerque, NM	2,659	0	N/A	0	N/A	2,659
Subtotal Product Development			2,659	0		0		2659

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

Project: 0005 Targets & Countermeasures Block 2010   MDA Exhibit R-3 (PE 0603888C)

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			Date
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis			**February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			2,659	0		0		2,659

Remarks

Project: 0005 Targets & Countermeasures Block 2010

MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
YX05 Targets and Countermeasures Core	0	182,249	219,831	215,203	219,223	233,280	237,330
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Funding for content in budget project (FY08 thru FY13) was previously included in FY07 within budget projects 0305, 0805, 0905, and 0005.

The content in this budget project for FY08-FY13 supports the master system level test schedule which is included in the R-4 section of budget projects 0304 and YX04. The master system level test schedule for FY08-13 is provided in this budget project as reference only.

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provides capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this project will enhance the BMDS capability by providing short, medium, and long range capability-based targets with enhanced payloads. Based on the Systems Engineering assessments of possible threat scenarios, the targets and countermeasures program supports the Engagement Sequence Group (ESG) by launching targets to test the performance of the BMDS, ultimately enabling a weapon to engage a target. Funding for this program supports the continuation of targets prime contract activities, and the design, prototyping, development, certification, product improvement, and qualification testing of BMDS targets and associated payloads. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing Government Furnished Equipment (GFE) boosters, as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components. The targets prime contractor will develop all future target configurations with an emphasis on developing product lines of common target components, rather than unique individual target systems. The Prime Contractor will maximize the use of existing government furnished equipment, to include the use of Foreign Material Acquisitions (FMA's) when appropriate, while minimizing the number of new developments. The Prime Contractor will also optimize the use of existing designs, provide capability-based and common component upgrades, and pursue target portfolio commonality in booster stages, inter stages, avionics, launch support equipment, counter-measures, and re-entry vehicles. It is anticipated this product line approach and target component commonality will reduce both cycle time (e.g., concept definition to launch) and cost.

Project: YX05 Targets and Countermeasures Core

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MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Program Operations (TCO)	0	77,657	91,186
RDT&E Articles (Quantity)	0	0	0

This includes the management of design, prototyping, development, product improvement, and qualification testing of Ballistic Missile Defense System (BMDS) targets in order to complete, verify, and test targets for the Initial Defensive Capability, and enhance the targets to test the BMDS capability. Since this project is comprised of entirely Program Management costs associated with Targets and Countermeasures Block development, no article quantities are reported.

FY08 Planned Program:
- Funds government personnel salaries for program management, project support, project costs and travel
- Support activities for on-site Targets and Countermeasures field activity personnel to include rent, equipment, travel, security and base infrastructure necessary to conduct daily operations
- Prime contract program management functions including: program management, systems engineering, product engineering & acquisition management, production and logistics management and test and operations management

FY09 Planned Program:
- Funds government personnel salaries for program management, project support, project costs and travel
- Support activities for on-site Targets and Countermeasures field activity personnel to include rent, equipment, travel, security and base infrastructure necessary to conduct daily operations
- Prime contract program management functions including: program management, systems engineering, product engineering & acquisition management, production and logistics management and test and operations management

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets

	FY 2007	FY 2008	FY 2009
52" FTF Targets	0	14,152	27,670
RDT&E Articles (Quantity)	0	0	0

This effort provides program management and development of 52 inch Flexible Target Family (FTF) Short and Medium Range target systems with air and ground launch capabilities. Effort includes development of all 52 inch FTF specific launch vehicles and support equipment as well as planning for integration of prototype countermeasure systems, re-entry vehicles (RV), and payload deployment modules (PDM). Program management and development of launch vehicles includes conducting decomposition for booster, interstage and avionics requirements, characterizing and qualifying boosters, interstages, and avionics. Ensures boosters, interstages and avionics adhere to interface specifications. Performs necessary simulation and modeling efforts; configuration changes to RVs, PDMs, and countermeasures; as well as required characterization and signature analysis. And conduct of necessary design reviews.

FY08 Planned Program:
- Completion of Critical Design Review
- Contract development to support production and mission execution
- Procurement of long lead items
- Component environmental qualification
- Range survey/support agreement development

FY09 Planned Program:
- Initiation of production activities
- Component environmental qualification
- System testing
- Development of ground support equipment
- Initiation of equipment pathfinder effort
- Air and range certification

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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		Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
72" FTF Targets (Countermeasures)	0	9,350	8,000
RDT&E Articles (Quantity)	0	0	0

This effort provides program management and development of countermeasures which includes integration of countermeasure systems on BMDS flight tests; and characterization and ground testing of countermeasure systems. Support requirements decomposition and analysis as applicable for the countermeasures activities. Program reviews and technical interchange meetings are held regularly to ensure mission success. Perform pre- and post-mission data analysis.

FY08 Planned Program:
- Continue developing advanced techniques for prototyping new countermeasures
- Evolve countermeasures prototypes towards flight qualifications based upon considerable flight qualification test activities (based on FTF environments)
- Build variety of engineering countermeasures prototypes supporting BMDS system testing

FY09 Planned Program:
- Continue developing advanced techniques for prototyping new countermeasures
- Evolve countermeasures prototypes towards flight qualifications based upon considerable flight qualification test activities (based on FTF environments)
- Build variety of engineering countermeasures prototypes supporting BMDS system testing

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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	Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
72" FTF Targets (Re-Entry Vehicles)	0	5,862	5,771
RDT&E Articles (Quantity)	0	0	0

This effort provides program management and development of RVs and PDMs which includes requirements decomposition and analysis; RV and PDM characterization, qualification, and performance measurements; mission support; and pre-and post-mission data analysis. Provides interface standardization and ensures product adherence to interface specifications for successful integration and launch of RV and PDM products. Conducts RV and PDM design reviews and supports other product design reviews to provide product and mission assurance.

FY08 Planned Program:
Coordinate the completion of:
- One (1) MBRV-2
- Two (2) MBRV-3
- Two (2) MBRV-1
- One (1) GROW RV with PDM

Coordinate the development of:
- Two (2) MBRV-4

FY09 Program Plan:
Coordinate the completion of:
- Five (5) MBRV-2's to support future BMDS testing
- Two (2) MBRV-1's to support future BMDS testing
- Two (2) MBRV-4's to support flight tests

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

0700

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
72" FTF Targets (Launch Vehicles)	0	7,125	6,557
RDT&E Articles (Quantity)	0	0	0

This effort provides program management and development of launch vehicles (which includes boosters, interstages and avionics (guidance and flight computers) includes conducting decomposition for booster, interstage and avionics requirements, characterizing and qualifying boosters, interstages, and avionics. Conduct necessary design reviews. Ensures boosters, interstages and avionics adhere to interface specifications.

FY08 Planned Program:
- Provide acquisition support, mission management of the prime contract with regard to launch vehicle development and production
- Perform studies/analysis for future LV capabilities designs

FY09 Planned Program:
- Continue to provide acquisition support, mission management of the prime contract with regard to launch vehicle development and production
- Continue to perform studies/analysis for future LV capabilities designs

	FY 2007	FY 2008	FY 2009
72" FTF Targets (Ground Spt Equipment)	0	12,400	0
RDT&E Articles (Quantity)	0	0	0

Program management and development of target support equipment includes providing ground support equipment needed to launch the flexible target family line of target vehicles. Specific equipment for delivery includes: 4 Common Test Sets; 1 Common Transporter/Erector System; 1 Launch Support System; Miscellaneous Common Support Equipment; and, 1 Integrated Flight/Ground Software Development Lab.

Project: YX05 Targets and Countermeasures Core   MDA Exhibit R-2A (PE 0603888C)

0701

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

	FY 2007	FY 2008	FY 2009
Targets and Countermeasures (Systems Engineering)	0	14,491	48,338
RDT&E Articles (Quantity)	0	0	0

This effort provides the Missile Defense Agency (MDA) with Target Program Technical Direction and analysis of target requirements cost, schedule, and technical performance of target systems development. This effort utilizes the spiral development process for long-range plans initiating new developments. Conducts functional allocation to product lines, product line specifications/interfaces and establishes guidelines for the conductibility of design reviews. Performs target system analysis with new concepts to verify system performance. Defines target program baseline, controls flight test configuration, and conducts pre and post-flight analysis and documentation. Identifies treaty and environmental issues and develops plans for issue resolution. Development of the Flexible Target Family (FTF) is an initiative that emphasizes commonality and modularity of components that span across target system representations within the family of target sets that can be rapidly integrated to support MDA flight tests. Accordingly, FTF will be composed of Target Sets that exhibit various degrees of threat emulation and have a broad range of performance characteristics and features that present flexible target behavior to test the multiple Ballistic Missile Defense System (BMDS) capabilities.

FY08 Planned Program:
- Complete FTF Spiral Product Developments
- Castor IVB Booster Configuration Ground and Air Launch to CDR
- SR19 Booster Configuration Air Launch to CDR
- Common Test Set for Air Launch upgrades
- Common Support Equipment/Common Transporter Erector System
- Complete FTF Spiral Product Developments
- SR19/SR19 Air Launch PDR and CDR
- LV-2 Air Launch PDR and CDR
- LV-2 Air Drop from C-5 feasibility
- Technology transfer of countermeasures, sensors and advanced instrumentation
- Complete Advanced Developments
- Direct Satcom Telemetry Link
- Wireless Local Area Network Capability
- Initiate FTF Spiral III Development and Enhancement activities
- ABL Target Instrumentation

Project: YX05 Targets and Countermeasures Core   MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Laser Hit Detector system

FY09 Planned Program:
- Initiate FTF Spiral Product Development and Enhancement activities
- Non-Separating LV-2 High Delta-V Modifications
- LV-2 Ballast Module
- LV-2 MBRV-4 RV Adaptor (shrouded and unshrouded)
- LV-2 Nth Stage Attitude Control System & Control Module SW
- LV-3 Design
- Countermeasures (CM) 3A and 4A
- CM Canister/Ejectors

	FY 2007	FY 2008	FY 2009
Logistics (TCL)	0	19,770	10,420
RDT&E Articles (Quantity)	0	0	0

This effort provides MDA with inventory, launch support equipment, and transportation of targets and countermeasures hardware in support of BMDS testing. These efforts are essential in providing a dependable and accurate target system that BMDS has come to and continues to rely on for the success of their interceptor program. This task includes integrated logistics support for all targets and countermeasure material, including facilities, inventory maintenance, spare parts, aging and surveillance, as well as special testing for target rocket motor propellants and other hazardous material handling. This task provides for management and execution of the Consolidated Missile Asset Reuse for Targets (CMART) Program and provides all required facilities and monitoring for explosive storage and Foreign Military Assets fuel calibration and storage.

FY08 Planned Program:
- Continue inventory, storage, maintenance, aging and surveillance program for MDA's rocket motors, ground/launch support equipment and associated hardware
- Continue Government Furnished Equipment tracking, administration and property management
- Continue maintenance of existing support equipment and facilities located at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex, Courtland and Pacific Missile Range Facility
- Continue to support equipment for target launches from Reagan Test Site (Meck Island)

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

- Continue to store and maintain Trident C-4 motor hardware and handling equipment for future use as targets
- Refurbish, assemble, and delivery of target systems for fiscal year requirements

FY09 Planned Program:
- Continue inventory, storage, maintenance, aging and surveillance program for MDA's rocket motors, ground/launch support equipment and associated hardware
- Continue Government Furnished Equipment tracking, administration and property management
- Continue maintenance of existing support equipment and facilities at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex, Courtland and Pacific Missile Range Facility

	FY 2007	FY 2008	FY 2009
Mission Management (TCM) Program Support	0	21,442	21,889
RDT&E Articles (Quantity)	0	0	0

This effort provides MDA with target mission management and execution for overall mission assurance. Conducts mission planning , documentation, development of scenario plans in accordance with mission requirements. Controls target management (scheduling, configuration modifications) in support of BMDS and Element testing. Conduct safety operations specific to the mission and in conjunction with ranges. Plan and conducts target Mission readiness reviews and monitors environmental execution. This effort provides MDA with all target configuration, integration, launch services and mission assurance supporting BMDS testing. This task includes developing of flight safety documentation, conducting trajectory flyout analysis, supporting environmental studies and reviews. Integrates product line components into designated target configuration and tests systems. Provides schedule status, final target checkout, target launch services for mission assurance.

FY08 Planned Program:
Prepare for, conduct and analyze the following:
- ABL High Powered system tests and MARTI launches (HPSI Lance (up to 6) missions, 2 HPSI MARTI missions)
- Aegis BMD target missions
- LTPO target mission
- GMD target missions
- THAAD target missions
- Systems test and countermeasures missions

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date **February 2008**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

Prepare for, and conduct pre-mission analysis for the following:
- ABL flight tests, MRT: Envelope Expansion missions (up to 4) MARTI's
- Aegis BMD target mission
- LTPO target mission
- GMD target mission
- THAAD target missions

FY09 Planned Program:
Continue to prepare for, conduct and analyze for the following:
- ABL flight tests, MRT, Envelope Expansion missions (up to 4) MARTI's
- Aegis BMD target missions
- LTPO target mission
- GMD target missions
- THAAD target missions

	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

D. Acquisition Strategy

The Targets and Countermeasures Program provides capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this program enhance the BMDS capability by providing short, medium, and long range capability-based targets with enhanced payloads. Based on the Systems Engineering assessments of possible threat scenarios, the Targets and Countermeasures program supports the Engagement Sequence Group (ESG) by launching targets to test the performance of the BMDS, ultimately enabling a weapon to engage a target. Funding for this program supports design, prototyping, development, certification, product improvement, and qualification testing of all BMDS targets. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing Government Furnished Equipment (GFE) boosters.

Development of a Flexible Target Family (FTF) that emphasizes target commonality, modularity and reduces target cycle time is the primary acquisition strategy. The FTF will:
- Minimize the set of different booster stages
- Provide common Flight Test System and Instrumentation components
- Provide common vehicle support equipment, launch support equipment, and interfaces
- Pre-qualify for flight on various test ranges used by MDA

Project: YX05 Targets and Countermeasures Core

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UNCLASSIFIED

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					Date	
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**	

APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		**0603888C Ballistic Missile Defense Test and Targets**	

I. Product Development   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Operations (TCO)								
Government Personnel		Wash., DC	0	8,549	N/A	8,772	N/A	17,321
Government Travel		Wash., DC	0	1,813	N/A	1,850	N/A	3,663
Government Support	C/FFP	Sparta/ Wash., DC	0	5,363	N/A	5,535	N/A	10,898
Field Activity Support	C/FFP	Northrop Grumman /Tecolote/Kirtland AFB, NM	0	6,071	N/A	6,208	N/A	12,279
Field Activity Support	C/FFP	Aero Term Tech/TSI/MilTech/ Huntsville, AL	0	3,672	N/A	9,473	N/A	13,145
Field Activity Support	C/CPAF	Lockheed Martin/ Huntsville, AL	0	52,189	N/A	59,348	N/A	111,537
52" FTF Targets								
52" FTF Targets	C/CPAF	Lockheed Martin Space Systems/ Denver, CO	0	14,152	1/4Q	27,670	1/4Q	41,822
72" FTF Targets (Countermeasures)								
Countermeasures Development	C/FFRDC	Sandia National Lab/ Albuquerque, NM	0	8,900	1/4Q	7,550	1/4Q	16,450
Countermeasures Development	C/CPFF	Signature Research Associates/ Huntsville, AL	0	450	1/4Q	450	1/4Q	900
72" FTF Targets (Re-Entry Vehicles)								

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-3 (PE 0603888C)

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					Date	
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					**February 2008**	

APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		**0603888C Ballistic Missile Defense Test and Targets**	

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Re-Entry Vehicles	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	1,543	1/4Q	1,570	1/4Q	3,113
Re-Entry Vehicles	C/FFRDC	Sandia National Lab/ Albuquerque, NM	0	1,230	1/4Q	1,112	1/4Q	2,342
Re-Entry Vehicles	C/CPAF	Lockheed Martin/ Denver, CO	0	2,539	1/4Q	2,539	1/4Q	5,078
Re-Entry Vehicles	C/CPFF	Signature Research Associates/ Huntsville, AL	0	550	1/4Q	550	1/4Q	1,100
72" FTF Targets (Launch Vehicles)								
Launch Vehicles	C/CPAF	Northrop Grumman/ Albuquerque, NM	0	1,256	1/4Q	1,075	1/4Q	2,331
Launch Vehicles	C/CPAF	Northrop Grumman /Ogden, UT	0	2,681	1/4Q	2,606	1/4Q	5,287
Launch Vehicles	C/FFP	Aerojet/ Sacramento, CA	0	3,188	1/4Q	2,876	1/4Q	6,064
72" FTF Targets (Ground Spt Equipment)								
Ground Test	C/CPAF	Lockheed Martin Space Systems/ Denver, CO	0	12,400	1/4Q	0	N/A	12,400
Targets and Countermeasures (Systems Engineering)								

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-3 (PE 0603888C)

0709

					Date **February 2008**
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**				R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**		

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
TC Systems Engineering	C/FFP	Northrop Grumman/Tecolote /Aero Therm Tech/TSI/ DC/Huntsville/Alb uquerque, NM	0	2,120	1/4Q	4,613	1/4Q	6,733
System Engineering	C/FFRDC	John Hopkins Applied Research Lab/ Baltimore, MD	0	2,371	1/4Q	2,421	1/4Q	4,792
System Engineering	C/CPFF	Lockheed Martin Space Systems/ Denver, CO	0	10,000	1/4Q	41,304	1/4Q	51,304
Logistics (TCL)								
Logistics	C/CPFF	Battelle/ Kennesaw, GA	0	2,061	1/4Q	2,119	N/A	4,180
Logistics	SS/CPFF	Alliant Techsystems/ Magna, UT	0	323	1/4Q	330	1/4Q	653
Logistics	SS/CPFF	Physcial Science Lab/ Las Cruces, NM	0	1,116	1/4Q	1,146	1/4Q	2,262
Logistics	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	5,396	1/4Q	5,517	1/4Q	10,913
Logistics	C/CPFF	Lockheed Martin/ Huntsville, AL	0	9,600	N/A	0	N/A	9,600
Logistics	C/MIPR	AMCOM/ Huntsville, AL	0	1,274	1/4Q	1,308	1/4Q	2,582
Mission Management (TCM) Program Support								

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-3 (PE 0603888C)

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colspan="8"	**Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis**		Date **February 2008**
	APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**	

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Mission Management	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	10,665	1/4Q	10,636	1/4Q	21,301
Mission Management	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	0	N/A	250	1/4Q	250
Mission Management	C/CPAF	Northrop Grumman /Albuquerque, NM	0	10,777	1/4Q	11,003	1/4Q	21,780
Subtotal Product Development			0	182,249		219,831		402080

Remarks

II. Support Costs   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

Project: YX05 Targets and Countermeasures Core

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date **February 2008**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**					R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**		

IV. Management Services   Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	182,249		219,831		402,080

Remarks

Project: YX05 Targets and Countermeasures Core

MDA Exhibit R-3 (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	8,142	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Efforts within this project continue in FY 2008 under project ZX40

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	8,142	0	0
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

Project: 0602 Program-Wide Support

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

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PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
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PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0602 Program-Wide Support

MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date **February 2008**

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603888C Ballistic Missile Defense Test and Targets**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ZX40 Program-Wide Support	0	8,136	19,181	23,178	19,525	20,359	21,199
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: In accordance with the Missile Defense Agency revised block structure, the content previously planned in Project 0602 for FY08-FY13 is now captured in Project ZX40.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	0	8,136	19,181
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

Project: ZX40 Program-Wide Support

MDA Exhibit R-2A (PE 0603888C)

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	Date
Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	**February 2008**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603888C Ballistic Missile Defense Test and Targets**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
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PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: ZX40 Program-Wide Support

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