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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date February 2007
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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
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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	605,718	594,190	586,150	620,104	654,352	672,952	687,478	696,651
0304 Test & Evaluation	214,907	212,144	209,273	210,239	207,883	212,970	232,624	236,202
0804 Test & Evaluation Block 2006	91,207	128,178	0	0	0	0	0	0
0904 Test & Evaluation Block 2008	0	44,987	113,646	120,085	0	0	0	0
0004 Test & Evaluation Block 2010	0	0	29,856	42,221	124,710	117,414	8,950	0
R104 Test & Evaluation Block 2012	0	0	0	0	55,573	78,449	81,684	3,961
R204 Test & Evaluation Block 2014	0	0	0	0	0	3,574	113,591	198,077
0917 Concurrent Test, Training & Ops (CTTO) Block 2008	0	0	41,647	37,789	0	0	0	0
0017 Concurrent Test, Training & Ops (CTTO) Block 2010	0	0	0	0	35,978	33,216	0	0
R117 Concurrent Test, Training & Ops (CTTO) Block 2012	0	0	0	0	0	0	9,013	9,115
0305 Targets & Countermeasures Core	20,654	20,062	21,135	21,582	21,383	21,673	21,673	21,673
0805 Targets & Countermeasures Block 2006	265,949	159,066	0	0	0	0	0	0
0905 Targets & Countermeasures Block 2008	3,250	19,231	160,794	139,676	0	0	0	0
0005 Targets & Countermeasures Block 2010	500	2,989	1,663	39,035	189,422	156,980	0	0
R105 Targets & Countermeasures Block 2012	0	0	0	0	5,937	38,635	209,784	217,444
0602 Program-Wide Support	9,251	7,533	8,136	9,477	13,466	10,041	10,159	10,179

Note: Starting in FY08, Concurrent Test, Training and Operations (CTTO) efforts previously included in Ballistic Missile Defense Products PE 0603889C in Projects 0803, 0903 and 0003 within the BMDS Training area are now addressed in BMD Ballistic Missile Defense Test and Targets PE 0603888C Projects 0917 (Block 2008), 0017 (Block 2010) and R117 (Block 2012). Distributed Multi-Echelon Training System (DMETS) is an activity in the CTTO task.

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. 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.

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<p>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.</p> <p>Test and Evaluation and Targets and Countermeasures Core (Projects 0304 and 0305, respectively) provide for the implementation of test and target functions that span multiple Blocks. These projects also assist in expanding the capabilities of the BMDS in future Blocks, and developing capabilities not yet foreseen as part of a current or future Block. Block functions (e.g., Project 0804 - T&E Block 2006 and Project 0805 - Targets and Countermeasures Block 2006) include all efforts (e.g., detailed planning, hardware procurement, test execution, analysis, and reporting) necessary to test and assess a specific BMDS Block. Element participation in system-level testing, including test article procurement and test conduct, is captured in the respective element PE.</p> <p>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 six functional areas: Test Policy and Strategy; BMDS Combined Test Force; Test Assurance; Test Resources; Facilities, Siting, and Environmental management; Concurrent Test, Training, and Operations (CTTO).</p>		

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<p>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 Test Assurance program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The Test Assurance program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The RTO also includes the BMDS 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 MDA test program provides data and information to anchor the models and simulations used to verify BMDS capabilities and to support BMDS characterization and assessment. The Facilities, Siting and Environmental program provides guidance, environmental analysis and documentation, real property facility siting, acquisition, and facility operational support for BMD systems.</p> <p>The BMDS RTO uses a top-down approach to develop BMDS test plans based on engagement sequence groups, system test objectives, and the overall system design provided by the BMDS Responsible Engineering Organization (REO). The BMDS CTF uses these inputs to create an integrated system-level test and analysis approach, bringing together the contributions of the various BMDS elements into combined system test events. These system test events are comprised of two or more elements interacting to verify the capability of the system in one or more of the engagement sequences; these events are documented in the Integrated Master Test Plan (IMTP). The IMTP is the foundation for developing the element Developmental Master Test Plans (DMTP) that details the element contributions to the overall test program. Elements design their component test programs via the DMTP to support the IMTP and participate in the overall BMD system level test program. The development and acquisition of new test facilities and instrumentation are integrated into a Test Resources Master Plan (TRMP) that supports the overall test approach.</p> <p>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.</p> <p>The Ballistic Missile Defense System (BMDS) Concurrent Test, Training and Operations (CTTO) capability is critical to the defense of homeland and friendly forces in the face of emerging BMDS threats from unfriendly forces. CTTO provides comprehensive, in-place, geographically dispersed upgrades, testing, training, and sustainment while maintaining operational readiness across the complete Ballistic Missile Defense System (BMDS)</p>		

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<p>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.</p> <p>In the October 2006 Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD) Warfighter Prioritized Capability List (PCL), the BMDS is required to provide “The capability to sustain operations while simultaneously supporting concurrent research, development, test, and evaluation (RDT&E); maintenance; training; and system upgrade activities without degrading protection capability.” The BMDS CTTO capability is required in the JFCC-IMD Modifications Requirement List (MRL). The currently fielded (Block 06) BMDS system has only limited abilities to conduct concurrent test and operational readiness activities, and there is no capacity for Warfighters to obtain initial or recurrency training or participate in exercises using BMDS assets to build and maintain their operational proficiency without degrading incremental and spiral developmental tests and operational readiness.</p> <p>Test and Evaluation Description:</p> <ul style="list-style-type: none">• 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.• Provides civil engineering / facility acquisition expertise, oversees all construction funding, and ensures environmental compliance of all MDA activities. <p>Targets and Countermeasures Description:</p> <p>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.</p>		

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Concurrent Test, Training and Operations (CTTO) Description: 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. <u>A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)</u> Test and Evaluation Contribution to the BMDS: <ul style="list-style-type: none">• 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. 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. Concurrent Test, Training, and Operations (CTTO) Contribution to the BMDS: <ul style="list-style-type: none">• 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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<ul style="list-style-type: none"> 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 <p><u>A.3 Major System Element Goals</u></p> <p>Major Test and Evaluation Goals:</p> <ul style="list-style-type: none"> 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. <p>Major Targets and Countermeasures Goals:</p> <p>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 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.</p> <p>Major Concurrent Test, Training and Operations (CTTO) Goals:</p> <ul style="list-style-type: none"> 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. 		

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- 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.

A.4 Major Events Schedule and Description

Major Event	Project	Timeframe	Description
Flight Test			
System Flight Tests			
FTM-11	0304	1Q FY 2007	<ul style="list-style-type: none"> • An incorrect system setting aboard the ship resulted in no launch of the interceptors. • BMDS Primary: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Determine Aegis BMD 3.6 capability with lethal intercept of exo-atmosphere Short Range Ballistic Missile (SRBM) & Anti-Ship Cruise Missile (ASCM) • ESG tested: SM-3 EO AN/SPY-1 • Participants include: Aegis BMD 3.0E/3.6, AN/TPY-2 (TM) 4.1
FTT-05	0304	2Q FY 2007	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo booster / kill vehicle separation in high dynamic pressure fly-out environment • THAAD Secondary: <ul style="list-style-type: none"> • Evaluate aero heating effects on seeker window • ESGs tested: Element Development Test • Participants include: THAAD

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Major Event	Project	Timeframe	Description
FTT-06	0304	2Q FY 2007	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo high endo aim point selection & medium aspect intercept against a non-separating liquid fuel target • THAAD Secondary: <ul style="list-style-type: none"> • Demo Element Integration at Pacific Missile Range Facility (PMRF) • ESG s tested: THAAD EO AN/TPY-2 (TM) • Participants include: THAAD TFC/C Bld. 4.A AN/TPY-2 (TM) Bld. 4.1
FTX-02	0304	2Q FY 2007	<ul style="list-style-type: none"> • BMDS/GMD Primary: <ul style="list-style-type: none"> • Demo GBI EO SBX through a simulated interceptor launch and post-mission, through hit assessment; and collect XBR data to support assessment of radar functions (including advanced algorithm) against a dynamic target with associated objects • BMDS Secondary: <ul style="list-style-type: none"> • Collect SM-3 Launch on Remote (LOR) data • Collect SBX data to support assessment of radar functions as a risk reduction path for GBI EO SBX & to anchor SBX Modeling and Simulation (M&S) • ESG tested: GBI Engage On Launch On (EO/LO) SBX (Simulated) GBI LO AN/SPY-1 (Simulated); GBI LO AN/TPY-2 (FB) (Simulated), SM-3 LOR (AN/SPY-1) (Simulated) • Participants include: Aegis BMD 3.6; C2BMC 6.0; GMD GFC/C Bld. 6A; SBX Bld. 1.6; Beale UEWR Bld. 6.3.2; AN/TPY-2 (FB) Bld. CR-1; SBIRS 07-1
ATM-48	0304	3Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Exercise BMDS functionality for PAC-3/GEM/GEM+ & EO AN/MPQ-53/65 ESG • BMDS/PAC Secondary: <ul style="list-style-type: none"> • First live test of PATRIOT PDB-6 & C2BMC Spiral 6.2 • Demonstrate and Assess (D&A) BMDS Block 06 functionality & intercept with: <ul style="list-style-type: none"> • PATRIOT, THAAD, C2BMC, DSP/SBIRS (if available) • ESG tested: PAC-3 GEM/GEM+ EO AN/MPQ-53/65 • Participants include: C2BMC 6.2; PATRIOT 6.0; THAAD HWIL BLD. 4: SIBRS 07-1
FTG-03	0304	3Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • SBX collect data in shadow mode for post msn playback of GBI LO/EO SBX • ESG s tested: GBI LO/EO CD/UEWR Mod 1/2 (SBIRS); GBI LO/EO SBX (Possible) • Participants include: GMD GFC/C 6A; DSP-SBIRS 07-1; C2BMC 6.0; SBX 1.6; Beale UEWR 6.3.2; Aegis BMD 3.6

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Major Event	Project	Timeframe	Description
FTM 11b	0304	3Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary (repeat of FTM-11): <ul style="list-style-type: none"> • Exercise functionality used in SM-3 EO AN/SPY-1 ESG with priority on AN/SPY-1 sensor for L&E support for SM-3 weapon to engage target. • BMDS/Aegis BMD Secondary: <ul style="list-style-type: none"> • Determine Aegis BMD 3.6 capability with lethal intercept of exo-atmosphere SRBM & Anti-Ship Cruise Missile (ASCM) • ESG tested: SM-3 EO AN/SPY-1 • Participants include: Aegis BMD 3.0E/3.6, AN/TPY-2 (TM) 4.1
FTM-12	0304	3Q FY 2007	<ul style="list-style-type: none"> • Aegis BMD Primary: <ul style="list-style-type: none"> • Determine Aegis BMD 3.6 capability with cued engagement & lethal intercept of exo-atmosphere Medium Range Ballistic Missile (MRBM) • Aegis BMD Secondary: <ul style="list-style-type: none"> • Assess multiple simultaneous engagement performance • ESG tested: SM-3 EO AN/SPY-1 • Participants include: Aegis BMD 3.6 • Potential: C2BMC 6.2; AN/TPY-2 (TM) 4.2
FTT-07	0304	3Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Exercise BMDS functionality for THAAD EO AN/TPY-2 (TM) ESG where AN/TPY-2 (TM) is surveillance, initial track & launch sensor & THAAD interceptor is engaging weapon against a non-separating low aspect mid endo liquid fuel target • BMDS/THAAD Secondary: <ul style="list-style-type: none"> • Demonstrate and Assess (D&A) ability of THAAD to provide beyond-line-of-sight Link 16 track data to Aegis BMD and C2BMC • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: C2BMC 6.0; THAAD TFCC Bld. 4; AN/TPY-2 (TM) Bld. 4.2; Aegis BMD 3.6; PATRIOT 6.0 HWIL
FTG-04	0304	4Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Demo BMDS functionality of GBI EO SBX Mod 1 (SBIRS) for GBI launched from VAFB to perform all functions thru acquisition, discrimination, transition to terminal, & intercepting lethal object • ESGs tested: GBI EO SBX • Participants include: GMD GFC/C 6A; SBX 1.6; C2BMC 6.2; Aegis BMD 3.6; Beale UEWR Bld. 6.3.2
FTM-11a	0304	4Q FY 2007	<ul style="list-style-type: none"> • AEGIS BMD Primary: <ul style="list-style-type: none"> • Demo Engagement under operational conditions with minimal a-priori data provided • Aegis BMD Secondary: <ul style="list-style-type: none"> • Evaluate Aegis BMD 3.6 cruiser performance against engineering specifications • ESG tested: SM-3 EO AN/SPY-1 • Participants include: Aegis BMD 3.6; C2BMC 6.2

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Major Event	Project	Timeframe	Description
FTT-08	0304	4Q FY 2007	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo Exo Aim point selection & intercept against a high aspect non-separating exo-atmospheric liquid fuel target • THAAD Secondary: <ul style="list-style-type: none"> • Evaluate missile endgame against high aspect angle intercept • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: THAAD TFCC Bld. 4; AN/TPY-2 (TM) Bld. 4.2
FTX-03	0304	4Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Track a live, ballistic target with AN/TPY-2 (FB) radar & pass real-time data to C2BMC • BMDS/AN/TPY-2 (FB) Secondary: <ul style="list-style-type: none"> • D&A AN/TPY-2 ability to exchange track data with Aegis BMD via C2BMC • ESG tested: Operational Test of AN/TPY-2 (FB) SM-3 LO AN/TPY-2 (FB) i Simulation • Participants include: Aegis BMD 3.6; C2BMC 6.2; AN/TPY-2 (FB) Bld. CR-1; SBIRS 07-1
FTG-05	0304	1Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Demo BMDS functionality of GBI EO SBX for GBI Launched from VAFB to perform all functions thru acquisition, discrimination, transition to terminal, & intercepting a long range/low elevation lethal object • BMDS/ GMD Secondary: <ul style="list-style-type: none"> • Demo Long Range/Low Elevation Operations, Aegis BMD ability to provide S&IT to GFC/SBX/C2BMC, and demo SBX engagement support sensor for GBI LO AN/SPY-1 Mod 1 (SBX) • ESG tested: GBI EO SBX; GBI LO AN/SPY-1 Mod 1 (SBX) • Participants include: C2BMC 6.0/6.2; GMD GFC/C Bld. 6A; SBX Bld. 1.6.;Beale UEWR Bld. 6.3
FTM-13	0304	1Q FY 2008	<ul style="list-style-type: none"> • Aegis BMD Primary: <ul style="list-style-type: none"> • Lethal intercept of a unitary exo-atmosphere ballistic missile targets • Aegis BMD Secondary: <ul style="list-style-type: none"> • Verify MSE performance (SM-3) • ESG tested: SM-3 EO AN/SPY-1; SM-3 LOR AN/SPY-1 • Participants include: Aegis BMD 3.6 • Potential: TFCC B5
JFTM-01	0304	1Q FY 2008	<ul style="list-style-type: none"> • Aegis BMD Primary: <ul style="list-style-type: none"> • Lethal intercept of a unitary exo-atmosphere ballistic missile targets • Verify JBMD System performance against a Group "B" MRBM target • ESG tested: SM-3 EO AN/SPY-1; (Demonstrate performance of the Japan BMD (JABMD) configuration and the SM-3 Block IA installed in the Japan Maritime Self Defense Force (JMSDF) Destroyer JDS KONGO • Participants include: Aegis BMD 3.6

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Major Event	Project	Timeframe	Description
FTT-09	0304	2Q FY 2008	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo exo aim point selection & intercept of a spin stabilized non-reorienting separating target • THAAD Secondary: <ul style="list-style-type: none"> • Demo Long Range Radar Discrimination with radar SW update • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: THAAD TFC/C Bld. 5; AN/TPY-2 (TM) Bld. 4.2
FTG-06	0304	3Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Demo BMDS functionality of a GBI EO AN/TPY-2 (FB) Mod 1 ESG for a GBI launched from VAFB to perform all functions through acquisition, discrimination, transition to terminal, & intercepting a medium/high closing velocity lethal object • BMDS/GMD Secondary: <ul style="list-style-type: none"> • Demo ability of AN/TPY-2 (FB) to forward data via C2BMC to GMC • Assess capability against a Medium to High Vc/LO target • ESG tested: GBI LO/EO AN/TPY-2 (FB) Mod 1 (Herc 1, SBIRS); GBI EO SBX Mod 1 (SBIRS) • Participants include: GFC/C 6B; SBX 2.2; UEWR 6.3; AN/TPY-2 (FB) CR 2.3; C2BMC 6.4; SBIRS 08-1
FTM-14	0304	3Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Demo Aegis BMD LOR using another Aegis BMD ship against Intermediate Range Ballistic Missile (IRBM) • BMDS/Aegis BMD Secondary: <ul style="list-style-type: none"> • Verify Near-Term Sea-Based Terminal with lethal engagement of a Group • ESG Tested: SM-3 LOR (AN/SPY-1) • Participants include: C2BMC 6.2; Aegis BMD 3.6; TFCC B5
FTS-01	0304	3Q FY 2008	<ul style="list-style-type: none"> • STSS Primary: <ul style="list-style-type: none"> • 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 • BMDS/STSS Secondary: <ul style="list-style-type: none"> • Collect signature of targets for discrimination analysis • ESG tested: GBI LO/EO SBIRS Mod 1 (SBIRS) (Simulation) • Participants include: STSS (TBD); GMD GFC/C Bld. 6B; SBX Bld. 2.2; SBIRS 07-2, C2BMC X-Lab 6.2
FTS-02	0304	3Q FY 2008	<ul style="list-style-type: none"> • STSS Primary: <ul style="list-style-type: none"> • Demo capability to detect, acquire & track a boosting TBM with Acquisition sensor • Demo capability to handover boosting TBM track from Acq sensor to track sensor on same satellite • STSS Secondary: <ul style="list-style-type: none"> • Demonstrate simulated GBI LO/EO STSS with SBX engagement support • Evaluate measured signature of targets against truth models • ESG tested: Element Development Test • Participants include: STSS (TBD); C2BMC X-Lab 6.2

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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	
Major Event	Project	Timeframe	Description
FTK-01	0304	4Q FY 2008	<ul style="list-style-type: none"> • KEI Primary: <ul style="list-style-type: none"> • Demo Proof of Concept, high burn rate Stage 1 rocket motor with a Flex Seal TVC system • Assess Objective System Representative Trajectory Traceability to action times, Staging dynamic pressures, and etc. • KEI Secondary: <ul style="list-style-type: none"> • Measure payload environments & obtain data on BF flight environment • ESG Tested: N/A KEI (Demonstrate Proof of Concept, high burn rate Stage 1 rocket motor with a Flex Seal TVC system) • Participants include: KEI
FTS-03	0304	4Q FY 2008	<ul style="list-style-type: none"> • STSS Primary: <ul style="list-style-type: none"> • 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 • STSS Secondary: <ul style="list-style-type: none"> • Evaluate measured signature of targets against truth models • ESG tested: Element Development Test • Participants include: STSS (TBD); SIBRS 08-1; C2BMC (X-Lab) 6.2
FTT-10	0304	4Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Exercise BMDS functionality for THAAD EO AN/TPY-2 (TM) ESG • BMDS/THAAD Secondary: <ul style="list-style-type: none"> • Demo salvo launch & high endo intercept against a spin stabilized non-reorienting separating target with low aspect angle • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: C2BMC 6.2; THAAD TFC/C Bld. 5; AN/TPY-2 (TM) Bld. 4.2; Aegis BMD 3.6; PATRIOT 6.5 HWIL
FTX-04	0304	4Q FY 2008	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Radar data collection to support radar software development • ESG tested: N/A (Radar data collection to support radar software development) • Participants include: THAAD TFCC Bld. 5; AN/TPY-2 (TM) Bld. 4.2
FTG-07	0304	1Q FY 2009	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Demonstrate BMDS functionality of a GBI LO/EO UEWR Mod 1/2 ESG for a GBI launched from VAFB to perform all functions through acquisition, discrimination, transition to terminal, & intercepting medium closing velocity lethal object • BMDS/ GMD Secondary: <ul style="list-style-type: none"> • Demo SBX ESS for GBI LO/EO UEWR • ESG tested: GBI LO CD/UEWR Mod 1 (SBIRS); GBI EO CD/UEWR Mod 2 (SBIRS) ; GBI EO/LO SBX Mod 1 (SBIRS) • Participants include: C2BMC 6.4; GMD GFC/C Bld. 6B; SBX Bld. 2.2; SBIRS 07-2; Beale UEWR Bld. 6.3

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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	
Major Event	Project	Timeframe	Description
FTS-04	0304	1Q FY 2009	<ul style="list-style-type: none"> • STSS Primary: <ul style="list-style-type: none"> • 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 • STSS Secondary: <ul style="list-style-type: none"> • Collect measure signature of targets for evaluation against truth & models • ESG tested: N/A (Demonstrate detection & acquisition of a boosting missile with acquisition sensor) • Participants include: STSS (TBD); SBIRS 08-1; C2BMC (X-Lab) 6.4
FTT-11	0304	1Q FY 2009	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo mid endo intercept against a spin stabilized non-reorienting separating target with high aspect angle. • THAAD Secondary: <ul style="list-style-type: none"> • Demo functionality of TFC/C B5 Software in a Flight Test Environment • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: THAAD TFCC Bld. 5; AN/TPY-2 (TM) Bld. 4.2; PATRIOT 6.5 (possible)
JFTM-02	0304	1Q FY 2009	<ul style="list-style-type: none"> • Aegis BMD Primary: <ul style="list-style-type: none"> • Lethal intercept of a unitary exo-atmosphere ballistic missile targets • Verify JBMD System performance against a Group "B" MRBM target • ESG tested: SM-3 EO AN/SPY-1; (Demonstrate performance of the Japan BMD (JABMD) configuration and the SM-3 Block IA installed in the Japan Maritime Self Defense Force (JMSDF) Destroyer • Participants include: Aegis BMD 3.6
FTT-12	0304	2Q FY 2009	<ul style="list-style-type: none"> • THAAD Primary: <ul style="list-style-type: none"> • Demo exo intercept against a lofted spin stabilized reoriented separating target with low IR signature & RCS • THAAD Secondary: <ul style="list-style-type: none"> • Characterize performance of a hot Stockpile to Target Sequence (STS) conditioned, hot launched interceptor • ESG tested: THAAD EO AN/TPY-2 (TM) • Participants include: TFCC Bld 5, AN/TPY-2 (TM) Bld 4.2
FTL-01	0304	4Q FY 2009	<ul style="list-style-type: none"> • ABL Primary: <ul style="list-style-type: none"> • Demo ABL capability to negate a threat-representative BM during boost phase • ABL Secondary: <ul style="list-style-type: none"> • Characterize ABL engagement capabilities from target detection through negation. • Assess ABL interfaces and interoperability with BMDS • ESG tested: ABL EO ABL Sensor (Blk 14+) • Participants include: ABL BMC4I Spiral 24; ABL BC/FC 3C4m; ABL HEL Modules Build 8; C2BMC 6.4

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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	
Major Event	Project	Timeframe	Description
FTT-13	0304	4Q FY 2009	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Exercise BMDS functionality for THAAD EO AN/TPY-2 (TM) ESG • BMDS / THAAD Secondary: <ul style="list-style-type: none"> • Demo high endo intercept against a lofted spin stabilized target with high aspect angle. • ESG tested: THAAD EO AN/TPY-2 (TM) ; SM-3 EO AN/SPY-1 Mod 1 (AN/SPY-1 Mod, SBIRS, AN/TPY-2 (FB), AN/TPY-2 (TM)) Simulated • Participants include: C2BMC 6.4; THAAD TFC/C Bld 5; AN/TPY-2 (TM) Bld. 4.2; Aegis BMD 3.6; PATRIOT 6.5 HWIL
Ground Test			
System Ground Tests			
GTD-01	0304	1Q FY 2007	<ul style="list-style-type: none"> • COMPLETED • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 04 ESGs using multiple raid sizes and Block 04 functionality & interoperability • D&A Element SA data is sent to C2BMC • Demo AN/TPY-2 (FB) functionality & interoperability with BMDS by assessing: <ul style="list-style-type: none"> • 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
GTG 04-3	0304	2Q FY 2007	<ul style="list-style-type: none"> • GMD Primary: <ul style="list-style-type: none"> • Demo readiness of GMD Block 06 initial capability upgrades including SBX & Fylingdales, for field integration & BMDS ground tests • GMD Secondary: <ul style="list-style-type: none"> • Demo GMD capability to perform EO SBX and Fylingdales • Demo CE-2 architecture additions (Second IDT) with current ESGs • Demo GMD system performance, with component upgrades, is consistent with previously demonstrated 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

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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	
Major Event	Project	Timeframe	Description
GTG 04-4.a	0304	2Q FY 2007	<ul style="list-style-type: none"> • GMD Primary: <ul style="list-style-type: none"> • Verify the GMD system, dormant node with upgrades • Verify the dual node GMD system • Demo GMD system is consistent with previously demonstrated behavior for Block 04 ESGs, GMD capability to perform 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
GTX-02a	0304	2Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs using theater assets with Block 06 scenarios with priority on THAAD EO AN/TPY-2 (TM) • Assess BMDS initial Block 06 functionality & interoperability with: THAAD, PATRIOT, C2BMC, AEGIS BMD, SBIRS/Azusa • BMDS Secondary: <ul style="list-style-type: none"> • 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
GTI-02	0304	4Q FY 2007	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs using theater & strategic assets with Block 06 scenarios • Assess BMDS initial 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: <ul style="list-style-type: none"> • THAAD EO AN/TPY-2 (TM) • ESGs with AN/TPY-2 (FB) as Surveillance/Initial Track Sensor • BMDS Secondary <ul style="list-style-type: none"> • 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

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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	
Major Event	Project	Timeframe	Description
GTD-02	0304	1Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Blk 06 ESGs using theater & strategic assets with Blk 06 scenarios and operational comm. • BMDS Secondary: <ul style="list-style-type: none"> • Exercise functionality used in app. Blk 06 ESGs, priority on THAAD EO AN/TPY-2 (TM) • Assess BMDS initial 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
GTX-03a	0304	2Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to execute multiple Block 06 ESGs while integrating AN/TPY-2 (FB)'s track data forwarding capability using Block 06 scenarios & Block 06 threats • BMDS Secondary: <ul style="list-style-type: none"> • Exercise interface functionality used in applicable ESGs with priority on AN/TPY-2 (FB) as launch or engagement support sensor • D&A BMDS Block 06 functionality & interoperability with: AN/TPY-2 (FB), C2BMC, GFC/C, DSP/SBIRS • D&A AN/TPY-2 (FB) enhanced discrimination (Hercules 1) results generated & sent to C2BMC • Collect data to identify & support later investigation of any new system issues • D&A C2BMC interfaces: (C2BMC to AN/TPY-2 (FB) and GFC/C receipt of AN/TPY-2 (FB) data via C2BMC)
GTX-03b	0304	2Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary <ul style="list-style-type: none"> • Assess BMDS ability to execute Block 06 ESGs using theater assets with Block 06 scenarios & Block 06 threats while integrating AN/TPY-2 (FB) track forwarding capability & Aegis BMD BSP upgrade • BMDS Secondary: <ul style="list-style-type: none"> • Exercise functionality used in applicable ESGs with priority on AN/TPY-2 (FB) as launch or engagement support sensor • D&A BMDS Block 06 functionality & interoperability with: AN/TPY-2 (FB), C2BMC, Aegis BMD, DSP/SBIRS • D&A capability of C2BMC to forward AN/TPY-2 (FB) object classification data to Aegis BMD and capability of Aegis BMD to receive & utilize AN/TPY-2 (FB) object classification data from C2BMC • D&A AN/TPY-2 (FB) enhanced discrimination (Hercules 1) results are generated and sent to C2BMC • D&A BC interfaces (C2BMC to AN/TPY-2 (FB) and Aegis BMD receipt of AN/TPY-2 (FB) data via C2BMC)

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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	
Major Event	Project	Timeframe	Description
GTI-03	0304	3Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs using theater & strategic assets with Block 06 scenarios & Block 06 threats • BMDS Secondary: <ul style="list-style-type: none"> • Exercise functionality of applicable Block 06 ESGs with priority on PATRIOT, THAAD, & AN/TPY-2 (FB) as launch or engagements support sensor • D&A Aegis BMD capability to exercise SM-3 LO AN/TPY-2 (FB), AN/TPY-2 (FB) enhanced discrim results are generated & sent to C2BMC, THAAD & PATRIOT peer-to-peer engagement coordination, THAAD hit assessment to C2BMC, AN/TPY-2 (TM) coherent integration & improved discrimination, & PATRIOT upper tier debris mitigation • Collect data to identify & support later investigation of any new system issues
GTD-03	0304	4Q FY 2008	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs using theater & strategic assets with Block 06 scenarios & Block 06 threats while using operational communications • BMDS Secondary: <ul style="list-style-type: none"> • Exercise functionality of applicable Block 06 ESGs with priority on PATRIOT, THAAD, & AN/TPY-2 (FB) as launch or engagements support sensor • D&A C2BMC`s • D&A AN/TPY-2 (FB) enhanced discrim results are generated & sent to C2BMC, Aegis BMD capability to receive & utilize AN/TPY-2 (FB) object classification data from C2BMC, THAAD & PATRIOT peer-to-peer engagement coordination, THAAD hit assessment to C2BMC, AN/TPY-2 (TM) coherent integration & improved discrimination, and PATRIOT upper tier debris mitigation
GTX-04a	0304	2Q FY 2009	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs while integrating new GFC software builds • BMDS Secondary: <ul style="list-style-type: none"> • D&A improved GMD shot quality capability & functionality • Demo ability of AN/TPY-2 (FB) to forward feature data via C2BMC to GFC • D&A common X-Band type interface (AN/TPY-2 (FB), SBX) • Collect data to identify & support later investigation of any new system issues
GTX-04b	0304	2Q FY 2009	<ul style="list-style-type: none"> • BMDS Primary: <ul style="list-style-type: none"> • Assess BMDS ability to simultaneously execute multiple Block 06 ESGs while integrating new Aegis BMD software builds • BMDS Secondary: <ul style="list-style-type: none"> • D&A initial Aegis BMD AN/SPY-1 BSP mod functionality & interoperability with BMDS • D&A common X-Band type interface (AN/TPY-2 (FB), SBX) • Collect data to identify & support later investigation of any new system issues

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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
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B. Program Change Summary	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007 PB)	608,663	591,911	587,064	620,222
Current President's Budget (FY 2008 PB)	605,718	594,190	586,150	620,104
Total Adjustments	-2,945	2,279	-914	-118
Congressional Specific Program Adjustments	0	4,800	0	0
Congressional Undistributed Adjustments	0	-2,521	0	0
Reprogrammings	8,223	0	0	0
SBIR/STTR Transfer	-11,168	0	0	0
Adjustments to Budget Years	0	0	-914	-118

FY06 decrease of \$2.954 million includes SBIR/STTR transfers and MDA reprogrammings.

FY07 increase of \$2.279 million includes congressional earmarks and a portion of the MDA undistributed reduction.

FY08 decrease of \$0.914 million and FY09 decrease of \$0.118 million reflect MDA programmatic changes.

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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0304 Test & Evaluation	214,907	212,144	209,273	210,239	207,883	212,970	232,624	236,202
RDT&E Articles Qty	2	2	0	0	0	0	0	0

Note: RDT&E Articles: FY06 - Delivery of Two (2) Transportable Telemetry Systems (delivered in FY07). FY08 - X-Band Transportable Radar (XTR-1).

A. Mission Description and Budget Item Justification

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. 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 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 five functional areas; Test Policy and Strategy, BMDS Combined Test Force (CTF), Test Resources, Facilities, Siting, and Environmental management and Test Assurance.

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. 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 develops 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 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. The Test Policy and Strategy 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 will reflect a living document of the BMDS assessment.

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<p>The BMDS Combined Test Force (CTF) plans, executes, analyzes, and reports Ballistic Missile Defense System (BMDS) test events. Government personnel plan and execute test events with the assistance of contractor support. CTF core activities consist of:</p> <ul style="list-style-type: none">• Test planning and design (campaign-level test planning and design)• Test Operations (detailed system level test planning and execution processes)• Test Analysis and Reporting (system test event data collection, analysis and reporting and associated tool development) for flight tests (to include CMCM FT and Lethality), ground tests, and BMDS Exercises - formerly Wargames, and d. CTF support. <p>Test Planning and Design funds 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 establish a baseline test campaign timeline, and the interface with co-located OTA and Advanced Systems representatives. Theses efforts culminate in the development and publication 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.</p> <p>Test Operations funds the execution teams for both BMDS flight and ground tests 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, 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 Task Forces (TFs): TF A (GBI ESG Flight Testing), TF B (SM-3 & THAAD ESG Flight Testing), TF C (Special Flight Testing), TF D (System Ground Testing), and TF E (Emerging Technologies). Test Operation products include detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.</p> <p>The CTF Test Analysis and Reporting (TA&R) funds the flight and ground test Joint Analysis Teams (JAT). For each BMD System level test event, the CTF JAT participates in pre-mission analysis planning and coordinates and integrates BMD System-level, Element-level, and warfighter test analysis results into single, integrated, and standardized reporting products. Each JAT is tailored to the specific MDA test based on the BMDS test objectives and test event participants. JAT products include quick-look reports and briefings, Executive Data Reviews, final Test Analysis Reports, inputs to the BMD System Characterization Database and Report and Truth Data Packages (TDP). In addition, the CTF JATs lead and execute in the development of Integrated Data Analysis Plans (IDAP), Integrated Data Management Plans (IDMP), and also provide inputs to National Ranges Universal Documentation System (UDS). Test and Analysis develops the tools and infrastructure to automate and enable the timely distribution of critical TA&R post-mission products.</p>		

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<p>CTF Support funds the business of the CTF through performance of CTF integration and organization management functions. Specifically, CTF Support assists the Test Configuration Working Group (TCWG), which maintains BMDS system test configuration, conducts the Test Integration Council (TIC), executes CTF operations (action management, War Room management, test information management, organization security), performs CTF financial planning, management and manpower functions, and interfaces with co-located OTA Representatives.</p> <p>Also, part of the CTF is the Lethality program, which 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test data requirements are achieved by leveraging planned BMDS intercept or Measurements Program with alternative targets, supplemental payloads and ancillary sensor coverage. The CTF integrates lethality LFT&E testing across MDA and coordinates with related programs (e.g., PAC-3) to establish an efficient requirements driven approach to BMDS lethality characterization</p> <p>The Test Resources Program develops, sustains, and modernizes the core T&E facilities of the BMDS test bed to support system and element-level 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), and the Pacific Collector Mobile Instrumentation Ship. These assets are required to collect the spatial data needed to safely execute the tests and 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 (MRTFB) activities including the NP-3D improvement program with the Navy. All of these assets provide program risk reduction and test implementation capability 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 uses 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, BMDS elements, and element components 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.</p>		

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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 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 Test Assurance program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The Test Assurance program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The Test Assurance program will assess readiness processes and metrics for these programs and evaluate the outcomes. Test Assurance 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. Test Assurance 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.

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
Test Resources	134,455	116,538	125,672	121,819
RDT&E Articles (Quantity)	2	2	0	0

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 and ground test facilities 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 testing.

FY06 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 to operate, maintain and improve airborne sensors instrumentation platforms HALO-I, HALO-II and WASP to support IR measurement data collection for BMDS testing and development activities.

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<ul style="list-style-type: none"> • 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 to support component level Hardware in the Loop risk reduction testing. • Used 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. • Completed development of the PRST Flight Safety Guide for Range Users that provides a standard process for MDA elements to use when testing at various MDA ranges. • Recommended innovative solutions to mitigate Range Safety Officer shortfalls through the PRST's Range Safety Augmentation Program (RSAP). • Continued software development of the Range Safety Modeling Toolkit (RSMT) to provide common safety analysis tools. • Continued coordination with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. • Maintained the MDA Data Centers Program to provide efficient data archiving, access, distribution and furnish relevant expertise for MDA Mission oriented data. • Awarded follow-on task order to Alaska Aerospace Development Corporation (AADC) to provide for operation and sustainment of the KLC to support MDA target launches. • Activated a reserve fleet ship to support MDA as the "Pacific Collector." The ship will serve as a mobile instrumentation ship to support off-range BMDS testing and increasingly complex test scenarios. • Continued 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. • Completed development of the Transportable Telemetry Systems (TTS) to provide ultra high band width telemetry collection, processing, and real time test data transmission capability thereby supporting the data collection requirements of future BMDS missions. • Validated performance of the TTS in both a land- and sea-based deployment on FT-04-1 and FTG-2. • Continued development of the X-band Transportable Radar (XTR-1) to support off-range BMDS testing and increasingly complex test scenarios. • Continued upgrade of the Kwajalein Mobile Range Safety System (KMRSS). • Coordinated with OSD test resources community/programs (DTRMC, CTEIP, etc.). Developed agreement on the NP-3D upgrade program to provide three (3) aircraft that will have the capability to support MDA operations. • Maintained and operated the KTF to enable the launch of target systems supporting BMD Test Activities. 		

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<ul style="list-style-type: none"> Continued Upgrades to PMRF Sensors, Command and Control Systems, Data Analysis Tools, and Range Safety Systems to support BMDS testing. Characterized advanced technology in the terrestrial neutron environments which allows simulation of unique BMD Environments at the Indiana University Cyclotron Facility. <p>FY07 Planned Program: RDT&E Articles: Delivery of Two (2) Transportable Telemetry Systems</p> <ul style="list-style-type: none"> 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. 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. Complete upgrade of the Hypervelocity Ballistic Range G Light Gas Gun at AEDC to provide higher fidelity projectiles in support of BMDS Live Fire Test & Evaluation (LFT&E). 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 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. These centers include: Advanced Missile Signature Center, Missile Defense Data Center, and Naval Surface Warfare Center. 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. Operate two Transportable Telemetry Systems (TTS) which provides long range missile telemetry acquisition, processing and archiving capability. 		

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<ul style="list-style-type: none"> • Continue development of the X-band Transportable Radar (XTR-1) to support off-range BMDS testing and increasingly complex test scenarios. • 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. • Develop and Upgrade PMRF Sensors, Command and Control Systems, Data Analysis Tools, and Range Safety Systems. • Maintain and operate the KTF to enable the launch of target systems supporting BMD Test Activities. • Characterize advanced technology in the terrestrial neutron environments which allows simulation of unique BMD Environments at the Indiana University Cyclotron Facility. <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • 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. These centers include: Advanced Missile Signature Center, Ballistic Missile Defense System Integration Data Center, Missile Defense Data Center, and Navy Surface Warfare Center. • Sustain the Pacific Collector to support off-range BMDS testing and increasingly complex test scenarios. 		

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- Operate two Transportable Telemetry Systems (TTS) which provides long range missile telemetry acquisition, processing and archiving capability.
- 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.
- Continue development of 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 2006	FY 2007	FY 2008	FY 2009
BMDS CTF Core	44,511	55,985	36,871	39,219
RDT&E Articles (Quantity)	0	0	0	0

The BMDS Combined Test Force (CTF) plans, executes, analyzes, and reports Ballistic Missile Defense System (BMDS) test events. Government personnel plan and execute test events with the assistance of contractor support. The CTF Core support effort provides funding for the core Government and Contractor personnel in the CTF originations/divisions to support the Block test program contained in exhibits 0804, 0904, 0004, R104, and R204. The CTF organization consists of four divisions located in Huntsville, Alabama and a National Capitol Region (NCR) Coordination Team as follows:

- Test Planning and Design Division: performs campaign-level test planning and design.
- Test Operations Division: performs detailed test planning and execution processes.
- Test Analysis and Reporting Division: performs test event data collection, analysis and reporting and associated tool development.
- CTF Support Division: performs Test Configuration Working Group (TCWG) secretariat functions, and CTF integration and business operations functions.
- NCR Coordination Team: performs CTF liaison activities at MDA Headquarters.

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<p>FY06 Accomplishments:</p> <p>Note: During 2006, the Combined Test Force (CTF) was created through an intensive reengineering effort from legacy organizations, funding, manpower, and processes. The purpose of this re-engineering was to consolidate BMD System Level testing efforts into a single center of excellence in Huntsville, AL. Since this was a new mission, the legacy pieces had to be reengineered to align with the new requirements. Limited Initial Operation Capability (IOC) for the CTF occurred on 1 October 2005 with Full Operational Capability (FOC) occurring on 1 October 2006. The strategic vision for the CTF set the direction for the reengineering effort of: 1) Relocation of a hundred of positions to Huntsville, Al, 2) Re-definition/re-engineering of government and contractor positions to re-align to new BMDS mission, establishment of a small Coordination/liaison team in the NCR, and Reduction of the number of contract vehicles.</p> <p>In addition to the re-engineering process the CTF Core Support effort continued to support BMDS testing in FY06 by:</p> <ul style="list-style-type: none"> • Continuing to coordinate, revise and fully coordinate the BMDS Integrated Master Test Plan (IMTP). • Providing BMDS Strategic Test Planning (transferred to the Test Policy and Strategy Program late in FY 06) • Continue to provide the Core Government and contractor support/test teams that execute the BMDS Block testing efforts described in exhibits 0804. • Continuing to operate and improve the Test Configuration Control Board (TCCB) (re-engineered into the TCWG) process to control the content and schedule of BMDS system test events. • Continuing to provide the CTF with the Executing Agents (EA) Government and SETA support necessary to plan and execute BMDS system test events. • As part of re-engineering during FY 06 EAs have been transferred and consolidate under the CTF from various agencies • Provided initial funding and personnel to establish the Test Assurance organization (described later) within the RTO to improve test mission success. • Continued Lethality Program efforts by: <ul style="list-style-type: none"> ○ Continued interface with BMDS element and corporate lethality programs, but with increased authority and responsibility for assuring BMDS lethality testing and assessments are accomplished in accordance with the BMDS Combined Test Force Concept of Operations. ○ Supported tasks to update lethality LFT&E requirements and execute strategy for GMD, Aegis BMD, KEI, ABL and MKV. • Continued the Advanced Data Analysis Center (Optical Data Analysis (ODA), Radar Data Analysis (RDA), and Radar Exploitation (RDE) groups) efforts to support BMDS data collection objectives, conducted mission planning, performed data analysis BMDS test conducted during FY 06, explored phenomenology to improve future BMD systems and new mission areas, and provided characterization and assessment for Measurements and BMDS flight test programs. 		

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<ul style="list-style-type: none">Supported the BMDS Kill Assessment (KA) Test Program by:<ul style="list-style-type: none">Developing testing and validating techniques that are designed to declare the Degree of Kill on BMDS Engagements. This included developing engineering models and decision tools to support KA decision capability insertion into the BMDS Block 2006 C2BMC suite. <p>FY07 Planned Program:</p> <ul style="list-style-type: none">Having achieved FOC on 1 October 2006, the CTF Core focus in FY 07 will be to implement core processes and standardization across both the CTF and BMDS system tests:Continue to coordinate, revise and fully coordinate the BMDS Integrated Master Test Plan (IMTP).Continue to operate and improve the Test Configuration Working Group (TCWG) process to control the content and schedule of BMDS system test events.Continue to provide the Core Government and contractor support/test teams that execute the BMDS Block testing efforts described in exhibits 0804 and 0904.Continue to provide the CTF with the SETA support necessary to plan and execute BMDS system test events.Continue to provide innovative tools and capabilities to plan, execute, analyze, report and integrate BMDS system test events.Continue to provide data management/collection/distribution, truth and analysis reporting for BMDS system test events.Continued Optical Data Analysis (ODA) and Radar Data Analysis (RDA) support. <p>FY08 Planned Program:</p> <ul style="list-style-type: none">Continue to coordinate, revise and fully coordinate the BMDS Integrated Master Test Plan (IMTP).Continue to operate and improve the Test Configuration Working Group (TCWG) process to control the content and schedule of BMDS system test events.Continue to provide the Core Government and contractor support/test teams that execute the BMDS Block testing efforts described in exhibits 0904 and 0004.Continue to provide the CTF with the SETA support necessary to plan and execute BMDS system test events.Continue to provide innovative tools and capabilities to plan and integrate BMDS system test events.Continue to provide data management/collection/distribution, truth and analysis reporting for BMDS system test events. <p>FY09 Planned Program:</p> <ul style="list-style-type: none">Continue to coordinate, revise and fully coordinate the BMDS Integrated Master Test Plan (IMTP).		

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- Continue to operate and improve the Test Configuration Working Group (TCWG) process to control the content and schedule of BMDS system test events.
- Continue to provide the Core Government and contractor support/test teams that execute the BMDS Block testing efforts described in exhibits 0904 and 0004.
- Continue to provide the CTF with the SETA support necessary to plan and execute BMDS system test events.
- Continue to provide innovative tools and capabilities to plan and integrate BMDS system test events.
- Continue to provide data management/collection/distribution, truth and analysis reporting for BMDS test events.

	FY 2006	FY 2007	FY 2008	FY 2009
Facilities, Siting & Environmental	3,407	3,557	3,557	3,678
RDT&E Articles (Quantity)	0	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.

FY06 Accomplishments:

- The Civil Engineering Division:
- Provided oversight for real property acquisition of the Military Construction (MILCON) and RDT&E construction programs.
- Managed the design and construction of the Von Braun Complex II MILCON project on Redstone Arsenal, AL.
- Supported the MDA facility requirements and programming in the 2005 BRAC.
- Supported facility development for the FBX-T Radar at Shariki, Japan.
- Supported actions related to completing the THAAD MILCON project at PMRF, HI.
- Supported actions related to the completion of the Missile Defense System Test Bed construction program in Alaska and California.
- Supported actions related to the Targets Program facilities siting, design, construction, and caretaker operations and maintenance activities, especially the Flexible Targets Family, Vandenberg target launch bed down, Reagan Test Site launch modifications, and Kodiak Launch Complex launch facilities requirements.

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<ul style="list-style-type: none"> • Assumed oversight for operations and maintenance of MDA-assigned facilities at U.S. Army Kwajalein Atoll. • Supported Wake Island activities including Super Typhoon Ioke storm damage repairs and PACAF Intent to Excess staff planning. • Supported activities related to facility acquisition and siting for the KI program at Vandenberg AFB, CA, Hill AFB, UT and Redstone Arsenal, AL. • Oversaw the programming and design of the FY07 facility MILCON Life Safety Upgrades, Launch Control Center on Meck Island. • Monitored the final construction phases of multiple projects to include the Telemetry Building Addition, PMRF, HI; Range G Addition, AEDC, TN, and the Hangar 151 Wall Demolition, Edwards AFB, CA. • Oversaw the design and construction award of the FY06 facility MILCON Emergency Services Facility on Meck Island. <p>The Environmental Management Division:</p> <ul style="list-style-type: none"> • Ensured all MDA activities were conducted in compliance with all applicable Federal, state, local, Department of Defense (DoD), and international laws, treaties and regulations concerning environmental compliance. • Provided technical oversight for MDA's compliance with the National Environmental Policy Act, applicable Executive Orders, Council on Environmental Quality and DoD implementing instructions, and other environmental compliance requirements. • Prepared and/or coordinated Records of Environmental Consideration (REC), Air Force Form 813s (AF 813), and Memoranda for the Record (MFR) for the following activities: <ul style="list-style-type: none"> ○ AF 813 for Building 151 Hanger Improvements at Edwards AFB, for GMD Building 980 at VAFB Flight Test Interceptors, Small Missile Launch Site EA, Space Tracking and Surveillance System (STSS) Launch, Temporary Setup and Communications Testing of FBX-T at Misawa, Japan, Use of Big Crow Aircraft for ABL Testing. ○ REC for GMD FT04-1, GMD FTG-02, -03, & -04., PATRIOT GEM+ ATM-46, Permanent Sensors Site at Cordova, AK, Runway Cratering Munition/Dual Purpose Improved Conventional Munition, THAAD Intercept Debris Measurement Program (IDMP), THAAD Radar Definition Characterization Mission 1A & 1B, THAAD Radar Pad Extension at PMRF, Wake Island Storage Pads, Aegis FTM 04-2 TRACKEX, Aegis FTM-10 Record of Categorical Exclusion (RCE), and Aegis FTM-11 RCE. • Prepared Environmental Assessments (EA) for: <ul style="list-style-type: none"> ○ AN/TPY-2 (Forward Based (FB)) OCONUS Deployment, Ground-Based Midcourse Defense Sea-Based X-Band (SBX) Radar Placement and Operation at Adak, Alaska, Missile Defense Agency Mobile Sensors, Orbital/Sub-Orbital Program, and Wake Island Facility Upgrades. • Prepared the MDA Ballistic Missile Defense System Programmatic Environmental Impact Statement and the Record of Decision and Environmental Liability Reports. • Developed an Environmental GIS for the Alaska Region to support test planning. 		

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<ul style="list-style-type: none">• Conducted MDA Green Procurement Program audit of items purchased by MDA.• Developed Action Plans to implement MDAs Strategic Plan for Environmental Management and the Environmental Management System.• Prepared MDAs Presidential Budget Special Exhibit 28 “Funds Budgeted for Environmental Quality.” <p>FY07 Planned Program: The Civil Engineering Division will:</p> <ul style="list-style-type: none">• Oversee the construction execution of the Von Braun Complex II MILCON project on Redstone Arsenal, AL.• Oversee the construction phase of the FY07 facility MILCON Emergency Services Facility on Meck Island.• Support obtaining OSD approval and Congressional notification for establishment of a Flexible Target Family Single Integration Facility Complex.• Oversee completion of facilities required for AN/TPY-2 (FB) Radar at Shariki, Japan.• Program facilities requirements for a second OCONUS AN/TPY-2 (FB).• Support facility construction at Dahlgren related to MDA 2005 BRAC moves.• Support bed down actions at Hanscom AFB, MA related to MDA 2005 BRAC and MDA reengineering.• Complete siting and design of Targets Program facilities at RTS and Vandenberg, initiate construction at those sites, and monitor AADC contract for facilities support to Kodiak Launch Complex.• Oversee operations and maintenance of MDA-assigned facilities at USAKA.• Support Wake Island activities including Super Typhoon Ioke storm damage repairs, PACAF Intent to Excess staff planning, and the scheduled test campaign.• Support bed down actions and facility project design activities related to the KI test facilities at Hill AFB, UT and Redstone Arsenal, AL.• Support the MDA facility requirements in the 2005 BRAC process including new facilities on Redstone Arsenal, AL and Fort Belvoir, VA.• Monitor the construction phase of the FY07 facility MILCON Life Safety Upgrades, Launch Control Center on Meck Island. <p>The Environmental Management Division will:</p> <ul style="list-style-type: none">• Complete the Record of Decision for the BMDS Programmatic Environmental Impact Statement.• Prepare / provide technical oversight and interagency coordination on the following EAs:<ul style="list-style-type: none">○ Flexible Target Family Single Integration Facility EA, Flexible Target Family EA, Small Targets Launch Site EA, ABL Debris Management EA, and AN/TPY-2 (FB) Radar #2 OCONUS Deployment Environmental Review.		

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- Complete and staff RECs, AF 813s, and MRFs for MDA activities including: KEI, Aegis FTM events, GMD FTG events, FTF Targets, THAAD events, NFIRE, STSS, MKV, Micro Satellites, Meck Island, CMCM-4, PATRIOT ATM-48, and FTX-03.
- Support environmental planning and compliance for MDAs Space Program.
- Support site activation activities for MDAs Third Site.
- Complete an Environmental Baseline Survey for Courtland Target Assembly Facility.
- Participate as a Cooperating Agency on the U.S. Navy Hawaii Range Complex Environmental Impact Statement.
- Expand the Environmental GIS to include the Pacific Ocean Region.
- Implement MDA's Environmental Management System.
- Prepare quarterly Environmental Liabilities Reports.
- Implement MDAs Corrective Action Plan for environmental liabilities.
- Prepare MDAs Presidential Budget Special Exhibit 28 "Funds Budgeted for Environmental Quality."
- Monitor and report results of the MDAs Green Procurement Program.

FY08 Planned Program:

- The Facilities, Siting and Environmental Programs will continue to provide facility siting and environmental compliance support for the BMDS.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Policy and Strategy	29,564	32,638	39,654	41,901
RDT&E Articles (Quantity)	0	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 team; providing for operational assessments of the BMDS via Operational Test Agency 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.

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<p>FY06 Accomplishments:</p> <ul style="list-style-type: none"> • Completed MDA Directive 5000.2, “Target Planning Process Directive,” November 8, 2005, to establish long-term planning of target capabilities required for BMDS testing. • Completed Mission Assurance Implementation Plan, November 2005 to outline the steps by which the MDA Assurance Provision are managed and implemented by the Test Directorate. • BMDS Capability Assessment (BCA) team updated the non-advocate assessment of the BMDS readiness, investigated BMDS performance issues, proposed mitigation plans, contributed to BMDS test activity planning, and planned for operational system characterization. • Completed Target Accreditation Reports for MRTF FT-2, FTM-04-1, FTM-04-2, FTC-02a, FTC-02b, FTX-01, THAAD FT-3, and THAAD FT-4 to ensure target satisfied mission objectives. • Initiated Target Accreditation Reports for FTM-11 to ensure target satisfied mission objectives. • Continued to integrate mission assurance, best practices and lessons learned into test policy, process, and procedures. • Continued communications and coordination with the Service operational test communities as established by the MOA. Funded BMDS Operational Assessment Efforts by the OTA. • Prepared draft of International Test policy. • Issued RTO Test Directives for 21 flight and ground tests. <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Completed MDA Directive 3100.01, “International Test and Exercise Policy” dated 13 November 2006, to assign responsibilities and actions needed to conduct BMDS testing. • BMDS Capability Assessment (BCA) team will continue to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans. • Prepare Target Accreditation Reports to include but not limited to: FTM-12, FTG-03, FTT-06, FTT-07, FTT-08, FTX-02, FTM-11a, FTM-11b, FTG-04, FTT-05, and FTX-03. • Continue to integrate mission assurance and best practices and lessons learned into test policy, processes and procedures. • 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, and procedures for creating unified BMD test processes. • Complete MDA Test Review Directive Guidelines. • Continue to issue RTO Test Directives for flight and ground tests. 		

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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
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- Complete MDA Test Event Viewing and Notification Directive.

FY08 Planned Program:

- Prepare Target Accreditation Reports to include but not limited to: FTM-13, FTM-14, JFTM-01, FTT-09, FTT-10, FTS-01, FTS-03, FTX-04, FTG-05, FTG-06 (1Q FY09), JFTM-02 (1Q FY09), and FTT-11 (1Q FY09).
- Continue to integrate mission assurance and best practices and lessons learned into test policy, processes and procedures.
- 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 issue RTO Test Directives for flight and ground tests.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Assurance	2,970	3,426	3,519	3,622
RDT&E Articles (Quantity)	0	0	0	0

The Test Assurance program is responsible for improving the quality, design, execution and efficiency of the BMDS test, integration and fielding programs. The Test Assurance program is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, and tracking test risk. The Test Assurance program will assess readiness processes and metrics for these programs and evaluate the outcomes. Test Assurance 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. Test Assurance 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.

FY06 Accomplishments:

- Initiated development of the BMDS Evaluation Strategy.
- Initiated Lean Six Sigma/Continuous Process Improvement training within the test organization.
- Assessed adequacy of range preparations and developed a Range Review plan.
- Assessed the Test Observation Report process and provided recommendations for improvement.

FY07 Planned Program:

- Complete transition to a BMDS Readiness organization.

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- 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.
- Complete development and implementation of a Risk Management Program.

FY08 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.
- Complete development and implementation of a Risk Management Program.

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.
- Complete development and implementation of a Risk Management Program.

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690

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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets
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I. Product Development Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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,	39,184	7,578	1Q	11,473	1Q	9,840	1Q	68,075
Ranges and Instrumentation	Various	Various/ CA, HI, NM, Marshall Is, Alaska	200,859	63,994	1Q	72,302	1Q	69,490	1Q	406,645
Airborne Sensors	C/CPAF	L3 Communications/ CA, OK, NM	79,030	25,857	1Q	27,096	1Q	26,893	1Q	158,876
Congressional Adds	Various	Various / HI	50,989	4,800	1Q	0	1Q	0	N/A	55,789

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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					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	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	12,469	7,382	1Q	7,576	1Q	8,003	1Q	35,430
BMDS CTF Core										
Optical Data Analysis	Various	USASMDC, HANSCOM AFB & NAVSEA/ Huntsville, AL, MA & Crystal City, VA	14,083	5,242	N/A	0	N/A	0	N/A	19,325
Radar Data Analysis	Various	USASMDC, NAVSEA & HANSCOM AFB/ Huntsville, AL, Crystal City, VA & MA	13,333	4,253	4Q	0	4Q	0	N/A	17,586
Lethality	Various	USASMDC / Huntsville, AL	11,046	2,786	4Q	0	N/A	0	N/A	13,832
Kill Assessment	Various	USASMDC / Huntsville, AL	10,479	3,733	1Q	3,819	1Q	3,929	1Q	21,960
International Programs	Various	USASMDC, HANSCOM AFB, WRIGHT PATTERSON AFB & NAVSEA/ Huntsville, AL, MA, OH & Crystal City, VA	3,173	1,161	1Q	0	N/A	0	N/A	4,334
Special Programs Tests	Various	MDA/ Washington, D.C.	5,212	842	1Q	0	N/A	0	N/A	6,054

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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
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Radar Exploitation	Various	USASMDC/ Huntsville, AL	8,257	2,947	1Q	0	N/A	0	N/A	11,204
BMDS Strategic Planning	Various	USASMDC & MDA / Huntsville, AL & Washington, D.C.	5,236	6,188	1Q	0	N/A	0	N/A	11,424
Test Configuration Control Board	Various	MDA/ Washington, D.C.	2,742	3,000	1Q	2,884	1Q	3,253	1Q	11,879
Test Assurance Directorate	Various	MDA/ Washington, D.C.	2,970	3,498	1Q	3,000	1Q	3,200	1Q	12,668
Test Policy and Strategy										
BCA	Various	Various/NJ, CA, MD, MA	27,559	9,492	1Q	9,503	1Q	9,685	1Q	56,239
Operational Test Agency Participation in System Test	Various	OTAs/ Various	18,251	11,351	1Q	11,231	1Q	12,481	1Q	53,314
Target Certification	Various	USASMDC/ Huntsville, AL	1,771	613	1Q	636	1Q	664	1Q	3,684
Test Assurance										
Continuous Test Improvement	Various	Various	2,256	1,974	1Q	2,034	1Q	2,094	1Q	8,358
Subtotal Test and Evaluation			508,899	166,691		151,554		149,532		976,676

Remarks

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,

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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
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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.

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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	2,595	919	1Q	925	1Q	953	1Q	5,392
Support Contracts	C/FFP	Northrop Grumman/ Arlington, VA	17,264	6,008	1Q	6,300	1Q	6,640	1Q	36,212
BMDS CTF Core										
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	12,839	5,254	1Q	656	1Q	659	1Q	19,408
Support Contracts	C/FFP	Various/ TASC, SPARTA, RNB Arlington, VA	42,269	17,081	1Q	26,512	1Q	28,178	1Q	114,040

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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					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Facilities, Siting & Environmental										
Support Contracts	C/FFP	ICF & SciComm/ VA & MD	9,978	3,557	1Q	3,557	N/A	3,678	N/A	20,770
Test Policy and Strategy										
TE Government Salaries	TM	Wash, DC	17,432	5,871	1Q	11,028	1Q	11,510	1Q	45,841
Support Contracts	C/FFP	TASC, SPARTA/ Arlington, VA	13,529	4,753	1Q	6,000	1Q	6,244	1Q	30,526
TE Travel	TM		2,158	558	1Q	562	1Q	593	1Q	3,871
International Programs	TM	Wash, DC	526	0	N/A	694	4Q	724	4Q	1,944
Test Assurance										
Support Contracts	C/FFP	Various/TASC, SPARTA Arlington, VA	706	1,452	1Q	1,485	1Q	1,528	1Q	5,171
Subtotal Management Services			119,296	45,453		57,719		60,707		283,175
Remarks										
Project Total Cost			628,195	212,144		209,273		210,239		1,259,851
Remarks										

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Fiscal Year	2006				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	1	2	3	4
System Ground Tests																																
PACOM Tier 1 CPX					▽																											
Vigilant Shield 07					▽																											
BMDS Overlay 07 - Juniper Cobra 07						△																										
GTG 04-3						◇																										
GTG 04-4.a						◇																										
GTX-02a						▽																										
GTG 04-4.b										◇																						
GTI-02										▽																						
CENTCOM US/UK 08 Exercise Set														△	—	△																
GTD-02										▽																						
GTG 06-3										▽																						
BMDS Overlay 08 - System Engineering Simulation														△																		
BMDS Overlay 08 - Joint Project Optic Windmill														△																		

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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Fiscal Year	2006				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	1	2	3	4
System Ground Tests																																
GTG 06-4									▽																							
GTX-03a									▽																							
GTX-03b									▽																							
BMDA Overlay 08 - Blue Flag Exercise											△	△																				
BMDS Overlay 08 - Eagle Resolve 2008											△	△																				
BMDS Overlay 08 - PACOM Exercise Set											△	△																				
GTI-03									▽																							
BMDS Overlay 08 - BMDS Exercise												△																				
GTD-03												▽																				
GTX-03c												▽																				
CENTCOM US/UK 09 Exercise Set															△	△																
BMDS Overlay 09 - System Engineering Simulation															△																	
GTX-04a															▽																	

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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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	2006				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	1	2	3	4
System Ground Tests																																
GTX-04b																▽																
BMDS Overlay 09 - Blue Flag Exercise																				△	△											
BMDS Overlay 09 - Eagle Resolve 2009																				△	△											
GTI-04																	▽															
PACOM Exercise Set 2009																				△	△											
BMDS Overlay 09 - BMDS Exercise																					△											
GTD-04																					▽											
GTX-04c																					▽											
BMDS Overlay 10-1																						△										
GTX-05a																						▽										
GTX-05b																						▽										
BMDS Overlay 10 - Eagle Resolve 2010																																
BMDS Overlay 10-2																																

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

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Fiscal Year	2006				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	1	2	3	4
System Ground Tests																																
GTI-05																			▽													
PACOM Exercise Set 2010																			△	△												
BMDS Overlay 10 - BMDS Exercise																			△													
GTD-05																			▽													
GTX-05c																			▽													
BMDS Overlay 11-1																					△											
GTX-06a																				▽												
GTX-06b																				▽												
BMDS Overlay 11-2																						△	△									
BMDS Overlay 11 - Eagle Resolve 2011																						△	△									
GTI-06																					▽											
PACOM Exercise Set 2011																						△	△									
BMDS Overlay 11 - BMDS Exercise																							△									

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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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets
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Fiscal Year	2006				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	1	2	3	4				
System Flight Tests																																				
P6-4				◆																																
PAC PDB-6 LUT				◆																																
RDC-01a/b				▼																																
FTM-11								▼																												
P6L-1				◆																																
P6L-2				◆																																
P6L-3				◆																																
AST-11								◇																												
AST-12								◇																												
FTT-05								◇																												
FTT-06								◇																												
FTX-02								▽																												
RDC-01c								◇																												

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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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets
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Fiscal Year	2006				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	1	2	3	4				
System Flight Tests																																				
ATM-48							▽																													
FTG-03							▽																													
FTM 11b							▽																													
FTM-12							▽																													
FTT-07							▽																													
PAC3 7-1							◇																													
RDC-01d							◇																													
FTG-04								▽																												
FTM-11a								◇																												
FTT-08								◇																												
FTX-03								▽																												
N FIRE-2A								◇																												
FTG-05										▽																										

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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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets
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Fiscal Year	2006				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	1	2	3	4
System Flight Tests																																
FTT-21																																▽
FTX-10																																▽
GBI Readiness Test 13																																▽
Measurement Tests																																
FTC-02a/b			▽																													
FTC-04a/b															△																	
FTC-05																			△													
FTC-06																																
FTC-07																																
Glory Trips (USAF Operational)/Potential BMDS Tests																																
GT-189		▽																														
SERV-3			▲																													
GT-190				▲																												

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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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	2006				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	1	2	3	4
Glory Trips (USAF Operational)/Potential BMDS Tests																																
GT-191			▲																													
GT-192				▲																												
GT-193						Δ																										
GT-194							Δ																									
GT-195								Δ																								
GT-196									Δ																							
GT-197										Δ																						
GT-199											Δ																					
GT-198												Δ																				
Environmental Planning																																
PEIS Completion			Δ																													
Test Asset Upgrades																																

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-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Ground Tests								
DGT 04-2a Phase 1	1Q							
GT 04-1a	1Q							
GT 04-2a.1	1Q							
WG 04-5	1Q							
GTX-01a	2Q							
Amalgam Phantom 06	3Q							
GT 04-2a.2	3Q							
GT 04-2a.3	3Q							
GTX-01b	3Q							
GT 04-2a.4	4Q							
GTI-01	4Q							
BMDS Overlay 07 - Terminal Fury 07		1Q						
BMDS Overlay 07 - Vigilant Shield 07		1Q						
GTD-01		1Q						
PACOM Tier 1 CPX		1Q						
Vigilant Shield 07		1Q						
BMDS Overlay 07 - Juniper Cobra 07		2Q						
GTG 04-3		2Q						
GTG 04-4.a		2Q						
GTX-02a		2Q						
GTG 04-4.b		4Q						
GTI-02		4Q						
CENTCOM US/UK 08 Exercise Set			1Q-4Q					
GTD-02			1Q					
GTG 06-3			1Q					
BMDS Overlay 08 - System Engineering Simulation			2Q					
BMDS Overlay 08 - Joint Project Optic Windmill			2Q					
GTG 06-4			2Q					
GTX-03a			2Q					
GTX-03b			2Q					

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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BMDA Overlay 08 - Blue Flag Exercise			3Q-4Q					
BMDS Overlay 08 - Eagle Resolve 2008			3Q-4Q					
BMDS Overlay 08 - PACOM Exercise Set			3Q-4Q					
GTI-03			3Q					
BMDS Overlay 08 - BMDS Exercise			4Q					
GTD-03			4Q					
GTX-03c			4Q					
CENTCOM US/UK 09 Exercise Set				1Q-4Q				
BMDS Overlay 09 - Juniper Cobra				2Q				
BMDS Overlay 09 - System Engineering Simulation				2Q				
GTX-04a				2Q				
GTX-04b				2Q				
BMDS Overlay 09 - Blue Flag Exercise				3Q-4Q				
BMDS Overlay 09 - Eagle Resolve 2009				3Q-4Q				
GTI-04				3Q				
PACOM Exercise Set 2009				3Q-4Q				
BMDS Overlay 09 - BMDS Exercise				4Q				
GTD-04				4Q				
GTX-04c				4Q				
BMDS Overlay 10-1					2Q			
GTX-05a					2Q			
GTX-05b					2Q			
BMDS Overlay 10 - Eagle Resolve 2010					3Q-4Q			
BMDS Overlay 10-2					3Q-4Q			
GTI-05					3Q			
PACOM Exercise Set 2010					3Q-4Q			
BMDS Overlay 10 - BMDS Exercise					4Q			
GTD-05					4Q			
GTX-05c					4Q			
BMDS Overlay 11-1						2Q		
GTX-06a						2Q		

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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
GTX-06b						2Q		
BMDS Overlay 11-2						3Q-4Q		
BMDS Overlay 11 - Eagle Resolve 2011						3Q-4Q		
BMDS Overlay 11-2						3Q,4Q		
GTI-06						3Q		
PACOM Exercise Set 2011						3Q-4Q		
BMDS Overlay 11 - BMDS Exercise						4Q		
GTD-06						4Q		
GTX-06c						4Q		
BMDS Overlay 12-1							2Q	
GTX-07a							2Q	
GTX-07b							2Q	
BMDS Overlay 12 - Eagle Resolve 2012							3Q-4Q	
BMDS Overlay 12-2							3Q-4Q	
GTI-07							3Q	
PACOM Exercise Set 2012							3Q-4Q	
BMDS Overlay 12 - BMDS Exercise							4Q	
GTD-07							4Q	
GTX-07c							4Q	
BMDS Overlay 13-1								2Q
GTX-08a								2Q
GTX-08b								2Q
BMDS Overlay 13 - Eagle Resolve 2013								3Q-4Q
BMDS Overlay 13-2								3Q-4Q
GTI-08								3Q
PACOM Exercise Set 2013								3Q-4Q
BMDS Overlay 13 - BMDS Exercise								4Q
GTD-08								4Q
GTX-08c								4Q
System Flight Tests								
(PAC) 2-3	1Q							

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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				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
AST-10	1Q							
ATM-46	1Q							
FT 04-5	1Q							
FT-1	1Q							
FTM 04-2	1Q							
FTT-01	1Q							
FTX-01	2Q							
JCTV-1	2Q							
FTM-10	3Q							
FTT-02	3Q							
P6-2	3Q							
Pacific Phoenix	3Q							
FTG-02	4Q							
FTT-03	4Q							
FTT-04	4Q							
P6-4	4Q							
PAC PDB-6 LUT	4Q							
RDC-01a/b	4Q							
FTM-11		1Q						
P6L-1		1Q						
P6L-2		1Q						
P6L-3		1Q						
AST-11		2Q						
AST-12		2Q						
FTT-05		2Q						
FTT-06		2Q						
FTX-02		2Q						
RDC-01c		2Q						
ATM-48		3Q						
FTG-03		3Q						
FTM 11b		3Q						

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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				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTM-12		3Q						
FTT-07		3Q						
PAC3 7-1		3Q						
RDC-01d		3Q						
FTG-04		4Q						
FTM-11a		4Q						
FTT-08		4Q						
FTX-03		4Q						
N FIRE-2A		4Q						
FTG-05			1Q					
FTM-13			1Q					
JFTM-01			1Q					
N-FIRE 2b			1Q					
(PAC) 7-2			2Q					
FTT-09			2Q					
AST-13			3Q					
FTG-06			3Q					
FTM-14			3Q					
FTS-01			3Q					
FTS-02			3Q					
PAC3 7-3			3Q					
AST-14			4Q					
FTK-01			4Q					
FTS-03			4Q					
FTT-10			4Q					
FTX-04			4Q					
FTG-07				1Q				
FTS-04				1Q				
FTT-11				1Q				
JFTM-02				1Q				
FTT-12				2Q				

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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				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTX-05				2Q				
FTG 08-4				3Q				
FTG-08				3Q				
FTM-15				3Q				
PAC-09				3Q				
FTL-01				4Q				
FTM-16				4Q				
FTS-05				4Q				
FTT-13				4Q				
FTX-06				4Q				
GBI Readiness Test 09				4Q				
GT-XX				4Q				
FTG-09					1Q			
FTT-14					1Q			
FTM-17					2Q			
FTS-06					2Q			
FTG-10					3Q			
FTL-02					3Q			
PAC-10					3Q			
FTL-03					4Q			
FTM-18					4Q			
FTT-15					4Q			
FTX-07					4Q			
FTG-11						1Q		
FTL-04						1Q		
FTK-02						2Q		
FTM-19						2Q		
FTS-07						2Q		
FTT-16						2Q		
FTG-12						3Q		
FTL-05						3Q		

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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				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PAC-11						3Q		
FTM-20						4Q		
FTT-17						4Q		
FTX-08						4Q		
GBI Readiness Test 11						4Q		
FTG-13							1Q	
FTK-03							1Q	
FTM-21							2Q	
FTS-08							2Q	
FTT-18							2Q	
FTG-14							3Q	
FTL-06							3Q	
PAC-12							3Q	
FTL-07							4Q	
FTM-22							4Q	
FTT-19							4Q	
FTX-09							4Q	
FTG-15								1Q
FTK-04								1Q
FTL-08								2Q
FTM-23								2Q
FTS-09								2Q
FTT-20								2Q
FTG-16								3Q
FTL-09								3Q
PAC-13								3Q
FTM-24								4Q
FTT-21								4Q
FTX-10								4Q
GBI Readiness Test 13								4Q

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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
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Measurement Tests								
FTC-02a/b	3Q							
FTC-04			3Q					
FTC-04a/b					2Q			
FTC-05						2Q		
FTC-06							2Q	
FTC-07								2Q
Glory Trips (USAF Operational)/Potential BMDS Tests								
GT-189	1Q							
SERV-3	2Q							
GT-190	3Q							
GT-191	3Q							
GT-192	4Q							
GT-193		2Q						
GT-194		3Q						
GT-195		4Q						
GT-196			2Q					
GT-197			2Q					
GT-199			3Q					
GT-198			4Q					
Environmental Planning								
PEIS Completion	3Q							
Test Asset Upgrades								
TTS IOC	1Q-3Q							
NP3 Upgrades		1Q-4Q	1Q-4Q	1Q-4Q				
X-Band Trans Radar (XTR-1) Complete			2Q					

Element participation in system test events is funded within the respective element budget.

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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
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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0804 Test & Evaluation Block 2006	91,207	128,178	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Test & Evaluation Block Testing: The MDA T&E program has six primary purposes: 1) to collect system verification and assessment data that demonstrates BMDS effectiveness, 2) to verify Block design capability, 3) to identify areas where technology can increase overall system performance, 4) to identify system vulnerabilities, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early capability readiness decisions.

MDA structures the BMDS T&E program around two-year Block increments with upgrades and fielding opportunities for new capabilities occurring throughout the Block. The Test and Evaluation (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. As a result of progress delays (e.g., reprogramming, new priorities) Block testing from a previous Block may be completed in the next successive Block. 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 (SSD) and Interface Design Documents (IDD). 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.

Test & Evaluation Block Funding:

Funding levels identified support all BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests, Lethality and Ground Tests). Funding provides manpower, range and logistics support to perform system flight and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto Element flight tests and Risk Reduction/Target of Opportunity flight tests.

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<p>Test Operations: Test Operations consists of the flight and ground test 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, ensuring the fulfillment of all Executive Test Review requirements, and the interface with collocated OTA representatives. Under the BMDS Task Force construct Test Operations currently consists of five distinct Task Forces (TFs): TF A (GBI ESG Flight Testing), TF B (SM-3 & THAAD ESG Flight Testing), TF C (Special Flight Testing), TF D (BMDS Ground Testing) and TF E (Emerging Technologies). Test Operation products include detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.</p> <p>System Flight Tests:</p> <ul style="list-style-type: none">• 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 Engagement Sequence Groups (ESGs). These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight test events also include:• Target of Opportunity (TOO) are events (e.g., Minuteman flight tests, 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) Flight Tests (FTs) 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). Requirements are allocated to specific tests. The budget associated with Critical Measurements and Counter Measures (CMCM) flight tests are captured in projects 0804, 0904, 0004 R104, and R204 which are managed as part of the CTF Flight Test program.• The CTF Lethality Program 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and		

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<p>executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test 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. The budget associated with Lethality is captured in projects 0804, 0904, 0004, R104, and R204 which are managed as part of the CTF Flight Test program.</p> <p>System Ground Tests: 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 ground testing consists of the following:</p> <ul style="list-style-type: none"> • BMDS Integrated Ground Tests (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. The data generated from a GTI is used to collect data to anchor M&S and to improve their ability to verify and assess end-to-end system level performance and to provide risk reduction for FT. 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. • BMDS Distributed Ground Tests (GTD) are test events that typically follow a GTI where they combine the fielded hardware (HW) and software (SW) of most of the BMDS Elements to exercise the BMDS communications 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 Engagement Sequence Groups (ESGs) will become candidates for early delivery to the warfighter. • BMDS Focused Ground Tests 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 reductions 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 scheduling 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
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B. Accomplishments/Planned Program				
	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2006)	26,551	68,138	0	0
RDT&E Articles (Quantity)	0	0	0	0

Flight Testing (FT) examines 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 Engagement Sequence Groups (ESGs). These projects also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight tests also include Target of Opportunity (TOO) test events, Critical Measurements and Counter Measures (CMCM) Flight Tests, and the CTF Lethality Program.

Flight Testing (FT) is 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 Engagement Sequence Groups (ESGs) and do have environmental and safety constraints.

FY06 Accomplishments:

- Planned and executed the following FY06 BMDS System Flight Tests: FTT-04-5, FT-04-1, FTG-02, FTM-10, GT-191, ATM-46, and FTT-04 (no test).
- Planned and executed critical measurements countermeasures test FTC-02a/b (CMCM 2).
- Conducted planning for FY07 major BMDS system tests to include but not limited too FTM-11, FTX-02, FTX-03, FTG-03/04, FTM-11a, FTM-12, ATM-48, FTT-07, GT-193, RDC-01c/d, and FTT-08.
- Support BMDS Elements in planning and execution of their FY07 program-specific Flight Tests.
- Coordinated integration of multiple elements and components.
- Refined scenario designs for BMDS Flight Tests to support ESGs identified in the BMDS IMTP.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and premission analysis and studies.

FY07 Planned Program:

- Conclude planning for and execute FY07 major BMDS system tests to include but not limited too FTM-11, FTX-02, FTX-03, FTG-03/04, FTM-11a, FTM-11b, FTM-12, ATM-48, FTT-07, GT-193, GT-195, RDC-01c/d, and FTT-08.
- Conducted planning for FY08 major BMDS system tests to include but not limited too FTM-13, FTG-05/06, FTM-14, FTS-01, and GT-198.

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- Began initial planning for critical measurements countermeasures test FTC-04.
- Support BMDS Elements in the planning of FY08 program-specific Flight Tests, and in execution of their FY07 program-specific Flight Tests.
- Continue coordination and integration of multiple elements and components.
- Refine scenario designs for BMDS Flight Tests to support ESGs identified in the BMDS IMTP.
- Continue to populate the BMDS Test Database with the most current test data to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provide validation data for M&S.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and premission analysis and studies.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2006)	44,766	48,327	0	0
RDT&E Articles (Quantity)	0	0	0	0

Ground Testing (GT), using M&S that have been validated using anchoring data from flight tests, is the primary method for verifying and validating functional Block capability. Ground testing is used 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 Engagement Sequence Groups (ESGs) using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A vigorous Ground Test (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 ground testing consists of BMDS Integrated Ground Tests (GTI), BMDS Distributed Ground Tests (GTD), and BMDS Ground Tests Other (GTX).

FY06 Accomplishments:

- Planned and executed the following FY 06 System Ground Tests: GTI-01, GTX-01a, GTX-01b, PATRIOT Limited User Test (LUT).
- Planned GTD-1, the first fully integrated BMDS Ground Test using operational assets (GMD, AN/TPY-2, 2 Aegis Ships, SBIRS and 3 C2BMC nodes).
- Developed and integrated C2BMC Representation (BITC) and the test support team for system ground testing into GTI-01.
- Supported Warfighter requirements during GTI-01 (including 94th AAMDC) with a Cheyenne Mountain Operations Center representation.
- Conducted interoperability portion (LUT) of PATRIOT acceptance and fielding of PDB 6.
- Planned and conducted two ground tests focusing on the integration of the AN/TPY-2 Hardware-in-the-Loop (HWIL) representation into the BMDS.

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<ul style="list-style-type: none"> • Conducted first fully integrated Ground Test (GTD-01) with all MDA Elements represented via HWIL • Planned and prepared for Terminal Fury and Vigilant Shield wargames. • Participated in Amalgam Phantom wargame. <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Plan and coordinate element participation and execute the following System Ground Tests: GTD-01, GTX-02a, GTI-02, GTX-02b, and GTD-02. • Conduct ground tests focusing on the integration THAAD via HWIL representation into the BMDS. • Refine scenario designs for BMDS Ground Tests to support Engagement Sequence Groups identified in the BMDS Integrated Master Test Plan. • Continue to populated the BMDS Test Database with most current test data to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provide validation data for M&S. • Execute and perform post-test analysis of GTD-01. • Test planning for second BMDS Ground Test (GTD-02) using operational assets. • Develop and integrate permanent Cheyenne Mountain Operations Center representation for use by warfighter during BMDS Ground Tests. • Develop test plan for third ground test campaign. 				
	FY 2006	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2006)	17,639	6,653	0	0
RDT&E Articles (Quantity)	0	0	0	0
<p>The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all Ballistic Missile Defense System (BMDS) post test analysis and reporting products for Integrated Master Test Plan (IMTP) specified system flight and ground tests, and other targets of opportunity. 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.</p> <p>Functional Products and Processes</p> <ul style="list-style-type: none"> • Joint Analysis Teams (JATs) - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system post test analysis and reporting activities. Develop and brief all post test analysis and reporting products Mission Logistics Plan, Flash Report, Quick Look Report, Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Report to Congress. 				

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<ul style="list-style-type: none">• 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 (DHP) and provide event specific data distribution reports, synchronized with Missile Defense Data Center (MDDC), to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System (UDS) to ensure availability of critical data supporting test analysis and reporting conduct.• Data Collection - Construct, install and maintain Joint Analysis Data Engine (JADE) systems, and associated accreditation documentation, at BMDS Communications Network (COMNET) nodes to provide independent, time-stamped, raw message traffic required for truth and system analysis. Maintain JADE test support plans and ensure readiness for test analysis and reporting operations. Register and deliver all JADE data products IAW IDMP.• Data Processing - Process all raw data files and test configurations to integrated test analysis and reporting databases to support post test truth and system analysis and reporting activities. Deliver databases [Integrated System Configuration Database (ISCD), Truth Data Package (TDP), and Integrated Analysis Data Package (IADP)] to Operational Test Agency (OTA), BMDS Capability Assessment (BCA), C2BMC, and Element Primes IAW IDMP.• Truth - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and Truth Data Package (TDP) creation are captured in the IDMP, Operational Requirements (OR), and MDA/DTR documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for MDA/DTR 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 post test analysis of system test objectives [e.g., Systems Engineering Behavioral Objectives (SEBO), Engagement Sequence Groups (ESG), Characterization Points, and Military Standards (MIL-STD) Compliance]. Develop Analysis Execution Plans (AEP) to document post test analysis process, timelines, and areas of responsibility. Develop test event logs to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure (TTP) execution for use in post test analysis process. Develop and deliver all post test analysis reports (Final Test Report, BMDS System 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 (TIR) found during test analysis and reporting process.		

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Distributed Analysis Tools and Infrastructures

Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the test analysis and reporting process of the evolving BMDS test program and associated data products. Tools include: DMS for data management, JADE for data collection, CONDOR for test analysis observations, RAPTOR for truth analysis, RAVEN for system analysis, and PHOENIX for common tool framework.

Develop, coordinate (with MDA/DO), 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. Develop and maintain System Security Authorization Agreements (SSAA) for all test analysis and reporting tools and nodes to ensure risk mitigation IAW latest BMDS information assurance (IA) guidance from MDA/DO and continued authority to operate (ATO) in support on ongoing test analysis and reporting operations. Maintain hardware and software configuration management of all test analysis and reporting tools and systems.

FY06 Accomplishments:

- Provided TA&R product development and delivery for: FT-04-1, FT-04 -1A/B (CMCM), SERV-3, FTG-2 (FT-2), THAAD FTT-4 (FT-4), FTG-3 (FT-3), FTM-10GT-191, GTI-01 and GTD-01.

FY07 Planned Program:

- Provide TA&R product development and delivery to include but not limited to the following major tests: FTG-03, FTG-04 (FT-4), FTX-02, FTG-05, FTM-11, FTM-11a (Stellar Demon), FTT-07, PAC-2 (ATM-48), FTT-06, FTM-12 & Tracker, GT-195, FTX-03, GTD-01, GTG 04-4a, GTX-02a, GTI-02, GTG 04-46, GTD-02, VS07, GTG 04-3, GT-193.
- Plan, schedule, and execute all system JATs, and facilitate integration of BMDS analysis activities within joint venues.
- Standardization of TA&R tools and processes.
- Develop requirements for and coordinate development of facilities and infrastructures which enable virtual TA&R.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Planning and Design (Block 2006)	2,251	5,060	0	0
RDT&E Articles (Quantity)	0	0	0	0

Note: Funding for Test Planning and Design for FY06 was contained in budget projects 0304 and 0804. For FY07, funding was consolidated in budget projects 0804 and 0904.

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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 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.

FY06 Accomplishments:

- Published Block 06 IMTP update
- Established the Test Requirements Working Group (TRWG)
- Performed test planning and design for FTT-07, FTX-02, FTM-11a, and PAC-2 GEM ATM-48 BMDS Overlay
- Initiated implementation of common threat in GT-02 Campaign

FY07 Planned Program:

- Perform preliminary planning for Block 08 Tests and documented in the IMTP
- Establish Ground Test Design Capabilities
- Develop a Ground Test Template for future Campaign Planning

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402

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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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	56,505	41,641	1Q	0	N/A	0	N/A	98,146
BMDS Risk/ECPS	Various	Various	2,218	1,606	1Q	0	N/A	0	N/A	3,824
Targets			0	24,891	1Q	0	N/A	0	N/A	24,891

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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Test Operations BMDS Ground Tests (Block 2006)										
BMDS GT/MDIE	Various	JNIC/Colorado Springs, CO	91,136	40,542	1Q	0	N/A	0	N/A	131,678
Exercise Overlays	Various	JNIC/Colorado Springs, CO	9,744	7,785	1Q	0	N/A	0	N/A	17,529
Test Analysis and Reporting (Block 2006)										
FTC-02/FTX-05	Various	USASMDC / Huntsville, AL	11,414	4,305	1Q	0	N/A	0	N/A	15,719
Test Analysis and Reporting		CTF TA&R, Huntsville, AL	17,639	2,348	1Q	0	N/A	0	N/A	19,987
Test Planning and Design (Block 2006)										
Test Planning and Design	Various	Boeing/ Huntsville, AL	2,251	5,060	1Q	0	N/A	0	N/A	7,311
Subtotal Test and Evaluation			190,907	128,178		0		0		319,085
Remarks										
IV. Management Services Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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			190,907	128,178		0		0		319,085
Remarks										

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Fiscal Year	2006				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	1	2	3	4
System Ground Tests																																
PACOM Tier 1 CPX					▽																											
Vigilant Shield 07					▽																											
GTG 04-3						◇																										
GTG 04-4.a						◇																										
GTX-02a						▽																										
BMDS Overlay 07 - Juniper Cobra 07												△																				
GTG 04-4.b												◇																				
GTI-02												▽																				
System Flight Tests																																
(PAC) 2-3	◇																															
AST-10	◇																															
ATM-46	▽																															
FT 04-5	▽																															

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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Fiscal Year	2006				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	1	2	3	4
System Flight Tests																																
FT-1	◆																															
FTM 04-2	◆																															
FTT-01	◆																															
FTX-01		▽																														
JCTV-1		◆																														
FTM-10			▽																													
FTT-02			◆																													
P6-2			◆																													
Pacific Phoenix			◆																													
FTG-02				▽																												
FTT-03				◆																												
FTT-04				◆																												
P6-4				◆																												

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

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Fiscal Year	2006				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	1	2	3	4				
System Flight Tests																																				
PAC PDB-6 LUT				◆																																
RDC-01a/b				▼																																
FTM-11					▼																															
P6L-1					◆																															
P6L-2					◆																															
P6L-3					◆																															
AST-11									◇																											
AST-12									◇																											
FTT-05									◇																											
FTT-06									◇																											
FTX-02									▽																											
RDC-01c									◇																											
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

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Fiscal Year	2006				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	1	2	3	4
System Flight Tests																																
FTG-03								▽																								
FTM 11b								▽																								
FTM-12								▽																								
FTT-07								▽																								
PAC3 7-1								◇																								
RDC-01d								◇																								
FTG-04												▽																				
FTM-11a												◇																				
FTT-08												◇																				
FTX-03												▽																				
N FIRE-2A												◇																				
Measurement 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

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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Ground Tests								
GT 04-1a	1Q							
GT 04-2a.1	1Q							
WG 04-5	1Q							
GTX-01a	2Q							
Amalgam Phantom 06	3Q							
GT 04-2a.2	3Q							
GT 04-2a.3	3Q							
GTX 06-2	3Q							
GTX-01b	3Q							
GT 04-2a.4	4Q							
GTI-01	4Q							
BMDS Overlay 07 - Terminal Fury 07		1Q						
BMDS Overlay 07 - Vigilant Shield 07		1Q						
GTD-01		1Q						
PACOM Tier 1 CPX		1Q						
Vigilant Shield 07		1Q						
GTG 04-3		2Q						
GTG 04-4.a		2Q						
GTX-02a		2Q						
BMDS Overlay 07 - Juniper Cobra 07		4Q						
GTG 04-4.b		4Q						
GTI-02		4Q						
System Flight Tests								
(PAC) 2-3	1Q							
AST-10	1Q							
ATM-46	1Q							
FT 04-5	1Q							
FT-1	1Q							
FTM 04-2	1Q							
FTT-01	1Q							

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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTX-01	2Q							
JCTV-1	2Q							
FTM-10	3Q							
FTT-02	3Q							
P6-2	3Q							
Pacific Phoenix	3Q							
FTG-02	4Q							
FTT-03	4Q							
FTT-04	4Q							
P6-4	4Q							
PAC PDB-6 LUT	4Q							
RDC-01a/b	4Q							
FTM-11		1Q						
P6L-1		1Q						
P6L-2		1Q						
P6L-3		1Q						
AST-11		2Q						
AST-12		2Q						
FTT-05		2Q						
FTT-06		2Q						
FTX-02		2Q						
RDC-01c		2Q						
ATM-48		3Q						
FTG-03		3Q						
FTM 11b		3Q						
FTM-12		3Q						
FTT-07		3Q						
PAC3 7-1		3Q						
RDC-01d		3Q						
FT 06-4 (CMCM-4)		4Q						
FTG-04		4Q						

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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTM-11a		4Q						
FTT-08		4Q						
FTX-03		4Q						
N FIRE-2A		4Q						
Measurement Tests								
FTC-02a/b	3Q							
FT 06-4 (CMCM-4)		4Q						
Glory Trips (USAF Operational)/Potential BMDS Tests								
GT-189	1Q							
SERV-3	2Q							
GT-190	3Q							
GT-191	3Q							
GT-192	4Q							
GT-193		2Q						
GT-194		3Q						
GT-195		4Q						

Element participation in system test events is funded within the respective element budget.

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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0904 Test & Evaluation Block 2008	0	44,987	113,646	120,085	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: FY09 RDT&E Test Articles: Integrate Launch Vehicles and Payloads to produce one test article for critical measurements and countermeasures test FTC 04 (to be expended in FY10).

A. Mission Description and Budget Item Justification

Test & Evaluation Block Testing: The MDA T&E program has six primary purposes: 1) to collect system verification and assessment data the demonstrates BMDS effectiveness, 2) to verify Block design capability, 3) to identify areas where technology can increase overall system performance, 4) to identify system vulnerabilities, 5) to provide anchoring and validation data for M&S tools, and 6) to support early capability readiness decisions.

MDA structures the BMDS T&E program around two-year Block increments, with upgrades and fielding opportunities for new capabilities occurring throughout the Block. The Test and Evaluation (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. As a result of progress delays (e.g., reprogramming, new priorities) Block testing from a previous Block may be completed in the next successive Block. 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 (SSD) and Interface Design Documents (IDD). 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.

Test & Evaluation Blocks Funding:

Funding levels identified support all BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests, Lethality and Ground Tests. Funding provides manpower, range and logistics support (i.e., Aegis fuel) to perform system flight and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto Element flight tests and Risk Reduction/Target of Opportunity flight tests.

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Test Operations:

Test Operations consists of the flight and ground test 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, ensuring the fulfillment of all Executive Test Review requirements, and the interface with collocated OTA representatives. Under the BMDS Task Force construct Test Operations currently consists of five distinct Task Forces (TFs): TF A (GBI ESG Flight Testing), TF B (SM-3 & THAAD ESG Flight Testing), TF C (Special Flight Testing), TF D (BMDS Ground Testing) and TF E (Emerging Technologies). Test Operation products include detailed test planning and execution documentation, Operations Requirements (ORs), Test Directives, Executive Test Reviews, and Pre/Post-Test Notifications.

System Flight Tests:

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 Engagement Sequence Groups (ESGs). These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight tests also include:

- Targets of Opportunity (TOO) are events (e.g., Minuteman flight tests, 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) Flight Tests (FTs) 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, and 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. The budget associated with Critical Measurements and Counter Measures (CMCM) flight tests are captured in projects 0804, 0904, 0004, R104 and R204 which are managed as part of the CTF Flight Test program.
- The CTF Lethality Program 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and

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<p>executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test 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 tests. Funding associated with Lethality is captured in projects 0804, 0904, 0004, R104 and 0204 which are managed as part of the CTF Flight Test events.</p> <p>System Ground Tests: 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 ground testing consists of the following:</p> <ul style="list-style-type: none">• BMDS Integrated Ground Tests (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. The data generated from a GTI is used to collect data to anchor M&S and to improve their ability to verify and assess end-to-end system level performance and to provide risk reduction for FT. 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.• BMDS Distributed Ground Tests (GTD) are test events that typically follow a GTI where they combine the fielded HW and SW of most of the BMDS Elements to exercise the BMDS communications 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 Engagement Sequence Groups (ESGs) will become candidates for early delivery to the warfighter.• BMDS Focused Ground Tests 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 reductions 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 scheduling adjustments and unplanned test requirement needs.		

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B. Accomplishments/Planned Program				
	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2008)	0	4,300	45,994	48,432
RDT&E Articles (Quantity)	0	0	0	0

Ground Testing (GT), using M&S that have been validated using anchoring data from flight tests, is the primary method for verifying and validating functional Block capability. Ground testing is used 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 Engagement Sequence Groups (ESGs) using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A vigorous Ground Test (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 ground testing consists of BMDS Integrated Ground Tests (GTI), BMDS Distributed Ground Tests (GTD), and BMDS Ground Tests Other (GTX).

FY07 Planned Program:

- Plan and coordinate element participation in the following System Ground Tests: GT4 series (GTX, GTI, GTD).
- Support Elements in planning for FY 08 System Ground Tests.
- Initiate coordination of KEI integration and other elements into the BMDS ground test architecture.
- Refine scenario designs for BMDS Ground Tests to support ESGs identified in the BMDS IMTP.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOMS, and OTAs, and provide validation data for M&S.

FY08 Planned Program:

- Plan and coordinate element participation and execute the following FY 08 System Ground Tests: GT4 Series (GTX, GTI, GTD). Execute GTX-04a.
- Support Elements in planning for FY 08 System Ground Tests.
- Continue Development of Block 08 scenario designs for BMDS Ground Tests to support Block 08 ESGs identified in the Block 08 TBDD.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; plus provide validation data for M&S.
- Plan for systems test; including system execution and reporting.
- Plan FY 09 System Ground Tests.

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FY09 Planned Program:

- Plan and coordinate element participation and execute the following FY 09 System Ground Tests: GTX-04a, GTX-04b, GTI-04, GTX-04c, GTD-04.
- Support Elements in planning for FY 09 System Ground Tests.
- Continue Development of Block 08 scenario designs for BMDS Ground Tests to support Block 08 ESGs identified in the Block 08 TBDD.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; and provide validation data for M&S.
- Plan for FY10 System Ground Tests.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2008)	0	36,287	38,139	41,234
RDT&E Articles (Quantity)	0	0	0	0

Flight Testing (FT) examines 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 Engagement Sequence Groups (ESGs). These projects also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight tests also include Target of Opportunity (TOO), Critical Measurements and Counter Measures (CMCM) Flight Tests, and the CTF Lethality Program.

Flight Testing (FT) is 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 Engagement Sequence Groups (ESGs) and do have environmental and safety constraints.

FY07 Planned Program:

- Conclude planning for and execute FY07 major BMDS system tests to include but not limited too FTM-11, FTX-02, FTX-03, FTG-03/04, ATM-48, FTT-07, and GT-193.
- Conducted planning for FY08 major BMDS system tests to include but not limited too FTM-13, JFTM-01, FTT-10, FTG-05, FTG-06, FTM-14, FTS-01, and GT-198.
- Conduct planning for critical measurements countermeasures test FTC-04.
- Support BMDS Elements in the planning of FY08 program-specific Flight Tests, and in execution of their FY07 program-specific Flight Tests.
- Plan for system level test execution and reporting for FY08.

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<ul style="list-style-type: none">• Continue coordination and integration activities of multiple elements and components.• Refine scenario designs for BMDS Flight Tests to support ESGs identified in the BMDS IMTP.• Continue to populate the BMDS Test Database with the most current test data to support capability assessments by Systems Engineering JTAMDO/STRATCOM, and OTAs, and provide validation data for M&S.• Provide system-level range support mission assurance, logistic support, test specific support personnel, test specific communication, support equipment and premission analysis and studies. <p>FY08 Planned Program:</p> <ul style="list-style-type: none">• Conclude planning for and execute FY08 major BMDS system tests to include but not limited too: FTM-13, JFTM-01, FTG-05, FTG-06, FTG-05, FTM-14, FTS-01, FTT-10, and GT-198.• Conducted planning for FY09 major BMDS system tests to include but not limited too: FTM-15/16, FTG-07/08, FTX-05/06, FTL-01, and FTT-12/13.• Planning for critical measurements countermeasures test FTC-04.• Support BMDS Elements in the planning of FY09 program-specific Flight Tests, and in execution of their FY08 program-specific Flight Tests and system flight tests.• Support BMDS Elements in planning and execution of their FY08 program-specific Flight Tests to support Block 10 development and objectives.• Support and coordinate Block 08 target development including target system requirements, integration, and component testing requirements.• Continue Development of Block 08 scenario designs for BMDS Flight Tests to support Block 08 ESGs identified in the Block 08 TBDD.• Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provide validation data for M&S.• Plan for system level test execution and reporting for FY09.• Plan for an FY09 GBI Readiness Test.• Provide system-level range support mission assurance, logistic support, test specific support personnel, test specific communication, support equipment and premission analysis and studies. <p>FY09 Planned Program:</p> <ul style="list-style-type: none">• Conclude planning for and execute FY09 major BMDS system tests to include but not limited too: FTM-15/16, FTG-07/08, FTX-05/06, FTL-01, and FTT-12/13.		

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- Conducted planning for FY10 major BMDS system tests to include but not limited too: FTG-09/10, FTM-17/18, FTL-02/03, FTS-05, FTT-14/15, and FTX-07.
- Conclude planning for critical measurements countermeasures test FTC-04.
- Begin initial planning for critical measurements countermeasures test FTC-05.
- Support BMDS Elements in the planning of FY10 program-specific Flight Tests, and in execution of their FY09 program-specific Flight Tests.
- Support Elements in planning for FY09 System Flight Tests.
- Support and coordinate Block 08 target development including target systems requirements, integration, and component testing requirements.
- Continue Development of Block 08 scenario designs for BMDS Flight Tests to support Block 08 ESGs identified in the Block 08 TBDD.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; and provide validation data for M&S.
- Plan for system level test execution and reporting for FY10.
- Execute a GBI Readiness Test.
- Provide system-level range support mission assurance, logistic support, test specific support personnel, test specific communication, support equipment and premission analysis and studies.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2008)	0	2,347	18,390	19,768
RDT&E Articles (Quantity)	0	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all Ballistic Missile Defense System (BMDS) post test analysis and reporting products for Integrated Master Test Plan (IMTP) specified system flight and ground tests, and other targets of opportunity. 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

- Joint Analysis Teams (JATs) - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system post test analysis and reporting activities. Develop and brief all post test analysis and reporting products Mission Logistics Plan, Flash Report, Quick Look Report, Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Report to Congress.

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<ul style="list-style-type: none">• 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 (DHP) and provide event specific data distribution reports, synchronized with Missile Defense Data Center (MDDC), to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System (UDS) to ensure availability of critical data supporting test analysis and reporting conduct.• Data Collection - Construct, install and maintain Joint Analysis Data Engine (JADE) systems, and associated accreditation documentation, at BMDS Communications Network (COMNET) nodes to provide independent, time-stamped, raw message traffic required for truth and system analysis. Maintain JADE test support plans and ensure readiness for test analysis and reporting operations. Register and deliver all JADE data products IAW IDMP.• Data Processing - Process all raw data files and test configurations to integrated test analysis and reporting databases to support post test truth and system analysis and reporting activities. Deliver databases [Integrated System Configuration Database (ISCD), Truth Data Package (TDP), and Integrated Analysis Data Package (IADP)] to Operational Test Agency (OTA), BMDS Capability Assessment (BCA), C2BMC, and Element Primes IAW IDMP.• Truth - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and Truth Data Package (TDP) creation are captured in the IDMP, Operational Requirements (OR), and MDA/DTR documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for MDA/DTR 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 post test analysis of system test objectives [e.g., Systems Engineering Based Objectives (SEBO), Engagement Sequence Groups (ESG), Characterization Points, and Military Standards (MIL-STD) Compliance]. Develop Analysis Execution Plans (AEP) to document post test analysis process, timelines, and areas of responsibility. Develop test event logs to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure (TTP) execution for use in post test analysis process. Develop and deliver all post test analysis reports (Final Test Report, BMDS System 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 (TIR) found during test analysis and reporting process.		

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<p>Distributed Analysis Tools and Infrastructures</p> <p>Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the test analysis and reporting process of the evolving BMDS test program and associated data products. Tools include: DMS for data management, JADE for data collection, CONDOR for test analysis observations, RAPTOR for truth analysis, RAVEN for system analysis, and PHOENIX for common tool framework.</p> <p>Develop, coordinate (with MDA/DO), 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. Develop and maintain System Security Authorization Agreements (SSAA) for all test analysis and reporting tools and nodes to ensure risk mitigation IAW latest BMDS information assurance (IA) guidance from MDA/DO and continued authority to operate (ATO) in support on ongoing test analysis and reporting operations. Maintain hardware and software configuration management of all test analysis and reporting tools and systems.</p> <p>FY07 Planned Program:</p> <ul style="list-style-type: none">• Provide TA&R product development and delivery to include but not limited to the following major FY 07 Tests: Vigilant Shield, FTG-04 (FT-4), FTX-02, FTM-11a (Stellar Demon), FTT-07, PAC-2 (ATM-48), GT-195, FTX-03, GTX-02a, GTI-02, GTG 04-4b, GTD-02, VS- 07, GTG 04-3, and GT-193.• Plan, schedule, and execute all system JATs, and facilitate integration of BMDS analysis activities within joint venues.• Standardization of TA&R tools and processes.• Develop requirements for and coordinate development of facilities and infrastructures which enable virtual TA&R. <p>FY08 Planned Program:</p> <ul style="list-style-type: none">• Provide TA&R product development and delivery for the following FY 08 Tests: FTG-05, FTG-06, PATRIOT-PAC-XXX, FTS-01 (SMDD-1), FTT-10, FTS-03 (TMDD-2), FTM-14 & Tracker, GT-198 (Glory Trip), GTX-03a/b, GTI-03, GTD-03, Vigilant Shield-08. <p>FY09 Planned Program:</p> <ul style="list-style-type: none">• Provide TA&R product development and delivery for the following FY 09 Tests: FTG-07, FTG-08, FTM-15, FTM-16, FTT-12, FTT-13, FTS-04, JFTM-02, FTX-06, PATRIOT PAC-XXX, GBI Readiness Test, GT-YY (AF Glory Trip) and ground tests specified in the IMTP.		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
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 2006	FY 2007	FY 2008	FY 2009
Test Planning and Design (Block 2008)	0	2,053	11,123	10,651
RDT&E Articles (Quantity)	0	0	0	0
<p>Note: Funding for Test Planning and Design for FY06 was contained in budget projects 0304 and 0804. For FY07, funding was consolidated in budget projects 0804 and 0904.</p> <p>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 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.</p> <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Performed preliminary planning for Block 08 Tests and document in IMTP updates. • Established a Ground Test Design Capability, and • Developed a Ground Test Template for future Campaign planning. <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue refinement of Block 08 plans and document in updates to the IMTP. • Begin initial planning for Block 10 test events. <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Complete planning for Block 08 test events and document in updates to the IMTP. • Publish preliminary plans for Block 10 testing in the IMTP. 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p><u>D. Acquisition Strategy</u></p> <p>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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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.</p>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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	0	3,630	1Q	38,232	N/A	41,036	N/A	82,898
Exercise Overlays		JNIC/Colorado Springs, CO	0	670	1Q	7,762	N/A	7,396	N/A	15,828
Test Operations BMDS Flight Tests (Block 2008)										
BMDS FT		CTF, Huntsville, AL & various MDA Elements	0	16,185	1Q	28,314	N/A	31,372	N/A	75,871

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Targets		MDA/ Washington, D.C.	0	19,790	1Q	9,825	1Q	9,862	1Q	39,477
BMDs Risk/ECPs	Various	Various	0	312	1Q	0	N/A	0	N/A	312
Test Analysis and Reporting (Block 2008)										
Test Analysis and Reporting	Various	CTF TA&R, Huntsville, AL/ Huntsville, AL	0	2,347	1Q	18,390	1Q	19,768	1Q	40,505
Test Planning and Design (Block 2008)										
Test Planning and Design		CTF TP&D, Huntsville, AL	0	2,053	1Q	11,123	1Q	10,651	1Q	23,827
Subtotal Test and Evaluation			0	44,987		113,646		120,085		278,718
Remarks										
IV. Management Services Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	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	44,987		113,646		120,085		278,718
Remarks										

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2007
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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
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Fiscal Year	2006				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	1	2	3	4	
System Ground Tests																																	
CENTCOM US/UK 08 Exercise Set									▲	—	▲																						
GTD-02									▽																								
GTG 06-3									▽																								
BMDS Overlay 08 - System Engineering Simulation										▲																							
BMDS Overlay 08 - Joint Project Optic Windmill										▲																							
GTG 06-4										▽																							
GTX-03a										▽																							
GTX-03b										▽																							
BMDA Overlay 08 - Blue Flag Exercise											▲	—	▲																				
BMDS Overlay 08 - Eagle Resolve 2008											▲	—	▲																				
BMDS Overlay 08 - PACOM Exercise Set											▲	—	▲																				
GTI-03											▽																						
BMDS Overlay 08 - BMDS Exercise												▲																					

Legend

<ul style="list-style-type: none"> ▲ Significant Event (complete) ★ Milestone Decision (complete) ◆ Element Test (complete) ▼ System Level Test (complete) ▲—▲ Complete Activity 	<ul style="list-style-type: none"> ▲ Significant Event (planned) ★ Milestone Decision (planned) ◆ Element Test (planned) ▽ System Level Test (planned) ▲—▲ Planned Activity
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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2007
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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
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Fiscal Year	2006				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	1	2	3	4
System Ground Tests																																
GTD-03													▽																			
GTX-03c													▽																			
CENTCOM US/UK 09 Exercise Set																	△	—	△													
BMDS Overlay 09 - Juniper Cobra																	△															
BMDS Overlay 09 - System Engineering Simulation																	△															
GTX-04a																	▽															
GTX-04b																	▽															
BMDS Overlay 09 - Blue Flag Exercise																					△	—	△									
BMDS Overlay 09 - Eagle Resolve 2009																					△	—	△									
GTI-04																					▽											
PACOM Exercise Set 2009																					△	—	△									
BMDS Overlay 09 - BMDS Exercise																									△							
GTD-04																									▽							

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 2007
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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
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Fiscal Year	2006				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	1	2	3	4
System Flight Tests																																
FTS-01											▽																					
FTS-02											◇																					
PAC3 7-3											◇																					
AST-14												▽																				
FTK-01												◇																				
FTS-03												▽																				
FTT-10												▽																				
FTX-04												◇																				
FTG-07																▽																
FTS-04																◇																
FTT-11																◇																
JFTM-02																◇																
FTT-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

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Ground Tests								
CENTCOM US/UK 08 Exercise Set			1Q-4Q					
GTD-02			1Q					
GTG 06-3			1Q					
BMDS Overlay 08 - System Engineering Simulation			2Q					
BMDS Overlay 08 - Joint Project Optic Windmill			2Q					
GTG 06-4			2Q					
GTX-03a			2Q					
GTX-03b			2Q					
BMDA Overlay 08 - Blue Flag Exercise			3Q-4Q					
BMDS Overlay 08 - Eagle Resolve 2008			3Q-4Q					
BMDS Overlay 08 - PACOM Exercise Set			3Q-4Q					
GTI-03			3Q					
BMDS Overlay 08 - BMDS Exercise			4Q					
GTD-03			4Q					
GTX-03c			4Q					
CENTCOM US/UK 09 Exercise Set				1Q-4Q				
BMDS Overlay 09 - Juniper Cobra				2Q				
BMDS Overlay 09 - System Engineering Simulation				2Q				
GTX-04a				2Q				
GTX-04b				2Q				
BMDS Overlay 09 - Blue Flag Exercise				3Q-4Q				
BMDS Overlay 09 - Eagle Resolve 2009				3Q-4Q				
GTI-04				3Q				
PACOM Exercise Set 2009				3Q-4Q				
BMDS Overlay 09 - BMDS Exercise				4Q				
GTD-04				4Q				
GTX-04c				4Q				
GTX-05c				4Q				
System Flight Tests								
FTG-05			1Q					

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FTM-13			1Q					
JFTM-01			1Q					
N-FIRE 2b			1Q					
P6X-2			1Q					
(PAC) 7-2			2Q					
FTT-09			2Q					
AST-13			3Q					
FTG-06			3Q					
FTM-14			3Q					
FTS-01			3Q					
FTS-02			3Q					
PAC3 7-3			3Q					
AST-14			4Q					
FTK-01			4Q					
FTS-03			4Q					
FTT-10			4Q					
FTX-04			4Q					
FTG-07				1Q				
FTS-04				1Q				
FTT-11				1Q				
JFTM-02				1Q				
FTT-12				2Q				
FTX-05				2Q				
FTG-08				3Q				
FTM-15				3Q				
PAC-09				3Q				
FTL-01				4Q				
FTM-16				4Q				
FTS-05				4Q				
FTT-13				4Q				
FTX-06				4Q				

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
GBI Readiness Test 09				4Q				
GT-XX				4Q				
Measurement Tests								
FTC-04a/b					2Q			
FTC-05						2Q		
Glory Trips (USAF Operational)/Potential BMDS Tests								
GT-196			2Q					
GT-197			2Q					
GT-199			3Q					
GT-198			4Q					
<p>Element participation in system test events is funded within the respective element budget.</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0004 Test & Evaluation Block 2010	0	0	29,856	42,221	124,710	117,414	8,950	0
RDT&E Articles Qty	0	0	0	0	1	0	0	0
<p><i>Note: FY10 RDT&E Test Articles: Integrate Launch Vehicles and Payloads to produce one test article for critical measurements and countermeasures test FTC 05 (to be expended in FY11).</i></p> <p><i>FY11 RDT&E Test Articles: Integrate Launch Vehicles and Payloads to produce one test article for critical measurements and countermeasures test FTC 06 (to be expended in FY12).</i></p> <p><u>A. Mission Description and Budget Item Justification</u></p> <p>Test & Evaluation Block Testing: The MDA T&E program has six primary purposes: 1) to collect system verification and assessment data the demonstrates BMDS effectiveness, 2) to verify Block design capability, 3) to identify areas where technology can increase overall system performance, 4) to identify system vulnerabilities, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early capability readiness decisions.</p> <p>MDA structures the BMDS T&E program around two-year Block increments, with upgrades and fielding opportunities for new capabilities occurring throughout the Block. The Test and Evaluation (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. As a result of progress delays (e.g., reprogramming, new priorities) Block testing from a previous Block may be completed in the next successive Block. 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 (SSD) and Interface Design Documents (IDD). 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.</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>Test & Evaluation Blocks Funding: Funding levels identified support all BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests, Lethality and Ground Tests. Funding provides manpower, range and logistics support to perform system flight and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto Element flight tests and Risk Reduction/Targets of Opportunity flight tests.</p> <p>MDA will evaluate the addition of a 3rd site to increase the effectiveness of the BMDS. The addition of this site will require additional test and operational, communications, planning and integration activities, on-site test personnel, identification of testing methodologies (i.e., M&S, ground testing, flight testing), and identification of 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 for this site. Testing of this increased capability will be through BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests, and System Ground Tests. Funding provides manpower, range and logistics support to perform system flight and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support.</p> <p>System Flight Tests: 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 Engagement Sequence Groups (ESGs). These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight tests also include:</p> <ul style="list-style-type: none">• Targets of Opportunity (TOO) are events (e.g., Minuteman flight tests, 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) Flight Tests (FTs) 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, and 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		

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targets and countermeasures during flight). Requirements are allocated to specific tests. Funding associated with Critical Measurements and Counter Measures (CMCM) flight tests are captured in projects 0804, 0904, 0004 and R104; and is managed as part of the CTF Flight Test program.

- The CTF Lethality Program 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test 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 tests. Funding associated with Lethality is captured in projects 0804, 0904, 0004, R104 and 0204; and is managed as part of the CTF Flight Test program.

System Ground Tests:

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 ground testing consists of:

- BMDS Integrated Ground Tests (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. The data generated from a GTI is used to collect data to anchor M&S and to improve their ability to verify and assess end-to-end system level performance and to provide risk reduction for FT. 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.
- BMDS Distributed Ground Tests (GTD) are test events that typically follow a GTI where they combine the fielded HW and SW of most of the BMDS Elements to exercise the BMDS communications 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 Engagement Sequence Groups (ESGs) will become candidates for early delivery to the war-fighter.
- BMDS Focused Ground Tests 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 reductions test for the GTI. Additionally, a GTX can be used to test a new capability that was not available

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during the previous GTI. Since GTXs are intended to be smaller, less complex events, they will be more responsive to scheduling adjustments and unplanned test requirement needs.

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Ground Tests (Block 2010)	0	0	6,952	8,344
RDT&E Articles (Quantity)	0	0	0	0

Ground Testing (GT), using M&S that have been validated using anchoring data from flight tests, is the primary method for verifying and validating functional Block capability. Ground testing is used 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 Engagement Sequence Groups (ESGs) using digital representations of realistic threat types, trajectories, geometries, and raid sizes that would be cost prohibitive to do in flight testing. A vigorous Ground Test (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 ground testing consists of BMDS Integrated Ground Tests (GTI), BMDS Distributed Ground Tests (GTD), and BMDS Ground Tests Other (GTX).

FY08 Planned Program:

- Plan and coordinate element participation and execute the following FY 08 System Ground Tests: GT4 Series (GTX, GTI, GTD)
- Support Elements in planning for FY 09 System Ground Tests.
- Continue Development of Block 08 scenario designs for BMDS Ground Tests to support Block 08 ESGs identified in the Block 08 TBDD.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; plus provide validation data for M&S.
- Plan for systems test; including system execution and reporting.
- Plan FY10 System Ground Tests.

FY09 Planned Program:

- Plan and coordinate element participation and execute the following FY 09 System Ground Tests: GTX-04a, GTX-04b, GTI-04, GTD-04.
- Support Elements in planning for FY 09 System Ground Tests.
- Continue Development of Block 08 scenario designs for BMDS Ground Tests to support Block 08 ESGs identified in the Block 08 TBDD.

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<ul style="list-style-type: none"> • Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; and provide validation data for M&S. • Plan and coordinate element participation to include scenario designs for FY10/11 System Ground Tests for a 3rd site (GTX, GTI, GTD). • Plan for FY10 System Ground Tests. 				
	FY 2006	FY 2007	FY 2008	FY 2009
Test Operations BMDS Flight Tests (Block 2010)	0	0	18,975	26,613
RDT&E Articles (Quantity)	0	0	0	0
<p>Flight Testing (FT) examines 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 Engagement Sequence Groups (ESGs). These projects also provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS flight tests also include Target of Opportunity (TOO), Critical Measurements and Counter Measures (CMCM) Flight Tests, and the CTF Lethality Program.</p> <p>Flight Testing (FT) is 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 Engagement Sequence Groups (ESGs) and do have environmental and safety constraints.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Conclude planning for and execute FY08 major BMDS system tests to include but not limited too: FTM-14, FTG-06, FTS-01, and GT-198. • Conducted planning for FY09 major BMDS system tests to include but not limited too: FTM-15/16, FTG-07, FTG-08, FTS-05, FTX-05/06, FTT-14 (1Q FY10), and FTL-01.. • Continue planning for and critical measurements countermeasures test FTC-04. • Support BMDS Elements in the planning of FY09 program-specific and system level Flight Tests, and in execution of their FY08 program-specific and system level Flight Tests to support Block 10 development and objectives. • Support and coordinate Block 08 target development including target system requirements, integration, and component testing requirements. • Continue Development of Block 08 scenario designs for BMDS Flight Tests to support Block 08 ESGs identified in the Block 08 TBDD. • Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs, and provide validation data for M&S. • Plan for system level test execution and reporting for FY09. 				

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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
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- Plan for an FY09 GBI Readiness Test.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and premission analysis and studies.

FY09 Planned Program:

- Conclude planning for and execute FY09 major BMDS system tests to include but not limited too: FTM-15/16, FTG-07, FTG-08, FTS-05, FTL-01, FTX-05/06, and FTT-12/13.
- Conducted planning for FY10 major BMDS system tests to include but not limited too: FTG-09, FTG-10, FTM-17/18, FTS-06, FTT-16/17, and FTX-07.
- Conclude planning for critical measurements countermeasures test FTC-04.
- Conduct initial planning for critical measurements countermeasures test FTC-05.
- Conduct planning for a sensor characterization flight (FTX) for the 3rd site sensor..
- Support BMDS Elements in the planning of FY10 program-specific Flight Tests, and in execution of their FY09 program-specific system Flight Tests.
- Support and coordinate Block 08 target development including target systems requirements, integration, and component testing requirements.
- Continue Development of Block 08 scenario designs for BMDS Flight Tests to support Block 08 ESGs identified in the Block 08 TBDD.
- Continue to populate the BMDS Test Database with the latest test data inputs to support capability assessments by Systems Engineering, JTAMDO/STRATCOM, and OTAs; and provide validation data for M&S.
- Plan for system level test execution and reporting for FY10.
- Execute an FY09 GBI Readiness Test.
- Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and premission analysis and studies.

	FY 2006	FY 2007	FY 2008	FY 2009
Test Analysis and Reporting (Block 2010)	0	0	3,929	4,309
RDT&E Articles (Quantity)	0	0	0	0

The CTF Test Analysis and Reporting (TA&R) division develops, integrates, and delivers all Ballistic Missile Defense System (BMDS) post test analysis and reporting products for Integrated Master Test Plan (IMTP) specified system flight and ground tests, and other targets of opportunity.

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<p>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.</p> <p>Functional Products and Processes</p> <ul style="list-style-type: none"> • Joint Analysis Teams (JATs) - Establish, plan, schedule, and conduct JATs for system tests to coordinate and integrate all component and system post test analysis and reporting activities. Develop and brief all post test analysis and reporting products, Mission Logistics Plan, Flash Report, Quick Look Report, Quick Look Briefing (QLB), Executive Quick Look Briefing (EQLB), Mission Data Review (MDR), Executive Mission Data Review (EMDR), and Report to Congress. • 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 (DHP) and provide event specific data distribution reports, synchronized with Missile Defense Data Center (MDDC), to ensure timely and complete data distribution in accordance with (IAW) IDMP. Provide inputs to the National Test Ranges Universal Documentation System (UDS) to ensure availability of critical data supporting test analysis and reporting conduct. • Data Collection - Construct, install and maintain Joint Analysis Data Engine (JADE) systems, and associated accreditation documentation, at BMDS Communications Network (COMNET) nodes to provide independent, time-stamped, raw message traffic required for truth and system analysis. Maintain JADE test support plans and ensure readiness for test analysis and reporting operations. Register and deliver all JADE data products IAW IDMP. • Data Processing - Process all raw data files and test configurations to integrated test analysis and reporting databases to support post test truth and system analysis and reporting activities. Deliver databases [Integrated System Configuration Database (ISCD), Truth Data Package (TDP), and Integrated Analysis Data Package (IADP)] to Operational Test Agency (OTA), BMDS Capability Assessment (BCA), C2BMC, and Element Primes IAW IDMP. • Truth - Develop Truth Data Requirements Document (TDRD) to ensure that auxiliary sensor data collection to support truth data analysis and Truth Data Package (TDP) creation are captured in the IDMP, Operational Requirements (OR), and MDA/DTR documentation. The TDRD defines and documents mission specific auxiliary sensor data collection requirements and provide truth requirements for MDA/DTR 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 post test analysis of system test objectives [e.g., Systems Engineering Based Objectives (SEBO), Engagement Sequence Groups (ESG), Characterization Points, and Military 		

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<p>Standards (MIL-STD) Compliance]. Develop Analysis Execution Plans (AEP) to document post test analysis process, timelines, and areas of responsibility. Develop test event logs to capture test sequences, analysis observations, and Tactics, Techniques, and Procedure (TTP) execution for use in post test analysis process. Develop and deliver all post test analysis reports (Final Test Report, BMDS System 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 (TIR) found during test analysis and reporting process.</p> <p>Distributed Analysis Tools and Infrastructures Develop, integrate, test, train, deploy, and operate spiral releases of software tools to automate and enhance the test analysis and reporting process of the evolving BMDS test program and associated data products. Tools include: DMS for data management, JADE for data collection, CONDOR for test analysis observations, RAPTOR for truth analysis, RAVEN for system analysis, and PHOENIX for common tool framework.</p> <p>Develop, coordinate (with MDA/DO), 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. Develop and maintain System Security Authorization Agreements (SSAA) for all test analysis and reporting tools and nodes to ensure risk mitigation IAW latest BMDS information assurance (IA) guidance from MDA/DO and continued authority to operate (ATO) in support on ongoing test analysis and reporting operations. Maintain hardware and software configuration management of all test analysis and reporting tools and systems.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Provide pre-mission planning and analysis, data management planning for collection and distribution of data products, coordinate test analysis and report to include but not limited to the following events FY 08 Tests: FTG-05, FTG-06, FTS-01 (SMDD-1), FTT-10, PATRIOT PAC-XXX, FTS-03 (TMDD-2), FTM-14 & Tracker, GT-198 (Glory Trip), GTX-03a/b/c, GTI-03, GTD-03, Vigilant Shield-08. • Provide pre-mission data collection, data management and analysis plans for FY09 flight and ground tests. <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Provide pre-mission planning and analysis, data management planning for collection and distribution of data products, coordinate test analysis and report to include but not limited to the following events FY 09 Tests: FTG-07, FTG-08, FTM-15, FTM-16, FTT-12, FTT-13, FTS-05, FTX-05, PATRIOT PAC-XXX, GBI Readiness Test, GT-YY (Air Force Glory Trip) and ground tests specified in the IMTP. • Provide pre-mission data collection, data management and analysis plans for FY10 flight and ground tests. 		

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	FY 2006	FY 2007	FY 2008	FY 2009
Third Site Testing	0	0	0	2,955
RDT&E Articles (Quantity)	0	0	0	0

FY09 Planned Program:

- Initiation of Third Site testing.

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159

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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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								Date February 2007		
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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Funding in this Project is not programmed until FY08.										
Test Operations BMDS Ground Tests (Block 2010)										
BMDS GT/MDIE	Various	JNIC/Colorado Springs, CO	0	0	N/A	6,952	1Q	8,344	1Q	15,296
Test Operations BMDS Flight Tests (Block 2010)										
BMDS FT	Various	USASMDC, WSMR, MITLL, JNIC, AL, NM, MA, HI & CA	0	0	N/A	18,975	1Q	26,613	1Q	45,588

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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Test Analysis and Reporting (Block 2010)										
Test Analysis and Reporting		CTF TA&R, Huntsville, AL	0	0	N/A	3,929	1Q	4,309	1Q	8,238
Third Site Testing										
Third Site	Various	Various	0	0	N/A	0	N/A	2,955	1Q	2,955
Subtotal Test and Evaluation			0	0		29,856		42,221		72,077
Remarks										
IV. Management Services Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Funding in this Project is not programmed until FY08.										
Subtotal Management Services			0	0		0		0		0
Remarks										
Project Total Cost			0	0		29,856		42,221		72,077
Remarks										

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Fiscal Year	2006				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	1	2	3	4				
System Ground Tests																																				
BMDS Overlay 10-1																			△																	
GTX-05a																			▽																	
GTX-05b																			▽																	
BMDS Overlay 10 - Eagle Resolve 2010																			△	△																
BMDS Overlay 10-2																			△	△																
GTI-05																			▽																	
PACOM Exercise Set 2010																			△	△																
BMDS Overlay 10 - BMDS Exercise																				△																
GTD-05																				▽																
GTX-05c																				▽																
BMDS Overlay 11-1																																				△
GTX-06a																																				▽
GTX-06b																																				▽

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-4A Schedule Detail						Date February 2007		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests								
FTG-08					1Q			
FTG-09					1Q			
FTT-14					1Q			
FTM-17					2Q			
FTS-06					2Q			
FTG-10					3Q			
FTL-02					3Q			
PAC-10					3Q			
FTL-03					4Q			
FTM-18					4Q			
FTT-15					4Q			
FTX-07					4Q			
FTG-11						1Q		
FTL-04						1Q		
FTK-02						2Q		
FTM-19						2Q		
FTS-07						2Q		
FTT-16						2Q		
FTG-12						3Q		
FTL-05						3Q		
PAC-11						3Q		
FTM-20						4Q		
FTT-17						4Q		
FTX-08						4Q		
GBI Readiness Test 11						4Q		
System Ground Tests								
BMDS Overlay 10-1					2Q			
GTX-05a					2Q			
GTX-05b					2Q			
GTX-06a					2Q	2Q		

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BMDS Overlay 10 - Eagle Resolve 2010					3Q-4Q			
BMDS Overlay 10-2					3Q-4Q			
GTI-05					3Q			
PACOM Exercise Set 2010					3Q-4Q			
BMDS Overlay 10 - BMDS Exercise					4Q			
GTD-05					4Q			
GTX-05c					4Q			
BMDS Overlay 11-1						2Q		
GTX-06b						2Q		
BMDS Overlay 11 - Eagle Resolve 2011						3Q-4Q		
BMDS Overlay 11-2						3Q-4Q		
GTI-06						3Q		
PACOM Exercise Set 2011						3Q-4Q		
BMDS Overlay 11 - BMDS Exercise						4Q		
GTD-06						4Q		
GTX-06c						4Q		
Measurement Tests								
FTC-06							2Q	
FTC-07								2Q

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007		
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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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
R104 Test & Evaluation Block 2012	0	0	0	0	55,573	78,449	81,684	3,961
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: FY12 RDT&E Test Articles: Integrate Launch Vehicles and Payloads to produce one test article for critical measurements and countermeasures test FTC 07 (to be expended in FY13).

FY13 RDT&E Test Articles: Integrate Launch Vehicles and Payloads to produce one test article for critical measurements and countermeasures test FTC 08 (to be expended in FY14).

A. Mission Description and Budget Item Justification

Test & Evaluation Block Testing: The MDA T&E program has six primary purposes: 1) to collect system verification and assessment data the demonstrates BMDS effectiveness, 2) to verify Block design capability, 3) to identify areas where technology can increase overall system performance, 4) to identify system vulnerabilities, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early capability readiness decisions.

MDA structures the BMDS T&E program around two-year Block increments, with upgrades and fielding opportunities for new capabilities occurring throughout the Block. The Test and Evaluation (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. As a result of progress delays (e.g., reprogramming, new priorities) Block testing from a previous Block may be completed in the next successive Block. 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 (SSD) and Interface Design Documents (IDD). 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.

Test & Evaluation Blocks Funding: Funding levels identified support all BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests and Lethality) and Ground Tests. Funding provides manpower, range and logistics support to perform system flight

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto Element flight tests and Risk Reduction/Targets of Opportunity flight tests.</p> <p>a) System Flight Tests: 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 Engagement Sequence Groups (ESGs). These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). In addition common flight test constructs such as Arrow, GBI, High Energy Laser, Interceptor, Countermeasure, Kinetic Energy, STSS, and Standard Missile; BMDS flight tests also includes:</p> <p>1) Targets of Opportunity (TOO). TOOs are events (e.g., Minuteman flight tests, 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.</p> <p>2) Critical Measurements and Counter Measures (CMCM) Flight Tests. CMCM FTs 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, and providing critical measurements to support development and validation of algorithms, modeling and simulation, 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. Funding associated with Critical Measurements and Counter Measures (CMCM) flight tests are captured in projects 0804, 0904, 0004 and R104; and is managed as part of the CTF Flight Test program.</p> <p>3) The CTF Lethality Program 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test 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</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>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 tests. Funding associated with Lethality is captured in projects 0804, 0904, 0004, R104 and 0204; and is managed as part of the CTF Flight Test program.</p> <p>b) System Ground Tests: 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 ground testing consists of:</p> <p>1) BMDS Integrated Ground Tests (GTI) - These test events are 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. The data generated from a GTI is used to collect data to anchor M&S and to improve their ability to verify and assess end-to-end system level performance and to provide risk reduction for FT. 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.</p> <p>2) BMDS Distributed Ground Tests (GTD) - These test events typically follow a GTI where they combine the fielded HW and SW of most of the BMDS Elements to exercise the BMDS communications 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 Engagement Sequence Groups (ESGs) will become candidates for early delivery to the war-fighter.</p> <p>3) BMDS Focused Ground Tests Other (GTX) - These test events 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 reductions 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 scheduling adjustments and unplanned test requirement needs.</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p><u>D. Acquisition Strategy</u></p> <p>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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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.</p>		

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
System Flight Tests								
FTG-12							1Q	
FTG-13							1Q	
FTK-03							1Q	
FTM-21							2Q	
FTS-08							2Q	
FTT-18							2Q	
FTG-14							3Q	
FTL-06							3Q	
FTL-08							3Q	
PAC-12							3Q	
FTL-07							4Q	
FTM-22							4Q	
FTT-19							4Q	
FTX-09							4Q	
FTG-15								1Q
FTK-04								1Q
FTM-23								2Q
FTS-09								2Q
FTT-20								2Q
FTG-16								3Q
FTL-09								3Q
PAC-13								3Q
FTM-24								4Q
FTT-21								4Q
FTX-10								4Q
GBI Readiness Test 13								4Q
System Ground Tests								
BMDS Overlay 12-1							2Q	
GTX-07a							2Q	
GTX-07b							2Q	

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BMDS Overlay 12 - Eagle Resolve 2012							3Q-4Q	
BMDS Overlay 12-2							3Q-4Q	
GTI-07							3Q	
PACOM Exercise Set 2012							3Q-4Q	
BMDS Overlay 12 - BMDS Exercise							4Q	
GTD-07							4Q	
GTX-07c							4Q	
BMDS Overlay 13-1								2Q
GTX-08a								2Q
GTX-08b								2Q
BMDS Overlay 13 - Eagle Resolve 2013								3Q-4Q
BMDS Overlay 13-2								3Q-4Q
GTI-08								3Q
PACOM Exercise Set 2013								3Q-4Q
BMDS Overlay 13 - BMDS Exercise								4Q
GTD-08								4Q
GTX-08c								4Q

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007		
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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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
R204 Test & Evaluation Block 2014	0	0	0	0	0	3,574	113,591	198,077
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Test & Evaluation Block Testing: The MDA T&E program has six primary purposes: 1) to collect system verification and assessment data the demonstrates BMDS effectiveness, 2) to verify Block design capability, 3) to identify areas where technology can increase overall system performance, 4) to identify system vulnerabilities, 5) to provide anchoring and validation data for modeling and simulation (M&S) tools, and 6) to support early capability readiness decisions.

MDA structures the BMDS T&E program around two-year Block increments, with upgrades and fielding opportunities for new capabilities occurring throughout the Block. The Test and Evaluation (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. As a result of progress delays (e.g., reprogramming, new priorities) Block testing from a previous Block may be completed in the next successive Block. 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 Document (SSD) and Interface Design Documents (IDD). 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.

Test & Evaluation Blocks Funding:

Funding levels identified support all BMD system Flight Tests (to include Critical Measurements and Countermeasure (CMCM) Tests and Lethality) and Ground Tests. Funding provides manpower, range and logistics support to perform system flight and ground test planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto Element flight tests and Risk Reduction/Targets of Opportunity flight tests.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>System Flight Tests (FT): 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 Engagement Sequence Groups (ESGs). These projects will also provide analysis of each system test event through the Joint Analysis Team (JAT). In addition common flight test constructs such as Arrow, GBI, High Energy Laser, Interceptor, Countermeasure, Kinetic Energy, STSS, and Standard Missile; BMDS flight tests also includes:</p> <ul style="list-style-type: none"> • Targets of Opportunity (TOO) are events (e.g., Minuteman flight tests, 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) Flight Tests (FTs) 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, and providing critical measurements to support development and validation of algorithms, modeling and simulation, 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. Funding associated with Critical Measurements and Counter Measures (CMCM) flight tests are captured in projects 0804, 0904, 0004 and R104; and is managed as part of the CTF Flight Test program. • The CTF Lethality Program 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 (LFT&E) are achieved, and to investigate how successful a given BMDS engagement will be in destroying the incoming warhead. Laboratory, ground and flight tests are defined and executed in response to the MDA System Engineer's requirement for data on the resultant space, atmosphere and ground effects of engaging high explosive and weapon of mass destruction (WMD) payloads. Flight test 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 tests. Funding associated with Lethality is captured in projects 0804, 0904, 0004, R104 and 0204; and is managed as part of the CTF Flight Test program. 		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2007
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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
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System Ground Tests (GT):

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 ground testing consists of:

- BMDS Integrated Ground Tests (GTI) are test events that are 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. The data generated from a GTI is used to collect data to anchor M&S and to improve their ability to verify and assess end-to-end system level performance and to provide risk reduction for FT. 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.
- BMDS Distributed Ground Tests (GTD) test events that typically follow a GTI where they combine the fielded HW and SW of most of the BMDS Elements to exercise the BMDS communications 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 Engagement Sequence Groups (ESGs) will become candidates for early delivery to the war-fighter.
- BMDS Focused Ground Tests 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 reductions 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 scheduling adjustments and unplanned test requirement needs.

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007			
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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				

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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 two year blocks. The RTO directs a team of various internal staff (Government and System Engineering and Technical Assistance (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-2A RDT&E Project Justification						Date February 2007		
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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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0917 Concurrent Test, Training & Ops (CTTO) Block 2008	0	0	41,647	37,789	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: Starting in FY08, Concurrent Test, Training and Operations (CTTO) efforts previously included in Ballistic Missile Defense Products PE 0603889C in Projects 0803, 0903 and 0003 within the BMDS Training area are now addressed in BMD Ballistic Missile Defense Test and Targets PE 0603888C Projects 0917 (Block 2008), 0017 (Block 2010) and R117 (Block 2012). Distributed Multi-Echelon Training System (DMETS) is an activity in the CTTO task.

A. Mission Description and Budget Item Justification

As part of the total Ballistic Missile Defense System (BMDS), the BMDS 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.

With the evolution of the BMDS, and each of 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, it has become a priority to implement a CTTO capability. This effort enhances BMDS operational capabilities by enabling continued incremental and spiral development testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios. To address this requirement, MDA is developing a CTTO approach to BMDS systems development and acquisition in which operational and developmental testing and training of the capabilities fielded to the Unified Combatant Commanders overlap to some extent while the system is in an operational state or “on alert.”

Addressing the Unified Combatant Commanders high priority requirement to conduct distributed, high fidelity, end-to-end training for missile defense operations and enabling the training portion of CTTO is the Distributed Multi-Echelon Training System (DMETS). DMETS consists of live, virtual and constructive training environments for proficiency training, operator certification, exercises, and Tactics, Techniques and Procedures (TTPs) development, mission rehearsal, review, testing and revision. DMETS will create an exercise like environment for units to gain training task coverage and achieve other learning objectives by presenting standardized, technically accurate threat scenarios and other problems, faults, and situations that elicit the performance of individual and collective tasks. The exercise environment supports training of the BMDS layered defense with critical cross mission interaction. DMETS modernizes the approach to plan, conduct and evaluate training, thus enabling rapid response to the

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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
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Unified Combatant Commanders training requirements. As MDA continues to develop the BMDS to defend the United States, deployed forces, friends and allies, the spiral development of DMETS will keep pace in meeting the continuing need to effectively train the crews, elements, staffs and commanders who execute the evolving BMDS mission.

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 while maintaining the ability to defend the United States, its deployed forces, friends, and allies
- Ensure horizontal and vertical test and evaluation scalability from MDA Element through global BMDS. 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
- Support the development and evaluation of BMDS Tactics, Techniques, and Procedures
- Validate and practice Unified Combatant Commanders BMDS Tactics, Techniques and Procedures
- Provide a means for individuals, elements, and the Unified Combatant Commanders to train, maintain proficiency, collaborate, and exercise from operational environment
- 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

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
DMETS	0	0	12,846	10,871
RDT&E Articles (Quantity)	0	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 utilizing 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.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>FY08 Planned Program:</p> <ul style="list-style-type: none">• Operate & Sustain the DMETS system - continue to provide BMD training events across the Unified Combatant Commands while maintaining the existing architecture• Expand the integrated training audience - continue to coordinate and field system hardware/software at scheduled Unified Combatant Commanders locations• Improve training availability - adding the necessary equipment, i.e. servers, workstations to increase training availability for Unified Combatant Commanders• Improve training effective - improvements that will enhance the performance of the system over a broad spectrum• Improve realism, to include cross-mission functionality - add more dynamic features to the system in order to provide realistic training for the Unified Combatant Commanders• Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs• Improve training quality of scenarios - adding dynamic capability to change the various aspects of one to many scenarios to increase the quality of the training event• Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS <p>FY09 Planned Program:</p> <ul style="list-style-type: none">• Operate & Sustain the DMETS system - continue to provide BMD training events while maintaining the existing architecture• Expand the integrated training audience - continue to coordinate and field system hardware/software at scheduled Unified Combatant Commanders locations• Improve training availability - adding the necessary equipment, i.e. servers, workstations to increase training availability for the Unified Combatant Commanders• Improve training effective - improvements that will enhance the performance of the system over a broad spectrum• Improve realism, to include cross-mission functionality - add more dynamic features to the system in order to provide realistic training• Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs• Improve training quality of scenarios - adding dynamic capability to change the various aspects of the one to many scenarios to increase the quality of the training event• Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
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 2006	FY 2007	FY 2008	FY 2009
CTTO	0	0	28,801	26,918
RDT&E Articles (Quantity)	0	0	0	0
<p>BMDS 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. BMDS 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. BMDS CTTO will allow for vertical and horizontal scalability of the BMDS over the operational architecture utilizing 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.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue to coordinate and integrate BMDS CTTO Element-level activities and capabilities • Align Ground-based Midcourse Defense Simultaneous Training and Operations test infrastructure and investment strategy and Command, Control, Battle Management, and Communications Parallel Staging Network • Upgrade Missile Defense System Exerciser Hardware In The Loop capability • Standardize BMDS CTTO System States and Modes. Standardize BMDS CTTO Message Tagging and Routing • Certify BMDS CTTO Safety and Information Assurance • Operate & Sustain DMETS - continue to provide BMDS training events while maintaining the existing architecture • Expand the integrated training audience - continue to coordinate and field system hardware/software at scheduled Unified Combatant Commander locations • Improve training availability - adding the necessary equipment, i.e. servers, workstations to increase training availability for Unified Combatant Commanders • Improve training effective - improvements that will enhance the performance of the system over a broad spectrum • Improve realism, to include cross-mission functionality - add more dynamic features to the system in order to provide realistic training for the Unified Combatant Commanders • Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<ul style="list-style-type: none">• Improve training quality of scenarios - adding dynamic capability to change the various aspects of one to many scenarios to increase the quality of the training event• Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS <p>FY09 Planned Program:</p> <ul style="list-style-type: none">• Operate & Sustain DMETS - continue to provide BMDS training events across the Unified Combatant Commands while maintaining the existing architecture• Expand the integrated training audience - continue to coordinate and field system hardware/software at scheduled Unified Combatant Commander locations• Improve training availability - adding the necessary equipment, i.e. servers, workstations to increase training availability for the Unified Combatant Commanders• Improve training effective - improvements that will enhance the performance of the system over a broad spectrum• Improve realism, to include cross-mission functionality - add more dynamic features to the system in order to provide realistic training• Improve operability and reliability - provide additional capabilities to mitigate system malfunctions and failed training runs• Improve training quality of scenarios - adding dynamic capability to change the various aspects of the one to many scenarios to increase the quality of the training event• Explore pathfinders for future capabilities - leverage and participate existing wargames, exercises and experiments to increase training opportunity for the use of DMETS		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
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PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p><u>D. Acquisition Strategy</u></p> <p>The Ballistic Missile Defense System Concurrent Test, Training, and Operations (BMDS CTTO) systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes assessment, phased-development, testing and evolutionary acquisition through the definition of distinct phases and two-year capability blocks. 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, will establish a BMDS 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 contracting approach for BMDS CTTO will be full and open competition in the acquisition process. Led by a flag/general officer steering group, the BMDS 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 BMDS CTTO that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The BMDS CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.</p>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date February 2007			
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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
DMETS			0	0	N/A	0	N/A	0	N/A	
Integrated Training Operation and Sustainment	C/CPAF	JNIC/GM/BOEING/MNTB /Colorado Springs, CO/ Huntsville, AL/ Arlington, VA	0	0	N/A	7,288	1/4Q	7,171	1/4Q	14,459
Expand Integration Training Audience	C/CPAF	JNIC/MNTB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	1,300	1/4Q	1,000	1/4Q	2,300
Improve Training Availability	C/CPAF	JNIC/MNTB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	1,958	2/3Q	1,400	2/3Q	3,358
Improve Training Effectiveness	C/CPAF	JNIC/MNTB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	2,000	2/3Q	1,000	2/3Q	3,000
Improve Training Quality	C/CPAF	JNIC/MNTB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	300	1/4Q	300	1/4Q	600
CTTO			0	0	N/A	0	N/A	0	N/A	
Integrated Training Operation and Sustainment	C/CPAF	JNIC/GM/BOEING/MNTB /Colorado Springs, CO/ Arlington, VA/ Huntsville, AL	0	0	N/A	8,100	1/4Q	7,800	1/4Q	15,900

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Expanded Integration Training Audience	C/CPAF	JNIC/MNTB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	5,100	1/4Q	4,818	1/4Q	9,918
Improve Training Availability	C/CPAF	JNIC/MTNB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	3,300	2/3Q	3,100	2/3Q	6,400
Improve Training Effectiveness	C/CPAF	MNTB/ Arlington, VA	0	0	N/A	7,300	2/3Q	6,500	2/3Q	13,800
Improve Training Quality	C/CPAF	JNIC/MTNB/ Colorado Springs, CO/ Arlington, VA	0	0	N/A	1,301	1/4Q	1,200	1/4Q	2,501
Improve Operability and Reliability	C/CPAF	MNTB/ Arlington, VA	0	0	N/A	2,500	1/4Q	2,400	1/4Q	4,900
Pathfinders	C/CPAF	GM/BOEING/ Huntsville, AL	0	0	N/A	1,200	1/4Q	1,100	1/4Q	2,300
Subtotal Product Development			0	0		41,647		37,789		79,436
Remarks										
II. Support Costs Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
Remarks										

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2007
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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
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III. Test and Evaluation Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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	0		41,647		37,789		79,436
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BLOCK 2008								
Expand Integration Training Audience			1Q-4Q	1Q-4Q				
Improve Training Effectiveness			1Q-4Q	1Q-4Q				
Improve Training Quality			1Q-4Q	1Q-4Q				
Integrated Training Operation & Sustainment			1Q-4Q	1Q-4Q				
Improve Training Availability			2Q-3Q	2Q-3Q				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2007
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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
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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0017 Concurrent Test, Training & Ops (CTTO) Block 2010	0	0	0	0	35,978	33,216	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: Starting in FY08, Concurrent Test, Training and Operations (CTTO) efforts previously included in Ballistic Missile Defense Products PE 0603889C in Projects 0803, 0903 and 0003 within the BMDS Training area are now addressed in BMD Ballistic Missile Defense Test and Targets PE 0603888C Projects 0917 (Block 2008), 0017 (Block 2010) and R117 (Block 2012). Distributed Multi-Echelon Training System (DMETS) is an activity in the CTTO task.

A. Mission Description and Budget Item Justification

As part of the total Ballistic Missile Defense System (BMDS), the BMDS 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.

With the evolution of the BMDS, and each of 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, it has become a priority to implement a CTTO capability. This effort enhances BMDS operational capabilities by enabling continued incremental and spiral development testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios. To address this requirement, MDA is developing a CTTO approach to BMDS systems development and acquisition in which operational and developmental testing and training of the capabilities fielded to the Unified Combatant Commanders overlap to some extent while the system is in an operational state or “on alert.”

Addressing the Unified Combatant Commanders high priority requirement to conduct distributed, high fidelity, end-to-end training for missile defense operations and enabling the training portion of CTTO is the Distributed Multi-Echelon Training System (DMETS). DMETS consists of live, virtual and constructive training environments for proficiency training, operator certification, exercises, and Tactics, Techniques and Procedures (TTPs) development, mission rehearsal, review, testing and revision. DMETS will create an exercise like environment for units to gain training task coverage and achieve other learning objectives by presenting standardized, technically accurate threat scenarios and other problems, faults, and situations that elicit the performance of individual and collective tasks. The exercise environment supports training of the BMDS layered defense with critical cross mission interaction. DMETS modernizes the approach to plan, conduct and evaluate training, thus enabling rapid response to the

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>Unified Combatant Commanders training requirements. As MDA continues to develop the BMDS to defend the United States, deployed forces, friends and allies, the spiral development of DMETS will keep pace in meeting the continuing need to effectively train the crews, elements, staffs and commanders who execute the evolving BMDS mission.</p> <p>The functions of the CTTO are to:</p> <ul style="list-style-type: none">• 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 while maintaining the ability to defend the United States, its deployed forces, friends, and allies• Ensure horizontal and vertical test and evaluation scalability from MDA Element through global BMDS. 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• Support the development and evaluation of BMDS Tactics, Techniques, and Procedures• Validate and practice Unified Combatant Commanders BMDS Tactics, Techniques and Procedures• Provide a means for individuals, elements, and the Unified Combatant Commanders to train, maintain proficiency, collaborate, and exercise from operational environment• 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		

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PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
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PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
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PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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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	
<u>D. Acquisition Strategy</u> The Ballistic Missile Defense System Concurrent Test, Training, and Operations (BMDS CTTO) systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes assessment, phased-development, testing and evolutionary acquisition through the definition of distinct phases and two-year capability blocks. 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, will establish a BMDS 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 contracting approach for BMDS CTTO will be full and open competition in the acquisition process. Led by a flag/general officer steering group, the BMDS 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 BMDS CTTO that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The BMDS CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.		

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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
R117 Concurrent Test, Training & Ops (CTTO) Block 2012	0	0	0	0	0	0	9,013	9,115
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p><i>Note: Starting in FY08, Concurrent Test, Training and Operations (CTTO) efforts previously included in Ballistic Missile Defense Products PE 0603889C in Projects 0803, 0903 and 0003 within the BMDS Training area are now addressed in BMD Ballistic Missile Defense Test and Targets PE 0603888C Projects 0917 (Block 2008), 0017 (Block 2010) and R117 (Block 2012). Distributed Multi-Echelon Training System (DMETS) is an activity in the CTTO task.</i></p> <p><u>A. Mission Description and Budget Item Justification</u></p> <p>As part of the total Ballistic Missile Defense System (BMDS), the BMDS 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.</p> <p>With the evolution of the BMDS, and each of 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, it has become a priority to implement a CTTO capability. This effort enhances BMDS operational capabilities by enabling continued incremental and spiral development testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios. To address this requirement, MDA is developing a CTTO approach to BMDS systems development and acquisition in which operational and developmental testing and training of the capabilities fielded to the Unified Combatant Commanders overlap to some extent while the system is in an operational state or “on alert.”</p> <p>Addressing the Unified Combatant Commanders high priority requirement to conduct distributed, high fidelity, end-to-end training for missile defense operations and enabling the training portion of CTTO is the Distributed Multi-Echelon Training System (DMETS). DMETS consists of live, virtual and constructive training environments for proficiency training, operator certification, exercises, and Tactics, Techniques and Procedures (TTPs) development, mission rehearsal, review, testing and revision. DMETS will create an exercise like environment for units to gain training task coverage and achieve other learning objectives by presenting standardized, technically accurate threat scenarios and other problems, faults, and situations that elicit the performance of individual and collective tasks. The exercise environment supports training of the BMDS layered defense with critical cross mission interaction. DMETS modernizes the approach to plan, conduct and evaluate training, thus enabling rapid response to the</p>								

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<p>Unified Combatant Commanders training requirements. As MDA continues to develop the BMDS to defend the United States, deployed forces, friends and allies, the spiral development of DMETS will keep pace in meeting the continuing need to effectively train the crews, elements, staffs and commanders who execute the evolving BMDS mission.</p> <p>The functions of the CTTO are to:</p> <ul style="list-style-type: none">• 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 while maintaining the ability to defend the United States, its deployed forces, friends, and allies• Ensure horizontal and vertical test and evaluation scalability from MDA Element through global BMDS. 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• Support the development and evaluation of BMDS Tactics, Techniques, and Procedures• Validate and practice Unified Combatant Commanders BMDS Tactics, Techniques and Procedures• Provide a means for individuals, elements, and the Unified Combatant Commanders to train, maintain proficiency, collaborate, and exercise from operational environment• 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		

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C. Other Program Funding Summary

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PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
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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	
<p><u>D. Acquisition Strategy</u></p> <p>The Ballistic Missile Defense System Concurrent Test, Training, and Operations (BMDS CTTO) systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes assessment, phased-development, testing and evolutionary acquisition through the definition of distinct phases and two-year capability blocks. 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, will establish a BMDS 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 contracting approach for BMDS CTTO will be full and open competition in the acquisition process. Led by a flag/general officer steering group, the BMDS 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 BMDS CTTO that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The BMDS CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.</p>		

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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0305 Targets & Countermeasures Core	20,654	20,062	21,135	21,582	21,383	21,673	21,673	21,673
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Targets & Countermeasures Core Support includes program office and field activity support. 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.

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 2006	FY 2007	FY 2008	FY 2009
Program Operations	20,654	20,062	21,135	21,582
RDT&E Articles (Quantity)	0	0	0	0

FY06 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

FY07 to 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

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D. Acquisition Strategy

Because the majority of the 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 activities 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 2007		
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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Operations										
Government Personnel		Wash., DC	8,232	2,935	1/4Q	2,997	1/4Q	3,060	1/4Q	17,224
Government Travel		Wash., DC	810	475	1/4Q	485	1/4Q	495	1/4Q	2,265

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/Oblg Date	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	12,030	4,378	1Q	4,449	1/4Q	4,521	1/4Q	25,378
Field Activity Support	C/Various	Various/Kirtland AFB, NM	11,640	2,533	1/4Q	3,332	1/4Q	3,426	1/4Q	20,931
Field Activity Support	C/Various	Various/Huntsville, AL	23,972	9,741	1/4Q	9,872	1/4Q	10,080	1/4Q	53,665
Subtotal Management Services			56,684	20,062		21,135		21,582		119,463
Remarks										
Project Total Cost			56,684	20,062		21,135		21,582		119,463
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				

COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0805 Targets & Countermeasures Block 2006	265,949	159,066	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provides capability-based targets to support Block 2006 integrated and 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 Block 2006 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, Lockheed Martin Space Systems Company (LMSSC) will develop all future target configurations with an emphasis on developing product lines of common target components, rather than unique individual target systems. LMSSC 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. LMSSC 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.

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
Systems Engineering	148,497	101,209	0	0
RDT&E Articles (Quantity)	0	0	0	0

This effort provides the Missile Defense Agency (MDA) with Target Program Technical Direction and analyzes 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,

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<p>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 emphasize 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.</p> <p>FY06 Accomplishments: Spiral I:</p> <ul style="list-style-type: none">• Continued development of the Spiral I Flexible Target Family (FTF) Systems specifications• Completed Spiral I development of Enhanced Capabilities products, including the following:<ul style="list-style-type: none">○ Launch Vehicle-2 Two-stage Strategic Target System○ Common Avionics System○ Common Support Equipment○ Common Transporter Erector○ Universal Payload Deployment Module○ New suite of countermeasures○ Environmental analysis for Spiral I FTF target vehicles○ C-17 Aircraft feasibility study for Spiral I FTF target vehicles○ Completed development of the FTF Spiral I Functional Allocation and Interface Definition○ Completed FTF Spiral I Critical Design Review (CDR)○ Continued development of the FTF Long Range Strategic Air-Launch Target System <p>Spiral II</p> <ul style="list-style-type: none">• Completed development of Spiral II FTF system specifications• Initiated Spiral II development of enhanced capability products, including the following:<ul style="list-style-type: none">○ Development of a modular dynamic control system and multi-band Re-Entry Vehicle (RV) antenna system with radar cross section signature reduction to be employed on a Modified Ballistic RV.○ Design a Launch Vehicle second stage thrust termination system○ Development of a Cold Gas Attitude Control System○ 52” Preliminary Design Review (PDR) SR19 Long Range Air Launch Target (LRALT)		

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<ul style="list-style-type: none">○ Completed FTF Spiral II functional allocation and interface definition II○ Completed FTF Spiral II PDR● Completed CDR for Countermeasures 1A and 1B● Developed Technology Transfer Plan from Sandia National Laboratory to Industry for sensor platform and countermeasure design● Defined target configuration for Theater High Altitude Aerial Defense (THAAD), Space Tracking and Surveillance System (STSS), AEGIS Ballistic Missile Defense (BMD) and Ground-Based Midcourse Defense (GMD)● Completed Rolling Wave II Integrated Baseline Review (IBR)● Completed Integrated Baseline Review (IBR) for ATM-48/PAC-3● Completed IBR for STARS Castor IV-B Hybrid (SC4H)● Provided Target Systems Analysis of flight test for the following target missions:<ul style="list-style-type: none">●<ul style="list-style-type: none">○ AEGIS (FTM-04-2, FTM-10)○ GMD (FTG-02, FT-04-1)○ THAAD (FTT-03, FTT-04, RDC-1a, RDC-1b)○ Airborne Laser Sensor Test (three targets)○ Space and Missile Defense Command (SMDC) Infrasonud (two targets)○ Pacific Phoenix Risk Reduction Flight (three Lances)○ Critical Measurements and Countermeasures Program-2 (CMCM-2) (FTC-02a, FTC-02b)		
FY07 Planned Program: Spiral I <ul style="list-style-type: none">● Update development to Spiral I FTF system specifications● Complete Spiral I Development of Enhanced Capability Products, including the following:<ul style="list-style-type: none">○ Final Loads Cycle analysis for FTF I (Closure)○ Break-up Analysis of Spiral I FTF○ Upgrades to Payload Deployment Module, final design to accommodate instrumented countermeasures design○ Re-Entry Vehicle Adaptor with High Delta - Velocity Separation System Design○ FTF Strategic Air-Launched Target System		

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Spiral II

- Continue Spiral II Development of Enhanced Capability Products, including the following:
 - LV-2 Two-stage Strategic Target System
 - Common Avionics System
 - Common Support Equipment
 - Common Transporter Erector
 - Universal Payload Deployment Module
 - New suite of countermeasures
 - FTF Strategic Air-Launched Target System
- Conduct Rolling Wave I
- Conduct IBRs 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 2006	FY 2007	FY 2008	FY 2009
Launch Vehicles	33,609	5,467	0	0
RDT&E Articles (Quantity)	0	0	0	0

This effort provides MDA with all launch delivery vehicles including boosters, interstages and avionics (guidance and flight computers). This task 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.

FY06 Accomplishments:

- Refurbished two SR 73 boosters for BMDS flight mission NFIRE2a/b
- Performed studies/analysis and future capabilities designs

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- Supported Ground Based Midcourse (GMD) FY06 flight test and future test vehicles

FY07 Planned Program:

- Procure two (2) SR19 Flexseals for future BMDS flight missions
- Perform studies/analysis and future LV capabilities designs

	FY 2006	FY 2007	FY 2008	FY 2009
Data and Instrumentation	4,985	0	0	0
RDT&E Articles (Quantity)	0	0	0	0

This effort provides 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.

FY06 Accomplishments:

- Flew early prototype Wireless LAN system on CMCM-2 for operational testing
- Analyzed miniaturized guidance navigation control technologies for size and weight reduction needs
- Continued development of direct to satellite telemetry
- Standardized instrumentation across Product Lines for Telemetry, avionics, Flight Termination/Command Destruct Systems, and GPS
- Initiated development of the Spatial Diverse Sensor platform

	FY 2006	FY 2007	FY 2008	FY 2009
Countermeasures	6,789	1,600	0	0
RDT&E Articles (Quantity)	0	0	0	0

This effort provides 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. Support requirements decomposition and analysis as applicable for the countermeasures activities. Program reviews and technical interchange meetings are held regularly to ensure mission success. Also, the funding supports pre- and post-mission data analysis.

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FY06 Accomplishments:

- Initiated design and development of Family 1C, 2D-2 and 1E countermeasures
- Characterized countermeasure objects for BMDS flight tests
- Developed techniques, materials and processes for new prototype countermeasures
- Conducted design studies that progressed countermeasures designs toward Preliminary Design Review

FY07 Planned Program:

- Solve interface issues to insure new countermeasure designs from National Labs will be compatible with the Prime Contractor Flexible Target Family vehicles
- Develop techniques, materials, and processes for new prototype countermeasures, then characterize those objects that will fly on Block 06 Flight Tests
- Evolve countermeasures engineering designs toward Critical Design Review

	FY 2006	FY 2007	FY 2008	FY 2009
Logistics	30,914	24,326	0	0
RDT&E Articles (Quantity)	0	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.

FY06 Accomplishments:

- Stored, maintained and conducted aging and surveillance program for 84 Pershing II Reentry Vehicles and other components, 91 Lance Missiles, 17 Polaris A-3 motors, 10 Orbus motors, Minuteman motors, 14 FMA's, 72 Terrier motors, 6 MLRS motors, 1 MBRV warhead and 5 Castor IVB motors
- Maintained existing support equipment and facilities at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex, and Pacific Missile Range Facility
- Initiated custody of Trident C-4 motors for future use as targets: (144) 1st stage; (72) 2nd stage; (36) 3rd stage

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<ul style="list-style-type: none">• Initiated storage of Trident C-4 motor hardware for future target use.• Transported the following for various test flights:<ul style="list-style-type: none">○ Two (2) SR-19 motors and associated equipment supporting the CMCM-2 mission○ Three (3) Castor IVB motors and associated equipment supporting FTM-04-2, FTM-09, and FTM-10 missions○ Two (2) Hera targets and associated equipment supporting FTT-03 and FTT-04 missions○ Five (5) Lance Missiles and associated equipment supporting of ABL Ground Sensor tests and Navy Sea-Based Terminal Demonstration○ Three (3) FMA Missiles and associated equipment .• Refurbished, assembled and delivered three (3) Strategic Target System (STARS) targets and associated equipment for GMD flight test• Procured domestic Inhibited Red Fuming Nitric Acid (IRFNA) for the FMA target program• Took custody of six (6) ORBUS 1A rocket motors from BV+ Program for future test events <p>FY07 Planned Program:</p> <ul style="list-style-type: none">• Store, maintain and conduct 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• Maintain existing support equipment and facilities at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex and Pacific Missile Range Facility• Store and maintain Trident C-4 motor hardware for future target use• Transported the following for various test flights:<ul style="list-style-type: none">○ Two (2) TLV motor sets and associated equipment and delivery supporting FTX-02 and NFIRE-2a missions.○ Two (2) Castor IVB motors and associated equipment supporting FTM-12 missions○ Two (2) Hera targets and associated equipment supporting ATM-48 and FT 7-2 missions○ Two (2) FMA Missiles and associated equipment supporting FTT-07 and FTT-08 missions.• Refurbish, assemble and deliver three (3) STARS targets and associated equipment supporting FTG-03 and FTG-04• Take custody of eight (8) GEM 40 rocket motors from BV+ Program for future flight test• Take custody of sixteen (16) ORBUS 1A rocket motors from BV+ Program for future flight test		

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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		
	FY 2006	FY 2007	FY 2008	FY 2009
Integration	15,312	12,088	0	0
RDT&E Articles (Quantity)	0	0	0	0
<p>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.</p> <p>FY06 Accomplishments:</p> <ul style="list-style-type: none"> • Provided mission assurance for hardware integration for BMDS element targets in support of FY06 tests • Integrated product line components into designated target configuration and tests systems to support FY06 tests • Managed target development on legacy contracts • Managed integration services of the Prime contract, Lockheed Martin Space Systems Company (LMSSC) • Provided development efforts on the Single Integration Capability <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Provide mission assurance for hardware integration for all BMDS element targets in support of FY07 tests • Manage integration services of Prime contract with LMSSC • Provide support for the Single Integration Capability, located at Courtland, AL • Manage target integration services on legacy contracts • Provide target studies and analysis support and launch vehicle components 				
	FY 2006	FY 2007	FY 2008	FY 2009
Mission Management	18,943	8,619	0	0
RDT&E Articles (Quantity)	0	0	0	0
<p>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. Plans and conducts target Mission readiness reviews and monitors environmental execution.</p>				

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FY06 Accomplishments:

- Prepared, conducted and analyzed:
 - ABL sensor test (3) three Lance missions
 - AEGIS BMD target missions (FTM-04-2, Three (3) Pacific Phoenix Lance series, and FTM-10.)
 - GMD target missions (FT04-1, FTG-02)
 - THAAD target missions (FTT-03, RDC-1a/b (2 LCAT), FTT-04)
 - BMDS Sensor Countermeasures missions (FTC-02a/b)
- Prepared for and analyzed pre-mission activities for numerous missions defined in FY07 Planned Program.

FY07 Planned Program:

- Conduct any remaining retrograde or analysis activities associated with the FTT-04.
- Prepare for, conduct, and analyze:
 - Aegis-BMD target mission (FTM-11)
 - Lower Tier Program Office (LTPO) target missions (ATM-48 , FT-7-2)
 - GMD target missions (FTX-02 , FTG-3 , FTG-4)
 - STSS missions (NFIRE-2a , NFIRE-2b)
 - THAAD target missions (FTT-06, RDC-1c, FTT-07, FTT-08, RDC-1d)

	FY 2006	FY 2007	FY 2008	FY 2009
Re-entry Vehicles	6,900	5,757	0	0
RDT&E Articles (Quantity)	0	0	0	0

This effort includes 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. 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.

FY06 Accomplishments:

- Coordinated buildup and delivery of:
 - One (1) MBRV-1 for ATM-48 flight test with one (1) Bulk Chemical Experiment (BCE)

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- Seven (7) MBRV-2s for JFTM-1, FTM-12, JFTM-2, FTS-03 and CMCM-1a/b flight tests, including thee (3) with Bulk Chemical Lethality Front Section (BCLFS) and four (4) GROW RVs with four (4) Payload Deployment Modules (PDM) for FTG-02, FTG-03 and CMCM-2a/b supporting Block 06 BMDS testing
- Exercised contractual actions for two (2) new-build MBRV-3 supporting Lower Tier Program Office (LPTO) testing and one (1) new-build MBRV-3 supporting future BMDS testing
- Initiated contractual action for three (3) new-build MBRV-1s supporting THAAD testing

FY07 Planned Program:

- Coordinate buildup and delivery of:
 - Four (4) MBRV-3s for FT-7-02, FTT-06, FTT-07 and FTT-08
- Execute contractual action for procurement of three (3) MBRV-1s supporting THAAD testing
- Initiate contractual actions for ten (10) new-design MBRV-2s for ABL, Aegis BMD, KEI, STSS and THAAD testing
- Support Spiral Development activities with Lockheed Martin Space Systems

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915

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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes 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.

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I. Product Development Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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	149,031	93,131	1/4Q	0	N/A	0	N/A	242,162
System Engineering Support	C/FFRDC	John Hopkins Applied Research Lab/ Maryland	2,200	2,322	1/4Q	0	N/A	0	N/A	4,522
System Engineering Support	C/Variou	Various/ Various	19,000	1,000	1/4Q	0	N/A	0	N/A	20,000
System Engineering	C/MIPR	DoD/WHS/ Washington, DC	0	227	1/4Q	0	N/A	0	N/A	227
System Engineering	C/MIPR	National Security Agency/ Ft. Meade, MD	0	529	1/4Q	0	N/A	0	N/A	529
System Engineering	C/FFRDC	Sandia National Lab/Albuquerque, NM	0	4,000	1/4Q	0	N/A	0	N/A	4,000
Launch Vehicles										
Launch Vehicles	C/CPAF	Lockheed Martin Space Systems/ Denver, CO	2,375	0	N/A	0	N/A	0	N/A	2,375
Launch Vehicles	C/CPAF	Northrop Grumman/ Albuquerque, NM	2,500	2,575	1/4Q	0	N/A	0	N/A	5,075
Launch Vehicles	C/CPAF	Northrop Grumman/ Ogden, UT	1,000	0	N/A	0	N/A	0	N/A	1,000
Launch Vehicles	C/FFP	Aerojet/ Sacramento, CA	0	2,892	1/4Q	0	N/A	0	N/A	2,892

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Data and Instrumentation										
Data & Instrumentation	C/CPFF	Fibertek/ Herndon, VA	242	0	N/A	0	N/A	0	N/A	242
Data & Instrumentation	C/MIPR	DoD/WHS/ Washington, DC	200	0	N/A	0	N/A	0	N/A	200
Data & Instrumentation	C/CPFF	SRA/ Huntsville, AL	800	0	N/A	0	N/A	0	N/A	800
Data & Instrumentation	C	Colorado Springs, CO	85	0	N/A	0	N/A	0	N/A	85
Data & Instrumentation	C/FFRDC	Sandia National Lab/ Albuquerque, NM	7,472	0	N/A	0	N/A	0	N/A	7,472
Countermeasures										
Countermeasures Development	C/FFRDC	MIT/LL/ Boston, MA	650	0	N/A	0	N/A	0	N/A	650
Countermeasures Development	C/FFRDC	Sandia National Lab/ Albuquerque, NM	6,275	850	1/4Q	0	N/A	0	N/A	7,125
Countermeasures Development	C/Variou	Various/ Various	5,275	0	N/A	0	N/A	0	N/A	5,275
Countermeasures Development	C/CPFF	Signature Research Associates/ Huntsville, AL	0	750	1/4Q	0	N/A	0	N/A	750
Logistics										
Logistics	C/CPFF	Battelle/ Kennesaw, GA	1,950	2,005	1Q	0	N/A	0	N/A	3,955
Logistics	SS/CPFF	Alliant Techsystems/ Magna, UT	300	317	1Q	0	N/A	0	N/A	617

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date February 2007			
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 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Logistics	SS/CPFF	Physical Science Laboratory/ Las Cruces, NM	438	670	1Q	0	N/A	0	N/A	1,108
Logistics	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	2,682	2,552	1/2Q	0	N/A	0	N/A	5,234
Logistics	C/MIPR	Various/ Various	1,781	418	1/3Q	0	N/A	0	N/A	2,199
Logistics	C/Various	Various/ Albuquerque, NM	4,000	2,893	1/2Q	0	N/A	0	N/A	6,893
Logistics	C/CPAF	Lockheed Martin/ Denver, CO	6,850	14,231	1/4Q	0	N/A	0	N/A	21,081
Logistics	C/MIPR	SWFPAC/ Bangor, WA	610	0	N/A	0	N/A	0	N/A	610
Logistics	C/MIPR	AMCOM/ Huntsville, AL	0	1,240	1/4Q	0	N/A	0	N/A	1,240
Integration										
Integration	C/CPAF	Northrop Grumman/ Albuquerque, NM	11,500	9,000	1/4Q	0	N/A	0	N/A	20,500
Integration	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	2,088	1/4Q	0	N/A	0	N/A	2,088
Integration	C/Various	Various/Various	0	1,000	2/4Q	0	N/A	0	N/A	1,000
Mission Management										
Mission Management	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	9,703	8,619	1/4Q	0	N/A	0	N/A	18,322

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2007
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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
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Re-entry Vehicles										
Re-Entry Vehicles	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	2,150	1,229	1/4Q	0	N/A	0	N/A	3,379
Re-Entry Vehicles	C/FFRDC	Sandia National Lab/ Albuquerque, NM	2,500	0	N/A	0	N/A	0	N/A	2,500
Re-Entry Vehicles	C/CPAF	Lockheed Martin/ Denver, CO	7,208	4,000	1/4Q	0	N/A	0	N/A	11,208
Re-Entry Vehicles	C/CPFF	Signature Research Associates/ Huntsville, AL	0	528	1/4Q	0	N/A	0	N/A	528
Subtotal Product Development			248,777	159,066		0		0		407,843

Remarks

Within Logistics and Re-Entry Vehicles, the Teledyne Solutions, Inc., contract is a Command-wide SETA contract.

Within Integration, the Program Office intends to award the Low Cost Assessment Targets Prime Contractor in FY07.

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs										

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2007
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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
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III. Test and Evaluation Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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			248,777	159,066		0		0		407,843
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2007
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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
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Fiscal Year	2006				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	1	2	3	4
Development Milestones																																
Preliminary Design Review 52 in. SR19 FTF		▲																														
Critical Design Review		▲				△																										
System Flight Tests																																
FT 04-1		▼																														
FT 04-5		▼																														
FTM 04-2		◆																														
Pacific Phoenix				◆																												
FTM-10				▼																												
FTG-2								▼																								
FTT-03								◆																								
RDC-01a/b								▼																								
FTT-04								◆																								

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 2007

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	2006				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	1	2	3	4
System Flight Tests																																
FTM-11					▼																											
FTT-06						◇																										
FTX-02						▽																										
RDC-01c						◇																										
ATM-48							▽																									
FTG-03							▽																									
FTM-12							▽																									
FTT-07							▽																									
RDC-01d							◇																									
(PAC) 7-2							◇																									
N FIRE-2A								◇																								
N-FIRE 2b								◇																								
FTM-11a								◇																								

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 2007
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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
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Fiscal Year	2006				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	1	2	3	4
System Flight Tests																																
FTT-08								◇																								
FTG-04								▽																								
Measurement Tests																																
FTC-02a/b		▽																														
FT 04-4 (CMCM-2)			▲																													
				</																												

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Development Milestones								
Preliminary Design Review 52 in. SR19 FTF	2Q							
Critical Design Review	2Q	2Q						
Integrated Baseline Review		2Q						
System Flight Tests								
FT 04-1	1Q							
FT 04-5	1Q							
FTM 04-2	1Q							
Pacific Phoenix	3Q							
FTM-10	3Q							
FTG-2	4Q							
FTT-03	4Q							
RDC-01a/b	4Q							
FTT-04	4Q							
FTM-11		1Q						
FTT-06		2Q						
FTX-02		2Q						
RDC-01c		2Q						
ATM-48		3Q						
FTG-03		3Q						
FTM-12		3Q						
FTT-07		3Q						
RDC-01d		3Q						
(PAC) 7-2		3Q						
N FIRE-2A		4Q						
N-FIRE 2b		4Q						
FTM-11a		4Q						
FTT-08		4Q						
FTG-04			1Q					
Measurement Tests								
FTC-02a/b	2Q							

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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APPROPRIATION/BUDGET ACTIVITY RD&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets				
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Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FT 04-4 (CMCM-2)	3Q							

Targets used in system test events are funded by the Elements.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2007
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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
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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0905 Targets & Countermeasures Block 2008	3,250	19,231	160,794	139,676	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: Many of Target & Countermeasures accomplishments were previously funded under Project 0805 Block 2006 and are continued into Block 2008, Project 0905.

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provides capability-based targets to support Block 2008 integrated and layered Ballistic Missile Defense Systems (BMDS) testing. Targets developed under this project will test and enhance 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 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 Block 2008 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. This program also provides the technical support of mission management for Element flight tests. Similar to Project 0805 (Block 06), this Project (0905) will continue to rely upon the targets prime contractor, Lockheed Martin Space Systems Company (LMSSC) 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.

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
Systems Engineering	0	9,661	100,690	88,196
RDT&E Articles (Quantity)	0	0	0	0

This effort provides the Missile Defense Agency with Target Program Technical Direction and analyze of target requirements cost, schedule, 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 conductibility of design reviews. Performs target system analysis with new concepts to verify system performance. Defines target program baseline, control flight test configuration, and conduct pre and post-flight analysis and documentation. Identifies treaty and environmental issues and develops plans for issue

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	
<p>resolution. The Flexible Targets Family (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 capabilities.</p> <p>FY07 Planned Program: Spiral II</p> <ul style="list-style-type: none">• Conduct Integrated Baseline Reviews (IBR) on effort placed on contract in FY07 including the following:<ul style="list-style-type: none">○ AEGIS Ballistic Missile Defense (BMD) (JFTM-1)○ Theater High Altitude Air Defense (THAAD) (FTT-09, FTT-10, FTT-11) <p>Spiral III - FTF Enhanced Studies (Development of Enhanced Capability Products)</p> <ul style="list-style-type: none">• Develop modification of Infrared and Radar Cross Section for Re-Entry Vehicles (RV) in endo and last stage• Develop technology transfer of countermeasures, sensors, and advanced instrumentation <p>FY08 Planned Program: Spiral III</p> <ul style="list-style-type: none">• Complete Spiral III Development and Enhanced Capability Products<ul style="list-style-type: none">○ Modification of Infrared and Radar Cross Section for Re-entry Vehicle endo and last stage.○ Technology transfer of countermeasures, sensors and advanced instrumentation• Complete Spiral III Critical Design Review (CDR) <p>Spiral IV</p> <ul style="list-style-type: none">• Initiate development of Spiral IV Flexible Target Family System Specification<ul style="list-style-type: none">○ The Flexible Target Family composes 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.○ The Flexible Target Family contains components that emphasize commonality and modularity across target system representations within the family of target sets that can rapidly integrate into supporting MDA flight tests.• Initiate Spiral IV Development of Enhanced Capability Products<ul style="list-style-type: none">○ Castor IV B Thrust Termination○ Last Stage Booster IR Signature Tailorability		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	0603888C Ballistic Missile Defense Test and Targets	
<ul style="list-style-type: none"> ○ Attitude Control Module and Payload Deployment Module Tailorability ○ Direct Satcom Telemetry Link ○ Payload Deployment Module Payload Accommodations ○ Countermeasure Radar Cross Section Compatibility ● Complete Spiral IV System Requirement Review ● Complete Spiral IV Functional Allocation and Interface Definition IV ● Complete Rolling Wave Integrated Baseline Review ● Provide Target System Analysis of flight test for the following target missions: <ul style="list-style-type: none"> ○ Critical Measurements Countermeasures (CMCM) (FTC-04a/b) ○ GMD (FTG-05) ○ Aegis-BMD (FTM-13, JFTM-1, FTM-14) ○ PAC-3 (FT 7-3) ○ THAAD (FTT-09, FTT-10, FTT-11, FTT-12) ○ Space Tracking and Surveillance System (STSS) (FTS-01, FTS-02, FTS-03) <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> ● Complete Development of the Spiral IV Flexible Target Family System Specification ● Continue Spiral IV Development of Enhanced Capability Products <ul style="list-style-type: none"> ○ Castor IV B Thrust Termination ○ Last Stage Booster IR Signature Tailorability ○ Attitude Control Module and Payload Deployment Module Tailorability ○ Direct Satcom Telemetry Link ○ Payload Deployment Module Payload Accommodations ○ Countermeasure Radar Cross Section Compatibility ● Complete Spiral IV Preliminary Design Review ● Complete Rolling Wave Integrated Baseline Review ● Provide Target System Analysis of flight test for the following target missions: <ul style="list-style-type: none"> ○ CMCM (FTC-05) ○ GMD (FTG-06, FTG-07) ○ Aegis BMD (JFTM-2, FTM-15, FTM-16) 		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets		
<ul style="list-style-type: none"> ○ PAC-3 (FT 16-2) ○ THAAD (FTT-13, FTT-14, FTT-15) ○ STSS (FTS-04) ○ Airborne Laser (ABL) (FTL-01, FTL-02, FTL-03) 				
	FY 2006	FY 2007	FY 2008	FY 2009
Launch Vehicles	0	0	4,444	3,951
RDT&E Articles (Quantity)	0	0	0	0
<p>This effort provides MDA with all launch delivery vehicles including boosters, interstages and avionics (guidance and flight computers). This task includes conducting decomposition for booster, interstage and avionics requirements, characterizing and qualifying boosters, interstages and avionics. Conducts necessary design reviews. Ensures boosters, interstages and avionics adhere to interface specifications.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> ● Provide acquisition support , mission management of the prime contract (LMMSC) and legacy contracts ● Provide continued management of target development, integration and launch services of the prime contract (LMMSC) and legacy contracts ● Perform studies/analysis for future Launch vehicle (LV) capabilities designs ● Procure two (2) SR19 Flexseals for future BMDS flight missions ● Procure rocket motors and hardware as needed or required to support future Medium Range Target (MRT) missions <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> ● Provide acquisition support, mission management of the prime contract (LMMSC) and legacy contracts ● Provide continued management of target development, integration, and launch services of the prime contract, (LMMSC) and legacy contracts ● Perform studies/analysis for future LV capabilities designs ● Procure two (2) SR19 Flexseals for future BMDS flight missions ● Procure rocket motors and hardware as needed or required to support future Medium Range Target (MRT) missions 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
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 2006	FY 2007	FY 2008	FY 2009
Countermeasures	3,250	6,900	12,000	2,000
RDT&E Articles (Quantity)	0	0	0	0
<p>This effort provides program management and development of various countermeasure systems for BMDS flight testing, including characterization and ground testing of those countermeasure systems.</p> <p>FY06 Accomplishments:</p> <ul style="list-style-type: none"> • Conducted studies on legacy countermeasures to down-select designs for maturation and limited production by the National Labs • Initiated design and development of Family 1C and 2D-2 countermeasures for Block 08 test objectives, which required developing new materials, processes and techniques • Characterized countermeasures for BMDS Flight tests <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Work interface issues so that new countermeasure designs from National Labs will be compatible with the Prime Contractor Flexible Target Family vehicles • Continue developing materials and processes for new prototype countermeasures supporting BMDS Block 08 system testing • Conduct design studies to bring countermeasures designs to Critical Design Review <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • 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 <p>FY 09 Planned Program:</p> <ul style="list-style-type: none"> • Continue developing advanced techniques for prototyping new countermeasures • Evolve countermeasures prototypes towards flight qualifications based upon considerable flight qualification test activities (based upon FTF environments) • Build variety of engineering countermeasures prototypes supporting BMDS system testing 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
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 2006	FY 2007	FY 2008	FY 2009
Logistics	0	420	10,170	10,420
RDT&E Articles (Quantity)	0	0	0	0
<p>This effort provides MDA with all required 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 countermeasures 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 the 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 (FMA) fuel calibration and storage.</p> <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Refurbish, assemble and deliver the following: <ul style="list-style-type: none"> ○ One (1) Hera target and associated equipment supporting FT 7-3 mission ○ One (1) Strategic Target System (STARS) target and associated equipment supporting FTG-05 mission <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • 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) • 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 <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • 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 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets		
<ul style="list-style-type: none"> 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 2006	FY 2007	FY 2008	FY 2009
Integration	0	0	12,277	12,503
RDT&E Articles (Quantity)	0	0	0	0
<p>This effort provides MDA with all target configuration, integration, launch services and mission assurance in support of Ballistic Missile Defense Systems (BMDS) testing. Task includes developing flight safety documentation, conducting trajectory flyout analysis, supporting environmental studies and reviews. Integrates product line components into designated target configuration and test systems. Provides schedule status, final target checkout. and target launch services for mission assurance.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> Provide mission assurance for hardware integration for all BMDS element targets in support of FY08 scheduled tests Manage integration services of the prime contract, (LMMSC), and target integration services on legacy contracts Provide target studies and analysis support and launch components Prepare for, conduct and analyze the following: <ul style="list-style-type: none"> Airborne Laser (ABL) High Powered systems test and MARTI launches (HPSI Lance (up to 6) missions in 2-3; 2 HPSI MARTI missions in 3-4) Aegis BMD target missions (FTM-13, FTM-14, JFTM-1) Lower Tier Program Office (LTPO) target missions (FT 7-3) GMD target mission (FTG-05) THAAD target missions (FTT-09, FTT-10, FTT-11, FTT-12) STSS target missions (FTS-01, FTS-02, FTS-03) Systems test and countermeasures missions (FTC-04, FTC-05) <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> Prepare for and conduct pre and post mission analysis for the following: <ul style="list-style-type: none"> ABL flight test (FTL-01 MRT; Envelope Expansion missions (up to 4) MARTI's) Aegis BMD target mission (FTM-15, FTM-16, JFTM-2) LTPO target mission (FT 16-2) 				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets		
<ul style="list-style-type: none"> ○ GMD target mission (FTG-06, FTG-07, FTG-08) ○ THAAD target mission (RDC-2, FTT-13, FTT-14, FTT-15) ○ STSS target mission (FTS-04) ● Provide mission assurance for hardware integration for all BMDS element targets in support of FY08 tests ● Manage target integration services of the prime contract (LMMSC) and legacy contracts 				
	FY 2006	FY 2007	FY 2008	FY 2009
Mission Management	0	2,000	10,665	10,636
RDT&E Articles (Quantity)	0	0	0	0
<p>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. Plans and conducts target mission readiness reviews and monitors environmental execution.</p> <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> ● Prepare for conduct and analyze Aegis-BMD target missions (FTM-12, FTM-13) ● Prepare for and analyze pre-mission activities: <ul style="list-style-type: none"> ○ Aegis-BMD target missions (FTM-13, JFTM-1) ○ LTPO target mission (FT 7-3) ○ GMD target mission (FTG-05) ○ STSS target mission (FTS-1, FTS-2, FTS-3, FTS-4) <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> ● Prepare for, conduct and analyze the following: <ul style="list-style-type: none"> ○ ABL High Powered system tests and MARTI launches (HPSI Lance (up to 6) missions, 2 HPSI MARTI missions) ○ Aegis BMD target missions (FTM-13, FTM-14) ○ LTPO target mission (FT7-3) ○ GMD target missions (FTG-05, FTG-06) ○ THAAD target missions (FTT-09, FTT-10, FTT-11, FTT-12) ○ STSS target missions (FTS-01, FTS-02, FTS-03) 				

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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
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- Systems test and countermeasures missions (FTC-04 and FTC-05)
- Prepare for, and conduct pre-mission analysis for the following:
 - ABL flight tests, FTL-01 MRT: Envelope Expansion missions (up to 4) MARTI's
 - Aegis BMD target mission (FTM-15)
 - LTPO target mission (FT 16-2)
 - GMD target mission (FTG-08)
 - THAAD target missions (RDC-2, FTT-13)
 - STSS target mission (FTS-04)

FY09 Planned Program:

- Prepare for, conduct and analyze for the following:
 - ABL flight tests, FTL-01 MRT, Envelope Expansion missions (up to 4) MARTI's
 - Aegis BMD target missions (FTM-15, FTM-16)
 - LTPO target mission (FT 16-2)
 - GMD target missions (FTG-07, FTG-08)
 - THAAD target missions (RDC-2, FTT-14, FTT-14, FTT-15, FTT-16)
 - STSS target mission (FTS-04)

	FY 2006	FY 2007	FY 2008	FY 2009
Re-Entry Vehicles	0	250	10,548	11,970
RDT&E Articles (Quantity)	0	0	0	0

This effort includes 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. 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.

FY07 Planned Program:

- Coordinate the completion of:
 - One (1) MBRV-1 for FTT-09
 - One (1) MBRV-3 for FT 7-03

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FY08 Planned Program:

- Coordinate the completion of:
 - Five (5) MBRV-2s for FTM-14 , FTT-14a, FTS-04 and CMCM-5 flight tests.
 - Two (2) MBRV-3's for FT-16-2 and FT-16-3 flight test.
 - Three (3) MBRV-1's for FTT-12, FTT-13 and FTT-15 flight tests.
 - One (1) GROW RV with PDM supporting future BMDS testing.

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.

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525

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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				
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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes 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.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date February 2007			
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 2007 Cost	FY 2007 Award/ Oblg Date	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	976	9,661	1/4Q	97,319	1/4Q	84,775	1/4Q	192,731
System Engineering	C/Variou	Various/Various	0	0	N/A	1,000	1/4Q	1,000	1/4Q	2,000
System Engineering	C/FFRDC	John Hopkins Applied Research Lab/Baltimore, MD	0	0	N/A	2,371	1/4Q	2,421	1/4Q	4,792
Launch Vehicles										
Launch Vehicles	C/CPAF	Northrop Grumman/ Albuquerque, NM	0	0	N/A	1,256	1/4Q	1,075	1/4Q	2,331
Launch Vehicles	C/FFP	Aerojet/ Sacramento, CA	0	0	N/A	3,188	1/4Q	2,876	1/4Q	6,064
Countermeasures										
Countermeasures Development	C/FFRDC	MIT/LL/ Boston, MA	0	0	N/A	0	N/A	0	N/A	
Countermeasures Development	C/FFRDC	Sandia National Lab/ Albuquerque, NM	3,250	6,900	1/4Q	10,000	1/4Q	0	N/A	20,150
Countermeasures Development	C/CPFF	Signature Research Associates/ Huntsville, AL	0	0	1/4Q	2,000	N/A	2,000	1/4Q	4,000
Logistics										

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/Oblg Date	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Logistics	C/FP	Teledyne Solutions, Inc./Huntsville, AL	0	420	1/4Q	3,035	1/4Q	3,098	1/4Q	6,553
Logistics	C/CPFF	Battelle/ Kennesaw, GA	0	0	N/A	2,061	1/4Q	2,119	1/4Q	4,180
Logistics	C/MIPR	Various/Various	0	0	N/A	427	1/4Q	438	1/4Q	865
Logistics	SS/CPFF	Physical Science Laboratory/ Las Cruces, NM	0	0	N/A	689	1/4Q	708	1/4Q	1,397
Logistics	SS/CPFF	Alliant Tech Systems/ Magna, UT	0	0	N/A	323	1/4Q	330	1/4Q	653
Logistics	C/CPAF	Lockheed Martin/ Denver, CO	0	0	N/A	2,361	1/4Q	2,419	1/4Q	4,780
Logistics	C/MIPR	AMCOM/ Huntsville, AL	0	0	N/A	1,274	1/4Q	1,308	1/4Q	2,582
Integration										
Integration	C/CPAF	Northrop Grumman/ Albuquerque, NM	0	0	N/A	10,777	1/4Q	11,003	1/4Q	21,780
Integration	C/Various	Various/Various	0	0	N/A	1,500	1/4Q	1,500	1/4Q	3,000
Mission Management										
Mission Management	C/FP	Teledyne Solutions, Inc./ Huntsville, AL	0	2,000	1/4Q	10,665	1/4Q	10,636	1/4Q	23,301

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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
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Re-Entry Vehicles										
Re-Entry Vehicles	C/FP	Teledyne Solutions/Huntsville, AL	0	250	N/A	1,543	1/4Q	1,570	1/4Q	3,363
Re-Entry Vehicles	C/FFRDC	Sandia National Lab/Albuquerque, NM	0	0	N/A	3,966	1/4Q	3,970	1/4Q	7,936
Re-Entry Vehicles	C/CPAF	Lockheed Martin/Denver, CO	0	0	N/A	2,539	1/4Q	5,880	1/4Q	8,419
Re-Entry Vehicles	C/CPFF	Signature Research Associates/Huntsville, AL	0	0	N/A	2,500	1/4Q	550	1/4Q	3,050
Subtotal Product Development			4,226	19,231		160,794		139,676		323,927

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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs										

Remarks

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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
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III. Test and Evaluation Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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			4,226	19,231		160,794		139,676		323,927
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2007
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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
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Fiscal Year	2006				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	1	2	3	4				
Development Milestones																																				
Critical Design Review						Δ				Δ																										
System Requirements Review										Δ																										
Preliminary Design Review												Δ																								
System Flight Tests																																				
FTM-13										◇																										
JFTM-01										◇																										
(PAC) 7-3											◇																									
FTT-09											◇																									
FTG-05												▽																								
FTM-14												▽																								
FTS-01												▽																								
FTS-02												◇																								
FTT-10												▽																								

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-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Development Milestones								
Critical Design Review		2Q	1Q					
System Requirements Review			2Q					
Preliminary Design Review			4Q					
System Flight Tests								
FTM-13			1Q					
JFTM-01			1Q					
(PAC) 7-3			2Q					
FTT-09			2Q					
FTG-05			3Q					
FTM-14			3Q					
FTS-01			3Q					
FTS-02			3Q					
FTT-10			3Q					
FTS-03			4Q					
FTT-11			4Q					
FTT-12			4Q					
FTG-06				1Q				
FTL-01				1Q				
FTS-04				1Q				
FTT-13				1Q				
JFTM-02				1Q				
FTT-14				2Q				
FTG-07				3Q				
FTL-02				3Q				
FTM-15				3Q				
FTL-03				4Q				
FTM-16				4Q				
FTT-15				4Q				

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Measurement Tests								
FTC-04a/b			3Q					
FTC-05				4Q				

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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
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COST (\$ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0005 Targets & Countermeasures Block 2010	500	2,989	1,663	39,035	189,422	156,980	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provides capability-based targets to support Block 2010 integrated and layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this project will test and enhance 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 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 Block 2010 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. This effort provides 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 provides 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) will 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.

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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
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<u>B. Accomplishments/Planned Program</u>				
	FY 2006	FY 2007	FY 2008	FY 2009
System Engineering	0	0	500	27,491
RDT&E Articles (Quantity)	0	0	0	0

FY08 Planned Program:

Spiral V

- Initiate development of the Spiral V Flexible Target Family (FTF) System Specifications
- Provide Target System Analysis of flight test for the following target missions:
 - CMCM (FTC-06)
 - Ground-Based Midcourse Defense (GMD) (FTG-08, FTG-09, FTG-10)
 - Aegis Ballistic Missile Defense (BMD) (FTM-17)
 - PAC-3 (FT 16-1)
 - Theater High Altitude Air Defense (THAAD) (FTT-16, FTT-17)
 - Arrow (USFT-3, USFT-4)
 - Airborne Laser (ABL) (FTL-04, FTL-05)

FY09 Planned Program:

- Complete Development of the Spiral V Flexible Target Family System Specification
- Continue Spiral V Development of Enhanced Capability Products
 - Castor IV B Thrust Termination
 - Last Stage Booster IR Signature Tailorability
 - Attitude Control Module and Payload Deployment Module Tailorability
 - Direct Satcom Telemetry Link
 - Payload Deployment Module Payload Accommodations
 - Countermeasure Radar Cross Section Compatibility
- Complete Spiral V Preliminary Design Review
- Complete Rolling Wave Integrated Baseline Review
- Provide Target System Analysis of flight test for the following target missions:
 - CMCM (FTC-07)

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- GMD (FTG-11)
- Aegis BMD (FTM-19, FTM-20)
- PAC-3 (FT 16-2)
- THAAD (FTT-18, FTT-19)
- ABL (FTL-06, FTL-07)

	FY 2006	FY 2007	FY 2008	FY 2009
Countermeasures	500	2,989	1,163	11,294
RDT&E Articles (Quantity)	0	0	0	0

This effort provides funding for program management and development of countermeasure systems for BMDS flight testing, including characterization and ground testing of those countermeasure systems.

FY06 Accomplishments:

- Developed Family 3 and 4 countermeasures supporting Block 10 BMDS system testing

FY07 Planned Program:

- Develop techniques, materials and processes for new prototype countermeasures
- Continue development of advanced countermeasure designs for Critical Design Review

FY08 Planned Program:

- Continue developing advanced techniques for prototyping new countermeasures
- Evolve countermeasure prototypes towards flight qualification based on considerable flight qualification test activities (based upon FTF environments)
- Build variety of engineering countermeasure prototypes supporting BMDS Block 10 system testing

FY09 Planned Program:

- Continue developing advanced techniques for prototyping new countermeasures
- Evolve countermeasure prototypes towards flight qualification based on considerable flight qualification test activities (bases upon FTF environments)
- Build variety of engineering countermeasure prototypes supporting BMDS Block 10 system testing

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2007	
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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		

	FY 2006	FY 2007	FY 2008	FY 2009
Mission Management	0	0	0	250
RDT&E Articles (Quantity)	0	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. Plans and conducts target mission readiness reviews and monitors environmental execution.

FY09 Planned Program:

- Prepare for, conduct and analyze THAAD target mission (FTT-16)

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2007
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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
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	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

D. Acquisition Strategy

Targets and Countermeasures will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes 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.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date February 2007		
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 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
System Engineering										
System Engineering	C/CPAF	Lockheed Martin/Denver, CO	0	0	N/A	500	4Q	27,491	1/4Q	27,991
Countermeasures										
Countermeasures Development	C/FFRDC	MIT/LL/ Boston, MA	500	0	N/A	0	N/A	0	N/A	500
Countermeasures Development	C/CPAF	Lockheed Martin/Denver, Co	0	2,250	1/4Q	0	N/A	0	N/A	2,250
Countermeasures Development	C/FFRDC	Sandia National Lab/Albuquerque, NM	0	739	1/4Q	1,163	1/4Q	11,294	1/4Q	13,196
Mission Management										
Mission Management	C/FP	Teledyne Solutions, Inc./Huntsville, AL	0	0	N/A	0	N/A	250	1/4Q	250
Subtotal Product Development			500	2,989		1,663		39,035		44,187
Remarks										
II. Support Costs Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
Remarks										

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2007
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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
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III. Test and Evaluation Cost (\$ in Thousands)										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	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 2007 Cost	FY 2007 Award/ Oblg Date	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			500	2,989		1,663		39,035		44,187
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Development Milestones								
Preliminary Design Review				2Q				
Critical Design Review				3Q				
Integrated Baseline Review				4Q				
System Flight Tests								
FTG-08					1Q			
FTM-17					2Q			
FTS-06					2Q			
FTT-16					2Q			
FTG-09					3Q			
FTL-04					3Q			
FTL-05					4Q			
FTT-17					4Q			
(PAC) 16-1					4Q			
FTG-10						1Q		
FTL-06						1Q		
FTM-19						2Q		
FTT-18						2Q		
FTG-11						3Q		
FTL-07						3Q		
FTM-20						4Q		
FTT-19						4Q		
(PAC) 16-2						4Q		
Measurement Tests								
FTC-06					3Q			
FTC-07						3Q		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007		
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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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
R105 Targets & Countermeasures Block 2012	0	0	0	0	5,937	38,635	209,784	217,444
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The Targets and Countermeasures program provides capability-based targets to support Block 2012 integrated and layered Ballistic Missile Defense System (BMDS) testing. Targets developed under this project will test and enhance 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 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 Block 2012 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. This effort provides 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 provides the technical support of mission management/mission assurance for all Element flight tests and advanced development for long range strategic targets. Similar to Project 0005 (Block 2010), this Project (R105) will 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.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2007		
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
PE 0603890C Ballistic Missile Defense System Core	409,993	429,420	482,016	511,147	558,746	579,571	579,316	588,481	4,138,690
PE 0603891C Special Programs - MDA	271,021	353,031	323,250	305,409	369,073	526,966	789,017	792,271	3,730,038
PE 0603892C Ballistic Missile Defense Aegis	893,040	1,122,669	1,059,103	1,129,425	1,221,650	1,067,587	1,054,753	1,089,078	8,637,305
PE 0603893C Space Tracking & Surveillance System	220,048	322,220	331,525	347,811	412,623	501,197	778,067	981,424	3,894,915
PE 0603894C Multiple Kill Vehicle	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905	3,412,448
PE 0603895C BMD System Space Program	0	0	27,666	35,093	46,849	56,183	133,617	157,117	456,525
PE 0603896C BMD C2BMC	0	246,852	258,913	294,627	300,847	282,615	267,275	269,420	1,920,549
PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2007		
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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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	9,251	7,533	8,136	9,477	13,466	10,041	10,159	10,179
RDT&E Articles Qty	0	0	0	0	0	0	0	0

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 2006	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	9,251	7,533	8,136	9,477
RDT&E Articles (Quantity)	0	0	0	0

See Section A: Mission Description and Budget Item Justification

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2007		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets				
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PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets	

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