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<b>Missile Defense Agency (MDA) Exhibit R-2 RDT&amp;E Budget Item Justification</b>	Date <b>May 2009</b>
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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total PE Cost	619,137	911,710	966,752					
BX05 Targets & Countermeasures Supports Block 2.0	0	83,259	0					
CX05 Targets & Countermeasures Supports Block 3.0	0	106,728	0					
WX05 Targets & Countermeasures Supports Capability Development	0	17,147	0					
YX04 Test & Evaluation	307,808	274,390	234,950					
AX04 Test & Evaluation Block 1.0	32,713	5,740	0					
BX04 Test & Evaluation Block 2.0	29,129	37,947	14,023					
CX04 Test & Evaluation Block 3.0	9,631	45,023	52,643					
DX04 Test & Evaluation Block 4.0	0	0	2,900					
EX04 Test & Evaluation Block 5.0	6,434	21,643	30,398					
WX04 Test & Evaluation Capability Development	3,290	18,609	69,679					
XX04 Concurrent, Test, Training & Ops (CTTO)	40,522	37,569	35,722					
YX05 Targets and Countermeasures Core	180,134	244,474	503,696					
ZX40 Program-Wide Support	9,476	19,181	22,741					

**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.

The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through

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<p>comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p> <p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>MDA testing is based on an integrated, comprehensive, and phased test program. Testing Element systems, subsystems, and components early in the development is necessary prior to conducting BMD-System level testing. The Element Level testing is funded as part of an Element developmental program and reflective in their respective Program Element (PE) submissions. This PE provides consolidated MDA-wide capabilities and resources to for the, planning, design, execution, infrastructure, and management of BMD System testing. This PE also provides funding to the Operational Test Agencies which are active in all phases test planning, execution and post-test analysis, to include the development of the Integrated Master test Plan (IMTP).</p> <p>MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (including probability of engagement success, increase in defended area and raid size capacity, additional redundancy of architecture, unity of command) through the integration of MDA developed capabilities. These UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), System Track (creating a single engageable track of a threat from</p>		

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<p>multiple reports provided by different land, sea, and space based multiple sensors), Discrimination (identifying object details to determine the target from debris or decoys), Battle Management (combining the best sensors and shooters to ensure the highest probability of a kill), Hit / Kill Assessment (determining if the target selected was destroyed after missile impact), and Communications (providing the worldwide connection of sensors and shooters to command authorities). UMDFs are implemented across the BMDS elements to create and utilize system level data and decisions that allow Combatant Commanders the ability to automatically and manually optimize sensor coverage and interceptor inventory to defend against all ranges of ballistic threats.</p> <p>T&amp;E activities are grouped into nine functional areas: Test Policy, Budget and Personnel (formerly Test Policy and Strategy); Test Planning and Design (formerly part of Combined Test Force (CTF)); Test Operations (formerly part of the CTF), Test Readiness and Truth (formerly Test Readiness); Test Resources; Facilities, Siting, and Environmental management; Concurrent Test, Training, and Operations (CTTO); Fielding and Integration; and Targets and Countermeasures.</p> <p>The Test Policy, Budget, and Personnel program supports the development and implementation of strategic planning, test policy, standards, and procedures for creating a unified BMD test process, as well as provides the financial, human resource, and other organizational support functions. 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). Test Planning and Design, and Test Operations (both formerly part of the Combined Test Force (CTF)) plan, execute, analyze, and report all BMD system test events. The Test Readiness and Truth program is responsible for improving the quality, design, execution and efficiency of the BMDS test programs. Test Readiness and Truth is responsible for assuring test readiness, ensuring test realism, assessing test adequacy, tracking test risk, and analyzing test truth data. The Test Resources program supports the development, operation, maintenance, and modernization of the T&amp;E infrastructure supporting both BMDS System and Element-level testing. The Facilities, Siting and Environmental program provides guidance, environmental analysis and documentation, real property facility siting, acquisition, and facility operational support for BMD systems. Collectively, the aforementioned functions provide for core support that spans multiple Blocks as well as the individual efforts required for the test and assessment of specific Blocks.</p> <p>The Ballistic Missile Defense System (BMDS) Concurrent Test, Training and Operations (CTTO) provides comprehensive, in-place, geographically dispersed upgrades, testing, training, and sustainment while maintaining operational readiness across the complete Ballistic Missile Defense System (BMDS) Enterprise. This CTTO capability will enable simultaneous cross-element-on training events in the field during BMDS incremental and spiral development testing and sustained operational readiness conditions without degrading protection capability. The BMDS CTTO capability is required in the JFCC-IMD Modifications Requirement List (MRL).</p>		

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<p>The Fielding and Integration program's mission is to manage and direct the integration of the BMDS including developing, testing and sustaining the fielded BMDS.</p> <p>BMDS Targets and Countermeasures Program:</p> <p>The BMDS Targets and Countermeasures program provides threat representative, capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program develops, acquires and launches short, medium, and long range capability-based targets with enhanced payloads to test, verify, and validate the performance of the BMDS.</p> <p>BMDS Test Program Functions:</p> <ul style="list-style-type: none"> <li>• The Directorate for Test centralizes authority, control, and responsibility for all BMDS testing.</li> <li>• Plans tests according to BMDS and Element objectives.</li> <li>• Provides test ranges, instrumentation and infrastructure.</li> <li>• Develops MDA test policy.</li> <li>• Plans, executes, and conducts analysis of BMDS ground and flight tests.</li> <li>• Demonstrates integrated BMDS capability.</li> <li>• Addresses critical measurements for growth and capability.</li> <li>• Collects data for BMDS analysis and manages MDA data centers.</li> <li>• Provides documentation of BMDS and Element performance results for use by MDA, the OTAs, STRATCOM, and senior decision makers.</li> <li>• Provides civil engineering / facility acquisition expertise, oversees all construction funding, and ensures environmental compliance of all MDA activities.</li> <li>• Provides data and information to anchor the models and simulations used to verify BMDS capabilities and to support BMDS characterization and assessment.</li> </ul> <p>Concurrent Test, Training and Operations (CTTO) Functions:</p>		

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<ul style="list-style-type: none"> <li>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.</li> </ul> <p>BMDS Targets and Countermeasures Functions:</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><b><u>A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)</u></b></p> <p>Test and Evaluation Contribution to the BMDS:</p> <ul style="list-style-type: none"> <li>Plan and conduct testing of the BMDS CECs and EMEs developed by Systems Engineering.</li> <li>Collect and provide test data in order to support the effectiveness, suitability, survivability, and interoperability assessments of the BMDS.</li> <li>Provide infrastructure and environmental compliance necessary to support increasingly complex tests.</li> <li>Provide risk reduction for the BMDS through measurements flight testing to include technology demonstration, algorithm and model validation, and threat and countermeasure characterization.</li> <li>Develop Missile Defense Agency (MDA) BMDS testing policy with common, repeatable processes.</li> </ul> <p>Concurrent Test, Training, and Operations (CTTO) Contribution to the BMDS:</p> <ul style="list-style-type: none"> <li>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.</li> <li>Provides comprehensive, in-place, geographically dispersed test, evaluation and training of the complete BMDS.</li> <li>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.</li> </ul>		

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<ul style="list-style-type: none"> <li>Ensures horizontal and vertical test and evaluation scalability from Element through Global BMDS.</li> <li>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.</li> <li>Strategic end-state: BMDS available on-demand for test and evaluation, training, and operations that is transparent to real world operations.</li> </ul> <p>Targets and Countermeasures Contribution to the BMDS:</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><b><u>A.3 Major System Element Goals</u></b></p> <p>Major Test and Evaluation Goals:</p> <ul style="list-style-type: none"> <li>Form one BMDS test team that is accountable to the MDA Director and Element program directors.</li> <li>Provide leadership and guidance for the planning, execution, analysis, and reporting of BMD system test events to support system verification.</li> <li>Provide leadership and guidance under the DT for planning, execution, analysis, and reporting of BMD system test events to support system verification.</li> <li>Establish single BMD system test processes that reflect the best practices of existing Element processes.</li> <li>Benchmark and merge existing Elements and executing processes into BMDS processes.</li> <li>Develop Element Lessons Learned and Best Practices to support single BMDS test design processes.</li> <li>Provide required infrastructure and environmental compliance for robust BMD system testing.</li> </ul>		

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<ul style="list-style-type: none"> <li>• Ensure test readiness, realism, and accuracy and improve the quality of execution in test programs.</li> </ul> <p>Major Concurrent Test, Training and Operations (CTTO) Goals:</p> <ul style="list-style-type: none"> <li>• Integrate existing BMDS teams to support BMDS CTTO and report progress to Missile Defense Agency Director.</li> <li>• Provide leadership and guidance for the planning, execution, analysis, and reporting of BMDS CTTO events to support system verification.</li> <li>• Benchmark and merge existing Element and executing processes into BMDS CTTO processes.</li> <li>• Develop Lessons Learned and Best Practices to support single BMDS CTTO design process.</li> <li>• Increase Warfighter confidence in the BMDS.</li> <li>• Enable BMDS testing and training in the field without degrading protection capability.</li> <li>• Sustain BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition without degrading protection capability.</li> <li>• Ensure horizontal and vertical CTTO scalability from MDA Element through global BMDS.</li> <li>• 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.</li> <li>• Support the development and evaluation of Warfighter Tactics, Techniques, and Procedures at the BMDS level.</li> </ul> <p>Major Targets and Countermeasures Goals:</p> <ul style="list-style-type: none"> <li>• The Targets and Countermeasures Program is developing a Flexible Target Family (FTF). This approach emphasizes commonality and modularity. The FTF will minimize the set of different booster stages, provide common Flight Test Services (FTS) and Instrumentation components, provide common vehicle support equipment, provide common launch support equipment, and provide common interfaces. Targets and Countermeasure Program has incorporated a Product Line strategy to better manage the Program. Product Lines consist of Systems Engineering, Launch Vehicle, Data and Instrumentation, Countermeasures, Re-entry Vehicles, Logistics, Integration, and Mission Management. Product Lines will develop common target components for BMDS testing which will reduce both cycle time and cost while maximizing flexibility. Product Lines will prove the flexibility to allow common target components to be developed, integrated, and tested.</li> </ul>		

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<b><u>A.4 Major Events Schedule and Description</u></b>					
Major Event		Project		Timeframe	
<b>B. Program Change Summary</b>	FY 2008	FY 2009	FY 2010	FY 2011	
Previous President's Budget (FY2009 PB)	621,861	665,445	664,419		
Current President's Budget (FY2010 PB)	619,137	911,710	966,752		
Total Adjustments	-2,724	246,265	322,333		
Congressional Program Reductions	0	0	0		
Congressional Rescissions	0	0	0		
Total Congressional Increases	0	246,265	0		
Total Reprogrammings	7,576	0	0		
SBIR/STTR Transfer	-10,300	0	0		
Adjustments to Budget Years	0	0	322,333		
<ul style="list-style-type: none"> <li>FY08 decrease includes SBIR/STTR transfer and other below threshold reprogrammings within MDA.</li> <li>FY09-11 increases are primarily the result of all targets and countermeasures funding across the BMDS being consolidated in this PE.</li> <li>Out-year funding (FY10-15) will be internally realigned to reflect changes in the Directorate for Test organizational structure.</li> </ul>					



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<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
BX05 Targets & Countermeasures Supports Block 2.0	0	83,259	0					
RDT&E Articles Qty	0	0	0					

*Note:*  
*Starting in FY09 BX05 funding transitioned to the Targets and Countermeasures Program Element.*  
  
*Starting in FY10 BX05 funding transitioned to YX05 project.*

**A. Mission Description and Budget Item Justification**

The Missile Defense Agency (MDA)/Targets and Countermeasures (TC) program provides threat representative, capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program acquires and launches short, medium, and long range capability-based targets with enhanced payloads to test, verify, and validate the performance of the BMDS.

Funding for MDA/TC supports the continuation of the target program's source activities which include the design, prototyping, development, certification, product improvement, and qualification testing of BMDS targets and associated payloads. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing government furnished equipment (GFE) boosters as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components.

MDA/TC will also continue to assess and utilize other contracts and Foreign Materiel Acquisitions (FMAs) where appropriate.

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<b><u>B. Accomplishments/Planned Program</u></b>				
	FY 2008	FY 2009	FY 2010	FY 2011
Targets and countermeasures Supports Block 2.0	0	83,259	0	
RDT&E Articles (Quantity)	0	0	0	
<p>Funding for this effort supports flight tests and the continued development and verification of the Ballistic Missile Defense System (BMDS). Specifically, it provides the Missile Defense Agency with integrated ballistic missile flight test target hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; target range support (telemetry data collection equipment, range safety support equipment and launch control center unique displays); transportation and logistics support; element and range mission coordination; and launch services (includes mission planning, range and element data deliverables, communications security equipment and management). MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Targets and Countermeasures Element Level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09).</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete target hardware build and integration for the following target types:             <ul style="list-style-type: none"> <li>○ 2 Foreign Military Assets (FMA)</li> <li>○ 2 Short Range Air Launch Targets (SRALT)</li> <li>○ Long Range Air Launch Target (LRALT)</li> <li>○ Medium Range Target (MRT)</li> <li>○ Launch Vehicle - 2 (LV-2 )</li> </ul> </li> <li>• Conduct mission planning and range coordination activity, execute target mission, and collect and analyze target system data for 8 missions:             <ul style="list-style-type: none"> <li>○ Flight tests for Terminal High Altitude Area Defense (THAAD) Interceptors (2)                 <ul style="list-style-type: none"> <li>▪ FTT-10a</li> <li>▪ THF-18-I (FTT-11)</li> </ul> </li> </ul> </li> </ul>				

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<ul style="list-style-type: none"> <li>○ Flight tests for Aegis Interceptors (3) <ul style="list-style-type: none"> <li>▪ P2RF-18-I (FTM-15)</li> <li>▪ Stellar Daggers</li> <li>▪ JFTM-2 E2</li> </ul> </li> <li>○ Flight test with Arrow Interceptors (3) <ul style="list-style-type: none"> <li>▪ FTA-03</li> <li>▪ FTA-04a</li> <li>▪ FTA-04b</li> </ul> </li> <li>● Initiate and/or continue target hardware development, target integration, mission planning, and range coordination for future missions of the following target types: <ul style="list-style-type: none"> <li>○ 2 Enhanced Long Range Air Launch Targets (E-LRALT)</li> <li>○ 2 Medium Range Targets (MRT)</li> <li>○ Short Range Air Launch Target (SRALT)</li> </ul> </li> <li>● Provide quality assurance and mission assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.</li> </ul>		

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C. Other Program Funding Summary									
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Targets and Countermeasures Program develops, procures, and supports short, medium, and long-range capability-based targets with enhanced payloads. The Targets and Countermeasures Program develops recommended target and countermeasures configurations based upon the requirements in the Target Capability Roadmap (TCR). These configurations are approved through the Target Program Baseline (TPB) and articulated in the Integrated Master Test Plan (IMTP). The Targets and Countermeasures Program utilizes multiple contract vehicles and Federally Funded Research and Development Laboratories (FFRDC's), and Other Government Agencies (OGA's) for the acquisition and procurement of targets and target components in support of the Ballistic Missile Defense System (BMDS) testing. This includes the Lockheed Martin Prime Contract for the Flexible Target Family (FTF), Sounding Rocket Program ID/IQ contract; Orbital-Suborbital Program contract; several direct ATK contracts; Physical Science Laboratory (University of New Mexico); Economy Act Orders through National Aeronautical and Space Administration (NASA); Sandia National Labs; Massachusetts Institute of Technology; NAVSEA; and Missile Space Intelligence Center (MSIC); and as well as the Medium Range Target Contract with Orbital Sciences. The IMTP (rev 9.2) provides mission configuration and schedule requirements through 1st Quarter FY10. All currently approved mission requirements in support of the Integrated Master Test Plan (IMTP) have been contracted and will only be adjusted as necessary to support approved baseline changes. Missile Defense Agency/Directorate Engineering (MDA/DE) developed a Target Capability Roadmap (TCR) that identifies overarching mission requirements through the Future Year Defense Plan (FYDP). These requirements will be refined and further detailed in the pertinent mission Target Mission Description Document (TMDD) and the approved Missile Defense Agency/Targets and Countermeasures Target Program Baseline. Missile Defense Agency/Target and Countermeasures will brief a short series of Acquisition Strategy Panels (ASPs) in FY09 to obtain acquisition guidance for those missions detailed in the Target Capability Roadmap with the following goals/objectives:</p> <ul style="list-style-type: none"> <li>• Utilize/Develop a Business Case Analysis to definitive the Targets Program long term Acquisition Strategy</li> <li>• Reduce Costs by maximizing existing inventory and Government Furnished Equipment (GFE), and introducing acquisition stability with the contractors so they can streamline vendor agreements and establish lot procurements or long-term relationships.</li> <li>• Simplify the Government's administrative burden and understanding of the available contract vehicles by limiting the number of contract vehicles.</li> <li>• Improve delivered product quality and capability.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 )										
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Cost Categories:										
Targets and countermeasures Supports Block 2.0										
Targets and Countermeasures Support Block 2	C/CPAF	Lockheed Martin/ Denver, CO	0	24,583	2/3Q	0	N/A	0	N/A	24,583
Targets and Countermeasures Support Block 2	C/FFP	Coleman Aerospace/ Orlando, FL	0	20,650	1Q	0	N/A	0	N/A	20,650
Targets and Countermeasures Support Block 2	MIPR	Naval Air Warfare Center Port Hueneme / White Sands, NM	0	0	4Q	0	N/A	0	N/A	
Targets and Countermeasures Support Block 2	C/FFP	Northrop Grumman / Albuquerque, NM	0	4,917	1Q	0	N/A	0	N/A	4,917
Targets and Countermeasures Support Block 2	MIPR	Pacific Missile Range and Facility/ Barking Sands, Hi	0	1,614	1Q	0	N/A	0	N/A	1,614
Targets and Countermeasures Support Block 2		Defense Finance and Accounting Service / Indianapolis, IN	0	7,878	1Q	0	N/A	0	N/A	7,878
Targets and Countermeasures Support Block 2	C/CPAF	Teledyne Solutions/ Huntsville, AL	0	305	N/A	0	N/A	0	N/A	305

Project: BX05 Targets & Countermeasures Supports Block 2.0  
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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures Support Block 2	MIPR	Missile Defense Integration & Operations Center/ Schriever AF Base, CO	0	233	N/A	0	N/A	0	N/A	233
Targets and Countermeasures Support Block 2	MIPR	Aerospace/ Los Angeles, CA	0	1,241	N/A	0	N/A	0	N/A	1,241
Targets and Countermeasures Support Block 2	MIPR	NAWC-WD/ Albuquerque, NM	0	4,008	N/A	0	N/A	0	N/A	4,008
Targets and Countermeasures Support Block 2	MIPR	RTS/ China Lake, CA	0	4,080	N/A	0	N/A	0	N/A	4,080
Targets and Countermeasures Support Block 2	MIPR	NAWC-PAX/ Kwajalein, Marshall Islands	0	4,581	N/A	0	N/A	0	N/A	4,581
Targets and Countermeasures Support Block 2	MIPR	RTTC/ Redstone Arsenal, AL	0	897	N/A	0	N/A	0	N/A	897
Targets and Countermeasures Support Block 2	MIPR	309TH Missile Maintenance Wing/ Hill AFB, UT	0	923	N/A	0	N/A	0	N/A	923
Targets and Countermeasures Support Block 2	MIPR	US AF Research Labs/ Wright-Patterson AFB, OH	0	764	N/A	0	N/A	0	N/A	764
Targets and Countermeasures Support Block 2	MIPR	USAF Air Mobility/ Scott AFB, Ill	0	5,106	N/A	0	N/A	0	N/A	5,106

Project: BX05 Targets & Countermeasures Supports Block 2.0

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MDA Exhibit R-3 (PE 0603888C)

**UNCLASSIFIED**

<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures Support Block 2	MIPR	YUMA/ Yuma, AZ	0	1,193	N/A	0	N/A	0	N/A	1,193
Targets and Countermeasures Support Block 2	MIPR	MSI/ Hollister, CA	0	191	N/A	0	N/A	0	N/A	191
Targets and Countermeasures Support Block 2	MIPR	NSWC-DD/ Dahlgren, VA	0	95	N/A	0	N/A	0	N/A	95
Subtotal Product Development			0	83,259		0		0		83,259
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										
<b>Remarks</b>										



**UNCLASSIFIED**

<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			0	83,259		0		0		83,259
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		Date May 2009
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>Please refer to Test Schedule in Project BX04 for test events.</p>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>																	
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>																		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>																		
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015															
CX05 Targets & Countermeasures Supports Block 3.0	0	106,728	0																				
RDT&E Articles Qty	0	0	0																				
<p><i>Note: Starting in FY09 CX05 funding transitioned to the Targets and Countermeasures Program Element. Starting in FY10 CX05 funding transitioned to YX05 project.</i></p>																							
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA)/Targets and Countermeasures (TC) program provides threat representative, capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program acquires and launches short, medium, and long range capability-based targets with enhanced payloads to test, verify, and validate the performance of the BMDS.</p> <p>Funding for MDA/TC supports the continuation of the target program's source activities which include the design, prototyping, development, certification, product improvement, and qualification testing of BMDS targets and associated payloads. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing government furnished equipment (GFE) boosters as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components.</p> <p>MDA/TC will also continue to assess and utilize other contracts and Foreign Materiel Acquisitions (FMAs) where appropriate.</p>																							
<p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 2008</td> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">FY 2010</td> <td style="text-align: center;">FY 2011</td> </tr> <tr> <td>Targets and Countermeasures support Block 3</td> <td style="text-align: center;">0</td> <td style="text-align: center;">106,728</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </table>										FY 2008	FY 2009	FY 2010	FY 2011	Targets and Countermeasures support Block 3	0	106,728	0		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011																			
Targets and Countermeasures support Block 3	0	106,728	0																				
RDT&E Articles (Quantity)	0	0	0																				

Project: CX05 Targets & Countermeasures Supports Block 3.0

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MDA Exhibit R-2A (PE 0603888C)

# UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>Funding for this effort supports flight tests and the continued development and verification of the Ballistic Missile Defense System (BMDS). Specifically, it provides the Missile Defense Agency with integrated ballistic missile flight test target hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; target range support (telemetry data collection equipment, range safety support equipment and launch control center unique displays); transportation and logistics support; element and range mission coordination; and launch services (includes mission planning, range and element data deliverables, communications security equipment and management). MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Targets and Countermeasures Element Level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP).</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete target hardware build and integration for the following target types: <ul style="list-style-type: none"> <li>○ Strategic Target System (STARS)</li> <li>○ Launch Vehicle (LV-2)</li> <li>○ Aegis Readiness Assessment Vehicle (ARAV-A)</li> <li>○ 2 Aegis Readiness Assessment Vehicles (ARAV-B)</li> <li>○ Medium Range Target (MRT)</li> </ul> </li> <li>• Conduct mission planning and range coordination activity, execute target mission, and collect and analyze target system data for 3 missions: <ul style="list-style-type: none"> <li>○ Flight tests with Ground Missile Defense (GMD) Interceptors (2) <ul style="list-style-type: none"> <li>▪ FTG-05</li> <li>▪ FTG-06</li> </ul> </li> <li>○ Flight tests with Aegis BMD Interceptors (2) <ul style="list-style-type: none"> <li>▪ P2RF-17-1 (FTX-06 Event 1)</li> </ul> </li> </ul> </li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>		Date <b>May 2009</b>
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<ul style="list-style-type: none"><li>• Initiate and/or continue target hardware development, target integration, mission planning, and range coordination for future missions of the following target types:<ul style="list-style-type: none"><li>○ Launch Vehicle (LV-2)</li><li>○ Enhanced Long Range Air Launch Target (E-LRALT)</li><li>○ Medium Range Target (MRT)</li><li>○ Aegis Readiness Assessment Vehicle (ARAV-C)</li></ul></li> <li>• Provide Quality Assurance and Mission Assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.</li></ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The Targets and Countermeasures Program develops, procures, and supports short, medium, and long-range capability-based targets with enhanced payloads. The Targets and Countermeasures Program develops recommended target and countermeasures configurations based upon the requirements in the Target Capability Roadmap (TCR). These configurations are approved through the Target Program Baseline (TPB) and articulated in the Integrated Master Test Plan (IMTP). The Targets and Countermeasures Program utilizes multiple contract vehicles and Federally Funded Research and Development Laboratories (FFRDC's), and Other Government Agencies (OGA's) for the acquisition and procurement of targets and target components in support of the Ballistic Missile Defense System (BMDS) testing. This includes the Lockheed Martin Prime Contract for the Flexible Target Family (FTF), Sounding Rocket Program ID/IQ contract; Orbital-Suborbital Program contract; several direct ATK contracts; Physical Science Laboratory (University of New Mexico); Economy Act Orders through National Aeronautical and Space Administration (NASA); Sandia National Labs; Massachusetts Institute of Technology; NAVSEA; and Missile Space Intelligence Center (MSIC); and as well as the Medium Range Target Contract with Orbital Sciences. The IMTP (rev 9.2) provides mission configuration and schedule requirements through 1st Quarter FY10. All currently approved mission requirements in support of the Integrated Master Test Plan (IMTP) have been contracted and will only be adjusted as necessary to support approved baseline changes. Missile Defense Agency/Directorate Engineering (MDA/DE) developed a Target Capability Roadmap (TCR) that identifies overarching mission requirements through the Future Year Defense Plan (FYDP). These requirements will be refined and further detailed in the pertinent mission Target Mission Description Document (TMDD) and the approved Missile Defense Agency/Targets and Countermeasures Target Program Baseline. Missile Defense Agency/Target and Countermeasures will brief a short series of Acquisition Strategy Panels (ASPs) in FY09 to obtain acquisition guidance for those missions detailed in the Target Capability Roadmap with the following goals/objectives:</p> <ul style="list-style-type: none"> <li>• Utilize/Develop a Business Case Analysis to definitive the Targets Program long term Acquisition Strategy</li> <li>• Reduce Costs by maximizing existing inventory and Government Furnished Equipment (GFE), and introducing acquisition stability with the contractors so they can streamline vendor agreements and establish lot procurements or long-term relationships.</li> <li>• Simplify the Government's administrative burden and understanding of the available contract vehicles by limiting the number of contract vehicles.</li> <li>• Improve delivered product quality and capability.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures support Block 3										
Targets and Countermeasures Support Block 3	C/CPAF	Lockheed Martin Space Systems/ Denver, CO	0	70,877	1Q	0	N/A	0	N/A	70,877
Targets and Countermeasures Support Block 3	MIPR	Sandia National Labs/ Albuquerque, NM	0	9,551	1Q	0	N/A	0	N/A	9,551
Targets and Countermeasures Support Block 3	C/FFP	Northrop Grumman Space Systems/ Albuquerque, NM	0	448	1Q	0	N/A	0	N/A	448
Targets and Countermeasures Support Block 3	MIPR	Pacific Missile Range Facility/ Barking Sands, HI	0	1,196	4Q	0	N/A	0	N/A	1,196
Targets and Countermeasures Support Block 3		Defense Finance & Accounting Service/ Indianapolis, IN	0	4,075	4Q	0	N/A	0	N/A	4,075
Targets and Countermeasures Support Block 3	MIPR	Redstone Arsenal Garrison/ Huntsville, AL	0	112	4Q	0	N/A	0	N/A	112
Targets and Countermeasures Support Block 3	C/FFP	Teledyne Solutions, Inc./ Huntsville, AL	0	707	4Q	0	N/A	0	N/A	707

Project: CX05 Targets & Countermeasures Supports Block 3.0

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MDA Exhibit R-3 (PE 0603888C)



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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures Support Block 3	MIPR	Missile Defense Integration & Operations Center/ Schriever AFB, CO	0	105	4Q	0	N/A	0	N/A	105
Targets and Countermeasures Support Block 3	MIPR	Naval Surface Warfare Center/ Crane, IN	0	113	4Q	0	N/A	0	N/A	113
Targets and Countermeasures Support Block 3	MIPR	Ronald Reagan BMD Test Site/ Kwajalein, Marshall Islands	0	2,992	4Q	0	N/A	0	N/A	2,992
Targets and Countermeasures Support Block 3	MIPR	Alaska Aerospace Development Corporation/ Kodiak Island, AK	0	1,403	4Q	0	N/A	0	N/A	1,403
Targets and Countermeasures Support Block 3	C/FFP	Coleman Aerospace/ Orlando, FL	0	14,003	1/4Q	0	N/A	0	N/A	14,003
Targets and Countermeasures Support Block 3	MIPR	Missile Defense Data Center US Army SMDC/ Albuquerque, NM	0	10	4Q	0	N/A	0	N/A	10
Targets and Countermeasures Support Block 3	MIPR	Defense Information Systems Agency/ Scott AFB, IL	0	283	4Q	0	N/A	0	N/A	283

Project: CX05 Targets & Countermeasures Supports Block 3.0

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MDA Exhibit R-3 (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures Support Block 3	C/FFP	Aerospace/ Los Angeles, CA	0	668	4Q	0	N/A	0	N/A	668
Targets and Countermeasures Support Block 3	MIPR	Defense Energy Support Center/ San Antonio, TX	0	22	1/3Q	0	N/A	0	N/A	22
Targets and Countermeasures Support Block 3	MIPR	Hanscom Air Force Base/ Bedford, MA	0	163	1/3Q	0	N/A	0	N/A	163
Subtotal Product Development			0	106,728		0		0		106,728
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

**UNCLASSIFIED**

<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			0	106,728		0		0		106,728
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		Date May 2009
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>Please refer to the Test Schedule in Project CX04 for test events</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date May 2009				
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
WX05 Targets & Countermeasures Supports Capability Development				0	17,147	0					
RDT&E Articles Qty				0	0	0					
<i>Note:</i> Starting in FY09 WX05 funding transitioned to the Targets and Countermeasures Program Element.											
 Starting in FY10 WX05 funding transitioned to YX05 project.											
  <											

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<b><u>B. Accomplishments/Planned Program</u></b>				
	FY 2008	FY 2009	FY 2010	FY 2011
Targets and Countermeasures supports the BMDS Capability Development	0	17,147	0	0
RDT&E Articles (Quantity)	0	0	0	0
<p>Funding for this effort supports flight tests and the continued development and verification of the Ballistic Missile Defense System (BMDS). Specifically, it provides the Missile Defense Agency with integrated ballistic missile flight test target hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; target range support (telemetry data collection equipment, range safety support equipment and launch control center unique displays); transportation and logistics support; element and range mission coordination; and launch services (includes mission planning, range and element data deliverables, communications security equipment and management). MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Targets and Countermeasures Element Level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP).</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete target hardware build and integration for the following target types:             <ul style="list-style-type: none"> <li>○ Foreign Military Assets (FMA)</li> </ul> </li> <li>• Conduct mission planning and range coordination activity, execute target mission, and collect and analyze target system data for 4 missions:             <ul style="list-style-type: none"> <li>○ Flight tests for Air Borne Laser (ABL) (2)                 <ul style="list-style-type: none"> <li>▪ FTL-01</li> <li>▪ ABL-01</li> </ul> </li> <li>○ Lower Tier Project Office (LTPO)(2)                 <ul style="list-style-type: none"> <li>▪ FT-7-2</li> <li>▪ ATM-48</li> </ul> </li> </ul> </li> </ul>				

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>		Date <b>May 2009</b>
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<ul style="list-style-type: none"><li>• Initiate and/or continue target hardware development, target integration, mission planning, and range coordination for future missions of the following target types:<ul style="list-style-type: none"><li>○ Foreign Military Asset (FMA)</li><li>○ Launch Vehicle-2 (LV-2)</li><li>○ 2 Lance</li></ul></li> <li>• Provide Quality Assurance and Mission Assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.</li></ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

Project: WX05 Targets & Countermeasures Supports Capability Development

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MDA Exhibit R-2A (PE 0603888C)



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The Targets and Countermeasures Program develops, procures, and supports short, medium, and long-range capability-based targets with enhanced payloads. The Targets and Countermeasures Program develops recommended target and countermeasures configurations based upon the requirements in the Target Capability Roadmap (TCR). These configurations are approved through the Target Program Baseline (TPB) and articulated in the Integrated Master Test Plan (IMTP). The Targets and Countermeasures Program utilizes multiple contract vehicles and Federally Funded Research and Development Laboratories (FFRDC's), and Other Government Agencies (OGA's) for the acquisition and procurement of targets and target components in support of the Ballistic Missile Defense System (BMDS) testing. This includes the Lockheed Martin Prime Contract for the Flexible Target Family (FTF), Sounding Rocket Program ID/IQ contract; Orbital-Suborbital Program contract; several direct ATK contracts; Physical Science Laboratory (University of New Mexico); Economy Act Orders through National Aeronautical and Space Administration (NASA); Sandia National Labs; Massachusetts Institute of Technology; NAVSEA; and Missile Space Intelligence Center (MSIC); and as well as the Medium Range Target Contract with Orbital Sciences. The IMTP (rev 9.2) provides mission configuration and schedule requirements through 1st Quarter FY10. All currently approved mission requirements in support of the Integrated Master Test Plan (IMTP) have been contracted and will only be adjusted as necessary to support approved baseline changes. Missile Defense Agency/Directorate Engineering (MDA/DE) developed a Target Capability Roadmap (TCR) that identifies overarching mission requirements through the Future Year Defense Plan (FYDP). These requirements will be refined and further detailed in the pertinent mission Target Mission Description Document (TMDD) and the approved Missile Defense Agency/Targets and Countermeasures Target Program Baseline. Missile Defense Agency/Target and Countermeasures will brief a short series of Acquisition Strategy Panels (ASPs) in FY09 to obtain acquisition guidance for those missions detailed in the Target Capability Roadmap with the following goals/objectives:</p> <ul style="list-style-type: none"> <li>• Utilize/Develop a Business Case Analysis to definitive the Targets Program long term Acquisition Strategy</li> <li>• Reduce Costs by maximizing existing inventory and Government Furnished Equipment (GFE), and introducing acquisition stability with the contractors so they can streamline vendor agreements and establish lot procurements or long-term relationships.</li> <li>• Simplify the Government's administrative burden and understanding of the available contract vehicles by limiting the number of contract vehicles. ·</li> <li>• Improve delivered product quality and capability.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Targets and Countermeasures supports the BMDS Capability Development										
Targets and Countermeasure supports Capability Development	MIPR	Coleman Aerospace/ Orlando FL	0	1,023	4Q	0	N/A	0	N/A	1,023
Targets and Countermeasure supports Capability Development	C/CPAF	(LMSS) Lockheed Martin Space Systems/ Denver, CO	0	11,922	1Q	0	N/A	0	N/A	11,922
Targets and Countermeasure supports Capability Development	MIPR	(SNL) Sandia National Labs/ Albuquerque, NM	0	2,866	1Q	0	N/A	0	N/A	2,866
Targets and Countermeasure supports Capability Development		DFAS/ Indianapolis, IN	0	1,131	1/3Q	0	N/A	0	N/A	1,131
Targets and Countermeasure supports Capability Development	MIPR	Aerospace/ Los Angeles, CA	0	205	4Q	0	N/A	0	N/A	205
Subtotal Product Development			0	17,147		0		0		17,147
Remarks										

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			0	17,147		0		0		17,147
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		Date May 2009
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><b>Please refer to the Test Schedule in Project WX04 for test events.</b></p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>Resources program also provides continuous improvement, expansion, and sustainment of System Ground Test Infrastructure. The Test Resources Program uses the Systems Engineer's products as the basis to evaluate the future resource needs of the BMDS. An annual analysis of data collection requirements and test scenarios versus existing and planned test assets identifies the test infrastructure needed to test the BMDS Elements as part of the sequence groups. The Test Resources Program also includes the Pacific Range Support Team (PRST) to support the BMDS Test teams 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. We are expanding the PRST management philosophy to our ground test assets and this philosophy will include test resource-related improvements to training and integration efforts.</p> <p>Test Operations (formerly part of Combined Test Force (CTF)); executes the unified BMD test process. The Test Operations function prepares detailed plans and conducts all BMD system test events in conjunction with MDA and Non-MDA Elements. The Test Operations function consolidates personnel, processes, and resources in the elements and across MDA involved in flight and ground test execution into a cohesive team, relying heavily upon BMDS system test objectives determined by Systems Engineering.</p> <p>The Test Policy, Budget, and Personnel program supports the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes which reflect the best practices of existing element processes. The Test Policy, Budget, and Personnel program also develops training and certification plans and International policy for the Directorate for Test. The Test Policy, Budget, and Personnel 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 Directorate for Test inputs into the overall BMDS Program Plans, Directorate for Test Base Closure and Realignment Commissions (BRAC) related Transition Planning, and relocation of personnel. The Test Policy, Budget, and Personnel program supports two major assessments of the BMDS: The BMDS Capability Assessment (BCA) Team and System-Level Operational Test Agencies' (OTA) assessments. The BCA Team provides 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 Directorate for Test so they can provide operational assessments of the BMDS. The OTA maintains their assessments in the OTA database which is a living document of the BMDS assessment.</p> <p>The Test Planning and Design (formerly part of the CTF) program utilizes Systems Engineering developed test event objectives, critical engagement conditions (CEC) and empirical measurement events (EME). Test Planning and Design develops the Integrated Master Test Plan (IMTP), generates future flight and ground test campaigns, and designs executable test scenarios to support campaign plans and conduct adaptive test planning.</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>The Test Readiness and Truth program (formerly known as the BMDS Readiness program) is responsible for improving the quality, design, execution and efficiency of the BMDS test programs. The Test Readiness and Truth program is responsible for assuring readiness, ensuring realism, assessing adequacy, and tracking risk for test. The Test Readiness and Truth program will assess readiness processes and metrics for these programs and evaluate the outcomes. Test Readiness and Truth increases the efficiency and effectiveness of the BMDS test program by integrating key strategies and objectives into the Directorate for Test program by identifying and improving test processes. Test Readiness and Truth 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.</p> <p>The Facilities, Siting and Environmental Management 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 Research, Development, Test &amp; Evaluation (RDT&amp;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, Department of Defense (DoD) and international law, treaties and regulations.</p> <p>The Fielding and Integration program's mission is to manage and direct the integration of the BMDS including developing, testing and sustaining the fielded BMDS. It is organized to support three mutually supporting functions focused on Integration and Synchronization Center operations for Change Management, Block Integration and Fielding, and facilitating proactive change Strategic Integration Opportunities that arise when investigating the integration of future work options.</p>			
<b><u>B. Accomplishments/Planned Program</u></b>			
	FY 2008	FY 2009	FY 2010
Test Resources	190,982	140,911	152,911
RDT&E Articles (Quantity)	0	0	0
FY08 Accomplishments:			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Developed, maintained, integrated and upgraded MDA unique range facilities and instrumentation at the following ranges in accordance with Defense Test Resource Management Center (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).</li> <li>Operated High Altitude Observatory II (HALO-II), WASP, High Altitude Observatory I (HALO-I) for data collection services and services of BMD Flight Test. Studied options to meet longer-range/endurance platform to support longer-range Flight Tests.</li> <li>Initiated the development of High Altitude Observatory III (HALO-III) as an Airborne Diagnostic Target (ADT) for Airborne Laser (ABL).</li> <li>Maintained and upgraded MDA unique Ground Test Facilities to support all the BMDS developmental program hardware and software testing. These facilities provided HWIL capability, threat signature measurement capability, and sensor calibration standards.</li> <li>Maintained and upgraded MDA unique Ground Test Facilities to support BMDS system-level Ground Tests. This included basic Ground Test Control as well as some Element representations.</li> <li>Continued to operate and maintain the ``Pacific Collector`` as a mobile instrumentation ship to support off-range BMDS testing and increasingly complex test scenarios.</li> <li>Operated and maintained two Transportable Telemetry Systems (TTS), (one hosted on the Pacific Collector), which provided long range missile telemetry acquisition, processing and archiving capability.</li> <li>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.</li> <li>Continued development and independent verification and validation (IV&amp;V) of the Range Safety Modeling Toolkit (RSMT) to provide common safety analysis tools.</li> <li>Continued coordinating with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges.</li> <li>Provided 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.</li> <li>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 Headquarters.</li> <li>Continued development of the X-band Transportable Radar (XTR-1) to support off-range BMDS testing and increasingly complex test scenarios; selected candidate host platform to support XTR-1 mobile test support and initiated activation and modifications of the Pacific Tracker.</li> <li>Began operations and maintenance of the KMRSS.</li> <li>Sustained the Mobile Range Safety System (MRSS) at PMRF.</li> </ul>		



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Continued the NP-3 Upgrades to support off-range BMDS testing and increasingly complex test scenarios.</li> <li>Supported Department of Energy (DOE) in maintaining and operating the KTF to enable the launch of target systems supporting BMD Test Activities.</li> <li>Initiated efforts to transfer KTF from DOE to the Navy.</li> <li>Conducted design engineering analysis, contracting via MARAD and ship reactivation efforts on the Pacific Tracker to support its development and preparing it to host the XTR-1 radar, also under development, and one of the TTS.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Develop, maintain, integrate and upgrade MDA unique range facilities and instrumentation at the following ranges in accordance with DTRMC guidance: WSMR, KTF, Wake Island, PMRF, RTS, VAFB, and the KLC.</li> <li>Operate HALO-III, HALO-II, WASP, HALO-I for data collection services and services of BMD Flight Test. Complete development and operate HALO-III to support ABL as an ADT.</li> <li>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.</li> <li>Continue to maintain and upgrade MDA unique Ground Test Facilities to support BMDS system-level Ground Tests; includes basic Ground Test Control as well as some Element representations.</li> <li>Use the PRST to provide efficient planning, coordination and management of range resources and infrastructure in support of BMDS Flight Testing throughout the Pacific Test bed.</li> <li>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.</li> <li>Provide centralized data management, archival and distribution services to reduce the risks and cost of BMDS Block Development and Fielding. The Data Centers comprise MDA's official archive for all MDA mission related scientific and technical data.</li> <li>Sustain the Pacific Collector to support off-range BMDS testing and increasingly complex test scenarios.</li> <li>Operate two TTS, (one hosted on the Pacific Collector), which provide long range missile telemetry acquisition, processing and archiving capability.</li> <li>Develop third TTS (reduced capability system) to support larger range TM requirements for LV-2 launches from Meck Island.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Continue support of the TEDAC to provide test communications among the MDA ranges and test situational awareness to MDA HEADQUARTERS.</li> <li>Complete development of the XTR-1 and integrate onto the Pacific Tracker.</li> <li>Provide for continued development and operations of the KMRSS to support BMDS RDT&amp;E testing.</li> <li>Provide for continued development and operations of the MRSS at PMRF to support BMDS RDT&amp;E testing.</li> <li>Provide for continued development and operations of the KTF to enable the launch of target systems supporting BMDS Test Activities.</li> <li>Continue efforts to transition KTF from DOE to the Navy.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Develop, maintain, integrate and upgrade MDA unique range facilities and instrumentation at the following ranges in accordance with DTRMC guidance: WSMR, KTF, Wake Island, PMRF, RTS, VAFB, KLC.</li> <li>Operate HALO-II, HALO-III, WASP, HALO-I for data collection services and services of BMD Flight Test.</li> <li>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.</li> <li>Continue to maintain and upgrade MDA unique Ground Test Facilities to support BMDS system-level Ground Tests. Includes basic Ground Test Control as well as some Element representations. Expand System Ground Test Infrastructure to include new (and some multiple) Element representations and capabilities (such as concurrent test, training, and integration).</li> <li>Use the PRST to provide efficient planning, coordination and management of range resources and infrastructure in support of BMDS Flight Testing throughout the Pacific Test bed.</li> <li>Continue coordinating / manage the Targets Program launch services to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges, and support range operations of target launches.</li> <li>Provide centralized data management, archival and distribution services to reduce the risks and cost of BMDS Block Development and Fielding. The Data Centers comprise MDA's official archive for all MDA mission related scientific and technical data.</li> <li>Provide for continued development and operations of the Pacific Collector to support off-range BMDS RDT&amp;E testing and increasingly complex test scenarios.</li> <li>Continue to operate three TTS which provides long range missile telemetry acquisition, processing and archiving capability (hosted on the PC, PT or remote sites).</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Continue support of the TEDAC to provide test communications among the MDA ranges and test situational awareness to MDA HEADQUARTERS.</li> <li>Provide for continued development and operations of the XTR-1, hosted on the Pacific Tracker, to support off-range BMDS RDT&amp;E testing and increasingly complex test scenarios.</li> <li>Provide for continued development and operations of the KMRSS to support BMDS RDT&amp;E testing.</li> <li>Provide for continued development and operations of the MRSS at PMRF to support BMDS RDT&amp;E testing.</li> <li>Provide for continued development and operations of the KTF to enable the launch of target systems supporting BMDS RDT&amp;E Test activities and support efforts to transition KTF from DOE to the Navy.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Test Operations, Design, and Analysis	46,909	48,244	22,715	
RDT&E Articles (Quantity)	0	0	0	
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>Provided core contractor support and test teams.</li> <li>Prepared campaign-level planning and design.</li> <li>Collected and adjudicated test objectives from MDA System Engineering, the Operational Test Agency (OTA), and the Warfighters.</li> <li>Validated test venues and test scenarios; definition of test resource requirements, establishing a baseline test campaign timeline.</li> <li>Developed, coordinated, published, and provided regular updates of the Integrated Master Test Plan (IMTP) which documented the Test Component of the BMDS Baseline.</li> <li>Prepared and coordinated Test Directives for BMDS block testing efforts.</li> <li>Developed Ground Test (GT) requirements and scenarios and initial Flight Test (FT) scenarios.</li> <li>Developed and coordinated System Event Test Plans, Element Test Plans, Test Design Review packages, and Mission Requirements Documents.</li> <li>Developed Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings.</li> </ul>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Supported target launch services and development for BMDS flight tests.</li> <li>Operated and enhanced the change control process to control content, configuration and schedule of BMDS test events.</li> <li>Provided campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.</li> <li>Developed Pre-mission Analysis Plans, input to the National Ranges Universal Documentation System (UDS), and JAT Mission Logistics Plans.</li> <li>Developed, delivered, and briefed Quick Look Briefings (QLB), Executive Quick Look Briefings (EQLB), Mission Data Reviews (MDR), Executive Mission Data Reviews (EMDR), and Final Test Reports.</li> <li>Developed Integrated Data Management Plans (IDMP), Data Handling Plans (DHP), Truth Data Requirements Document (TDRD).</li> <li>Developed analysis data requirements documents, test objective letters and analysis criteria, data collection/distribution requirements, Analysis Execution Plans, end-to-end pre-test analysis.</li> <li>Provided the business base of the CTF through performance of CTF integration and organization management functions to include CTF operations, action management, test program information management, manpower, security, and business management functions, and interface with co-located OTA representatives.</li> <li>Continued support for medium and long range Aegis and THAAD Targets.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Provide the core contractor support/test teams that execute the BMDS block testing efforts described in budget projects AX04, BX04, CX04, DX04, EX04, and WX04.</li> <li>Prepare and coordinate the Test Directives for budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>Develop GT requirements and scenarios and initial FT scenarios for budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>Develop and coordinate System Event Test Plans, Element Test Plans, Test Design Review packages, and Mission Requirements Documents for budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>Develop Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings for budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>Support target launch services and development for BMDS flight tests contained in budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>Operate and enhance the change control process to control the content, configuration and schedule of BMDS test events.</li> <li>Revise, coordinate and provide regular updates to the IMTP.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>• Provide campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.</li> <li>• Develop Pre-mission Analysis Plans, input to the National Ranges UDS, and JAT Mission Logistics Plans.</li> <li>• Develop, deliver, and brief QLB, EQLB, MDR, EMDR, and Final Test Reports.</li> <li>• Develop IDMP, DHP, TDRD for budget projects AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>• Develop analysis data requirements documents, data collection/distribution requirements, Analysis Execution Plans, end-to-end pre-test analysis for budget projects: AX04, BX04, CX04, EX04, and WX04 test events.</li> <li>• Continue support for medium and long range Aegis and THAAD Targets.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Provide the core contractor support/test teams that execute the BMDS block testing efforts described in budget projects AX04, BX04, CX04, DX04, EX04, and WX04.</li> <li>• Prepare and coordinate the Test Directives for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Develop GT requirements and scenarios and initial FT scenarios for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Develop and coordinate System Event Test Plans, Element Test Plans, Test Design Review packages, and Mission Requirements Documents for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Develop Communication Plans, Certification Packets, Mission Readiness Review Briefings, Test Event Go/No-go Criteria, Mission Viewing Plans, Test Event Launch/Test Constraints documents, Rear Detachment Plans and Executive Management Review Briefings for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Support target launch services and development for BMDS flight tests contained in budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Operate and enhance the change control process to control the content, configuration and schedule of BMDS test events.</li> <li>• Revise, coordinate and provide regular updates to the IMTP.</li> <li>• Provide campaign test planning, mapped to knowledge points and fielding decisions identified to the new MDA block construct.</li> <li>• Develop Pre-mission Analysis Plans, input to the National Ranges UDS and JAT Mission Logistics Plans.</li> <li>• Develop, deliver, and brief QLB, EQLB, MDR, EMDR, and Final Test Reports.</li> <li>• Develop IDMP, DHP, TDRD for budget projects AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> <li>• Develop analysis data requirements documents, data collection/distribution requirements, Analysis Execution Plans, end-to-end pre-test analysis for budget projects: AX04, BX04, CX04, DX04, EX04, and WX04 test events.</li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 NOMENCLATURE</b>	
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603888C Ballistic Missile Defense Test and Targets</b>	
	FY 2008	FY 2009	FY 2010	FY 2011
Test Policy, Budget and Personnel	51,536	46,977	39,714	
RDT&E Articles (Quantity)	0	0	0	
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>Completed development and signature approval of the Strategic Plan for Test (SPfT) in March 2008.</li> <li>Developed MDA Flight Test review Guide which provides guidance on the Executive reviews identified in MDA Directive 3200.03, ``Test Review Policy.</li> <li>Developed a revision to MDA Directive 3100.01, ``International Test and Exercise Policy`` and developed the Request for Analysis/Request for Information Policy.</li> <li>Developed MDA Training and Qualifications plan for Key Test Positions.</li> <li>BCA Team continued to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.</li> <li>Prepared Target Accreditation Reports to included, but not limited to: FTM-13, JFTM-01, and FTT-08; assisted Systems Engineering in preparing Target Accreditation Reports for FTM-14 and FTT-09.</li> <li>Completed transfer of Target Certification to Systems Engineering in March 2008.</li> <li>Continued to integrate mission assurance, best practices, and lessons learned into test policy, processes, and procedures.</li> <li>Continued communications, interaction, and information exchange between the BMDS development community and Operational Test Agencies (OTA). Continued funding BMDS Operational Assessment Efforts.</li> <li>Continued the development and implementation of test policy, internal control plans, standards, and procedures for creating unified BMD test processes.</li> <li>Continued to develop Test Policy memorandum to implement matrix management.</li> </ul> <p><b>FY09 Planned Program:</b></p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Completed MDA Directive 3002.03, ``Ballistic Missile Defense System Test Policy``, 15 January 2009.</li> <li>Drafted MDA Directive 3224.01, ``Translated Global Positioning System (GPS) Range System (TGRS)``.</li> <li>Drafted Ballistic Missile Defense System (BMDS) Test Concept of Operations (CONOPS).</li> <li>Completed 15 Integrated Event Test Teams (IETTs) Memorandum for Calendar 2009 Test Events.</li> <li>Continue to integrate mission assurance and best practices and lessons learned into test policy, processes, procedures and training and certification plans.</li> <li>Continue communications and interaction between the BMDS development community and Operational Test Agencies (OTA). Continue funding BMDS Operational Assessment Efforts.</li> <li>Continue the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes.</li> <li>Continue to support transition planning of test functions from the National Capital Region (NCR) to Huntsville as part of BRAC.</li> <li>BCA team will continue to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.</li> <li>Continue to develop Test Policy memorandum to implement matrix management.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Continue to integrate mission assurance and best practices and lessons learned into test policy, processes, procedures and training and certification plans.</li> <li>Continue communications and interaction between the BMDS development community and Operational Test Agencies (OTA). Continue funding BMDS Operational Assessment Efforts.</li> <li>Continue the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes.</li> <li>Continue to support transition planning of test functions from the National Capital Region (NCR) to Huntsville as part of BRAC.</li> <li>The BMDS Capability Assessment team (BCA) team will continue to update the non-advocate assessment of the BMDS readiness and investigate BMDS performance issues and propose mitigation plans.</li> <li>Continue to develop Test Policy memorandum to implement matrix management.</li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 NOMENCLATURE</b>	
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603888C Ballistic Missile Defense Test and Targets</b>	
	FY 2008	FY 2009	FY 2010	FY 2011
Test Planning and Design	6,937	8,346	7,711	
RDT&E Articles (Quantity)	0	0	0	
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>Coordinated, revised and provided quarterly updates to the BMDS Integrated Master Test Plan (IMTP).</li> <li>Coordinated, revised and provided updates to the BMDS Strategic Plan for Test (SPfT).</li> <li>Provided campaign test planning, mapped to knowledge points and fielding decisions identified for the new block construct, Capability Development, and Sustainment.</li> <li>Provided test scenario designs for the IMTP, requirements for long-range test architecture and operational comparison analysis for MDA.</li> <li>Generated test event data for planning, performance analysis prediction and feasibility studies for MDA Elements.</li> </ul> <p><b>FY09 Planned Program:</b></p> <ul style="list-style-type: none"> <li>Coordinate, revise and provide quarterly updates to the IMTP.</li> <li>Provide campaign test planning, mapped to knowledge points and fielding decisions identified for the block construct, Capability Development, and Sustainment.</li> <li>Generate test event data for planning, performance analysis predictions, and feasibility test studies for MDA Elements.</li> <li>Provide test scenario designs for the IMTP, requirements for long-range test architecture and operational comparison analysis for MDA.</li> </ul> <p><b>FY10 Planned Program:</b></p> <ul style="list-style-type: none"> <li>Coordinate, revise and provide quarterly updates to the IMTP.</li> <li>Provide campaign test planning, mapped to knowledge points and fielding decisions identified for the new block construct, Capability Development, and Sustainment.</li> </ul>				



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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 NOMENCLATURE</b>	
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603888C Ballistic Missile Defense Test and Targets</b>	
<ul style="list-style-type: none"> <li>• Generate test event data for planning, performance analysis predictions, and feasibility test studies for MDA Elements.</li> <li>• Provide test scenario designs for the IMTP, requirements for long-range test architecture and operational comparison analysis for MDA.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Test Readiness and Truth	6,880	7,239	1,274	
RDT&E Articles (Quantity)	0	0	0	
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>• Completed organizational transition from Test Assurance to BMDS Readiness.</li> <li>• Developed and implemented BMDS Test Incident Reporting Program.</li> <li>• Established MDA test program processes and metrics that evaluate the BMDS readiness to test, integrate and field capability.</li> <li>• Developed and implemented a test, integration and fielding Risk Management Program for the MDA test program organization.</li> <li>• Developed a Kill Web Model that depicts BMDS Capability and Readiness in terms of BMDS functionality.</li> <li>• Established Independent Assessment Teams to evaluate integration, testing, and fielding processes.</li> <li>• Developed Quarterly BMDS Portfolio Reviews to evaluate and improve interdependent BMDS acquisition processes.</li> <li>• Standardized the BMDS Evaluation Strategy Process.</li> <li>• Published the BMDS Evaluation Strategy in July 2008.</li> </ul> <p><b>FY09 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• Update the BMDS Evaluation Strategy.</li> <li>• Complete organizational transition from BMDS Readiness to Test Readiness and Truth.</li> <li>• Further identify relevant metrics that contribute to the BMDS Evaluation Strategy.</li> <li>• Establish Test Readiness Improvement Teams (TRITs) for Airborne Laser, STSS, and Muti-Kill Vehicle.</li> <li>• Identify options for processes that are missing or deficient.</li> </ul>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Track issues to ensure processes are developed and implemented where needed.</li> <li>Contribute to the MDA Risk Management Program Development.</li> <li>Develop test event-specific training for personnel.</li> <li>Document and improve the efficiency of truth data set processes.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Assess processes and metrics that support readiness to test.</li> <li>Identify options for processes that are missing or deficient.</li> <li>Track issues to ensure processes are developed and implemented where needed.</li> <li>Maintain MDA test program Risk Management Program.</li> <li>Establish additional Test Readiness Improvement Teams (TRITs) as needed.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Facilities, Siting and Environmental	3,864	3,678	3,801	
RDT&E Articles (Quantity)	0	0	0	
<p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Provided oversight for real property acquisition of the Military Construction (MILCON) and RDT&amp;E construction programs to include Ground-based Missile Defense project requirements at Fort Greely, Alaska and Outside the Continental United States (OCONUS), the Von Braun Complex, Ft. Belvoir Headquarters Command Center (HQCC), Test Resource requirements at Meck Island, Wake Island, Vandenberg AFB, Ft. Greely and the Pacific Missile Range Facility.</li> <li>Supported construction of facilities for AN/TPY-2 Forward Based (FB) Radar at Shariki, Japan and Juneau AK.</li> <li>Supported operations and maintenance of MDA-assigned facilities at U.S. Army Kwajalein Atoll (USAKA), Kauai Test Facility, Kodiak and Wake Island.</li> <li>Developed charter and procedures for a MDA Facility Panel as part of the Corporate Board Structure.</li> </ul>				

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MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Assisted in preparation of MDA FY10 MILCON planning documentation for European Capability MILCON.</li> <li>Ensured that all MDA activities complied with all applicable environmental federal, state, local, DOD and international policies, laws, and regulations and briefed MDA's Environmental Executive.</li> <li>Conducted and/or provided oversight on 17 Records of Environmental Consideration (to include Air Force Form 813: Preliminary Environmental Impact Analysis, and Memorandums for Record); seven Environmental Assessments; and three Environmental Impact Statements.</li> <li>Issued the Record of Decision for MDA's BMDS Programmatic Environmental Impact Statement.</li> <li>Furthered MDA's Green Procurement Program for compliance with Executive Order 13423 and self-declared MDA's Environmental Management System.</li> <li>Prepared Agency reports on environmental liabilities and environmental expenditures.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Support MDA MILCON planning and programming to include the FY 10 submittal.</li> <li>Provided oversight for real property acquisition of the MILCON 2005 BRAC and RDT&amp;E construction programs.</li> <li>Continue Support operations and maintenance of MDA-assigned facilities at test and operational locations worldwide, to include potential transfer of Kauai Test Facility from Department of Energy to the Department of Defense.</li> <li>Support construction for scheduled BMDS test campaigns, to include USAKA, Kodiak, Pacific Missile Range Facility (PMRF), Vandenberg, Pt. Mugu, and Wake Island.</li> <li>Support site survey and bed-down approval process, launch facilities designs, and award of construction contracts.</li> <li>Use MDA's Strategic Plan for Environmental Management to manage and execute MDA's environmental activities and assets in a proactive and environmentally sound manner.</li> <li>Rely on MDA's Environmental Management System (EMS) to ensure environmental compliance with all applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders, binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment across all MDA operations and activities.</li> <li>Plan, program, and budget to achieve, monitor, and maintain compliance IAW environmental laws.</li> <li>Integrate environmental factors, issues, and values in MDA's acquisition decision-making process to mitigate risk to cost, schedule, and performance while protecting the environment.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<ul style="list-style-type: none"> <li>Promote awareness and understanding of environmental management in all phases of MDA's acquisition mission and provide appropriate training to all MDA personnel.</li> <li>Conduct required Agency reporting on environmental liabilities and environmental expenditures.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Support MDA MILCON planning and programming.</li> <li>Provided oversight for real property acquisition of the MILCON 2005 BRAC and RDT&amp;E construction programs.</li> <li>Continue Support operations and maintenance of MDA-assigned facilities at test and operational locations worldwide, to include potential transfer of Kauai Test Facility from Department of Energy to the Department of Defense.</li> <li>Support construction for scheduled BMDS test campaigns, to include USAKA, Kodiak, PMRF, Vandenberg, Pt. Mugu, and Wake Island.</li> <li>Support site survey and bed-down approval process, launch facilities designs, and award of construction contracts.</li> <li>Use MDA's Strategic Plan for Environmental Management to manage and execute MDA's environmental activities and assets in a proactive and environmentally sound manner.</li> <li>Rely on MDA's EMS to ensure environmental compliance with all applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders, binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment across all MDA operations and activities.</li> <li>Plan, program, and budget to achieve, monitor, and maintain compliance IAW environmental laws.</li> <li>Integrate environmental factors, issues, and values in MDA's acquisition decision-making process to mitigate risk to cost, schedule, and performance while protecting the environment.</li> <li>Promote awareness and understanding of environmental management in all phases of MDA's acquisition mission and provide appropriate training to all MDA personnel.</li> <li>Conduct required Agency reporting on environmental liabilities and environmental expenditures.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Fielding and Integration	700	6,818	6,824	

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MDA Exhibit R-2A (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
RDT&E Articles (Quantity)	0	0	0	0
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>Constructed detailed schedules for the new BMDS Block Structure.</li> <li>Established the Integration and Synchronization Center (ISC).</li> <li>Updated the Master Fielding Plan and Master Fielding Schedule.</li> <li>Reviewed all changes and majors documents originated by MDA staff for BMDS integration issues including POM 10 planning and Statement of Goals which is submitted to Congress annually.</li> </ul> <p><b>FY09 Planned Program:</b></p> <ul style="list-style-type: none"> <li>Continue conducting integrated BMDS integration planning and execution. Continue updating of the BMDS Master Fielding Schedule and Master Fielding Plan.</li> <li>Create a new Integrated Master Schedule based on the Master Fielding Schedule.</li> <li>Continue to execute the BMDS Change Management process.</li> </ul> <p><b>FY10 Planned Program:</b></p> <ul style="list-style-type: none"> <li>Continue conducting integrated BMDS integration planning and execution.</li> <li>Continue updating of the BMDS Master Fielding Schedule Master Fielding Plan and Integrated Master Schedule.</li> <li>Continue to execute the BMDS Change Management process.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
MDA Infrastructure	0	12,177	0	
RDT&E Articles (Quantity)	0	0	0	

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date <b>May 2009</b>																																											
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>																																											
<p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Provide Quality, Safety, and Mission Assurance to BMD test program.</li> <li>Provide Dedicated Information Technology services for mission specific research and test efforts to include classified and unclassified networks, software licenses, sustainment and information assurance certification.</li> <li>Provide Common Threat Engineering data to support BMDS test and assessment planning to include (trajectory and signature data to directly support system and sub-system requirements).</li> </ul>																																																	
<p><b>C. Other Program Funding Summary</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>FY 2008</th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011</th> <th>FY 2012</th> <th>FY 2013</th> <th>FY 2014</th> <th>FY 2015</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>PE 0603175C Ballistic Missile Defense Technology</td> <td style="text-align: right;">106,437</td> <td style="text-align: right;">119,308</td> <td style="text-align: right;">109,760</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PE 0603881C Ballistic Missile Defense Terminal Defense Segment</td> <td style="text-align: right;">1,034,478</td> <td style="text-align: right;">956,686</td> <td style="text-align: right;">719,465</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PE 0603882C Ballistic Missile Defense Midcourse Defense Segment</td> <td style="text-align: right;">2,198,664</td> <td style="text-align: right;">1,507,481</td> <td style="text-align: right;">982,922</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost	PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760							PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465							PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
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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					
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									
D. Acquisition Strategy									
The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding. The Directorate for Test directs a team of various internal staff (Government									

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>		Date <b>May 2009</b>
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS. combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p>		



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<b>Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test Resources</b>										
Ground Test Facilities	Various	Army, Air Force/ AL, FL, MD, TN	23,118	20,428	1Q	30,031	1Q	0	N/A	73,577
Ranges and Instrumentation	Various	VARIOUS/ CA, HI, NM, Marshall Islands, Alaska	98,479	75,083	1Q	69,915	1Q	0	N/A	243,477
Airborne Sensors	C/CPAF	L3 Communications/ CA, OK, NM	29,353	24,100	1Q	22,571	1Q	0	N/A	76,024
Data Centers	Various	VARIOUS/ TN, CO, AL, CA	10,076	8,690	1Q	8,871	1Q	0	N/A	27,637

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Target Launch Services	Various	VARIOUS/ VARIOUS	18,000	0	N/A	0	N/A	0	N/A	18,000
Test, Training and Integration Enablers	Various	VARIOUS/ VARIOUS	0	0	N/A	16,060	1Q	0	N/A	16,060
Test Operations, Design, and Analysis										
Targets	Various	VARIOUS	9,825	9,791	1Q	0	N/A	0	N/A	19,616
Test Policy, Budget and Personnel										
BCA	Various	VARIOUS/ NJ, CO, MD, MA	12,532	9,230	1Q	10,502	1Q	0	N/A	32,264
Operational Test Agency Participation in System Test	Various	OTAs/ VARIOUS	17,220	13,734	1Q	6,194	1Q	0	N/A	37,148
Target Certification	Various	USASMDC/ Huntsville, AL	497	0	N/A	0	N/A	0	N/A	497
Test Planning and Design										
Test Planning and Design	Various	VARIOUS/ VARIOUS	6,937	8,346	1Q	7,711	1Q	0	N/A	22,994
Test Readiness and Truth										
Continuous Process Improvement	Various	VARIOUS/ VARIOUS	3,272	3,365	1Q	304	1Q	0	N/A	6,941
Independent Assessment	Various	VARIOUS/ VARIOUS	920	1,545	4Q	182	1Q	0	N/A	2,647
MDA Infrastructure										
MDA Infrastructure	Various	VARIOUS/ VARIOUS	0	5,643	1Q	0	N/A	0	N/A	5,643

Project: YX04 Test & Evaluation

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
HSV IT O&M	C/CPAF	Advanced Systems Development/ Huntsville, AL	0	3,097	1Q	0	N/A	0	N/A	3,097
Defend Systems & Networks	C/CPAF	Northrop Grumman./ CO	0	1,478	1Q	0	N/A	0	N/A	1,478
Service/IM/IT	MIPR	Advanced Systems Development/ Huntsville, AL	0	896	1Q	0	N/A	0	N/A	896
Information Assurance C&A	C/CPFF	General Dynamics Information Technology/ VA	0	1,063	1Q	0	N/A	0	N/A	1,063
Subtotal Test and Evaluation			230,229	186,489		172,341		0		589,059
Remarks										
Test Resources Notes:										
<ul style="list-style-type: none"><li>Ground Test Facility (GTF) Funding is issued from MDA to the Army and Air Force. The services provide funds to 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.</li><li>Ranges and Instrumentation funding is distributed to executing agents through the services and issued directly from MDA. The Army (SMDC) MIPRs funds to the Reagan Test Site in the Marshall Islands for range operations, instrumentation upgrades, and various PRST efforts. The Air Force issues funding to Wake Island for test operations support. The remaining funds are issued directly from MDA. Funds are MIPRed to members of the Pacific Range Support Team (PRST) (Patrick AFB, Vandenberg AFB, Pacific Missile Range Facility, Naval Air Warfare</li></ul>										

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MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail							Date May 2009			
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>Center/Patuxent River &amp; Pt Mugu, White Sands Missile Range, and Sandia National Labs), MIT/LL (Airborne Sensor support, Test Infrastructure support, and XTR-1 development), NRL (BMDS Test Communications), and DOT/Maritime Administration (Pacific Collector Operations and Maintenance and Pacific Tracker Activation). Funds are placed directly on an MDA contract with the Alaska Aerospace Development Corporation (AADC) for Kodiak Launch Complex Operations and Sustainment.</p> <ul style="list-style-type: none"><li>• Data Center Funding is issued from MDA to the Army, Air Force, and Navy. 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.</li><li>• Project includes Congressional additions in FY08 for test and training range support and upgrades.</li></ul>										
IV. Management Services Cost ( \$ in Thousands )										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Test Resources										
SMDC Government Salaries	TM	USASMDC/ Huntsville, AL	100	0	1Q	0	N/A	0	N/A	100
Support Contracts	C/FFP	Northrop Grumman/ Arlington, VA	11,856	12,610	1Q	5,463	1Q	0	N/A	29,929
Test Operations, Design, and Analysis										
Support Contracts	C/FFP	VARIOUS,TAS C, SPARTA, RND/ Arlington, VA	37,084	38,453	1Q	22,715	1Q	0	N/A	98,252
Test Policy, Budget and Personnel										
TE Government Salaries	TM	Washington, DC	12,609	14,910	1Q	14,863	1Q	0	N/A	42,382
Support Contracts	C/FFP	TASC, SPARTA/ Arlington, VA	7,366	6,847	1Q	5,454	1Q	0	N/A	19,667

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
TE Travel	TM		1,312	1,339	1Q	1,345	1Q	0	N/A	3,996
International Programs	TM	Washington, DC	0	917	1Q	1,356	1Q	0	N/A	2,273
Test Readiness and Truth										
Support Contracts	C/FFP	VARIOUS/TAS C, SPARTA/ Arlington, VA	2,688	2,329	1Q	788	1Q	0	N/A	5,805
Facilities, Siting and Environmental										
Support Contracts	C/FFP	ICF, SciComm/ VA, MD	3,864	3,678	1Q	3,801	1Q	0	N/A	11,343
Fielding and Integration										
Government Salaries	TM	Washington, DC	0	924	1Q	956	1Q	0	N/A	1,880
Support Contracts	C/CPAF	Computer Sciences Corp./ Falls Church, VA	700	5,894	1Q	5,868	1Q	0	N/A	12,462
Subtotal Management Services			77,579	87,901		62,609		0		228,089
Remarks										
Project Total Cost			307,808	274,390		234,950		0		817,148
Remarks										

Project: YX04 Test &amp; Evaluation

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>			
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>			
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
AX04 Test & Evaluation Block 1.0	32,713	5,740	0					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA) Test and Evaluation (T&amp;E) program has six primary purposes: 1) demonstrate and assess Ballistic Missile Defense System (BMDS); 2) demonstrate and assess Block capability; 3) identify areas where technology can increase overall system performance; 4) identify BMDS issues; 5) provide anchoring and validation data for modeling and simulation (M&amp;S) tools; and 6) support early, partial, and full capability readiness decisions.</p> <p>The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&amp;S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>																
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>																
<p>system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p> <p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>The BMDS test program: (1) encompasses activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities, (2) describes test methods and approaches the Directorate for Test (DT) uses to test element capabilities to meet the system capabilities delineated in the System Specification Documents and Interface Design Documents, and (3) provides test data to support assessments to document and determine BMDS effectiveness. BMDS testing addresses system wide test objectives, critical engagement conditions (CECs) and empirical measurement events (EMEs) to anchor M&amp;S test environments, testing methodologies (i.e., M&amp;S, Flight Test (FT), Ground Test (GT)), and identifies test resources (e.g., Test Bed, M&amp;S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, contribute to verification of the BMDS capability.</p> <p>Block 1.0 defends the U.S. from Limited North Korean long range threat. The integrated GTs and FTs are planned to provide the necessary data to demonstrate capability deliveries and BMDS capabilities. Block 1.0 is Ground-Based Midcourse Defense centric, focusing on integrating sensors, C2BMC, and other Elements. Sufficient data should be collected to ensure completion of the BMDS Block 1.0 test program in FY09.</p>																		
<p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:15%;">FY 2008</th> <th style="width:15%;">FY 2009</th> <th style="width:15%;">FY 2010</th> <th style="width:15%;">FY 2011</th> </tr> </thead> <tbody> <tr> <td>Test &amp; Evaluation Block 1.0</td> <td align="right">32,713</td> <td align="right">5,740</td> <td align="right">0</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td></td> </tr> </tbody> </table> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Completed FTX-03.</li> <li>Conducted early planning for FY09 major BMDS system level test events; FTG-05 and FTG-06.</li> <li>Coordinated integration of multiple Elements, Operational Test Agencies (OTA) and Warfighter into BMDS tests.</li> </ul>					FY 2008	FY 2009	FY 2010	FY 2011	Test & Evaluation Block 1.0	32,713	5,740	0		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011														
Test & Evaluation Block 1.0	32,713	5,740	0															
RDT&E Articles (Quantity)	0	0	0															

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>• Refined scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.</li> <li>• Provided system-level range support, mission assurance, logistics support, test specific communication, support equipment, and pre-mission analysis and studies.</li> <li>• Continued to populate the BMDS Test Database to support capability assessments by MDA and OTAs, and provided validation data for M&amp;S.</li> <li>• Executed GTD-02, GTI-03, and Fast Shield (Hardware-In-the-Loop (HWIL) and Distributed) system level ground test events.</li> <li>• Planned, developed and executed test cases during Runs for GT-03 campaign.</li> <li>• Executed fully integrated GTI-03 campaign with all MDA Elements represented via HWIL.</li> <li>• Integrated element representation and the test support team for system GT.</li> <li>• Supported Warfighter's requirements during GT-03 campaign.</li> <li>• Populated BMDS Test Database to support capability assessments by MDA and OTAs and provided validation data for M&amp;S.</li> <li>• For GTI-02 and GTD-02, developed and delivered Test Analysis Report (TAR).</li> <li>• For ATET, developed and delivered TAR, Mission Data Review (MDR), Executive Mission Data Review (EMDR).</li> <li>• For GTX-03a, developed and delivered Integrated Data Management Plans (IDMPs), Data Handling Plan (DHPs), pre-mission truth database, Truth Data Package (TDPs), Analysis Execution Plan (AEPs), TAR, Executive Quick Look Brief (EQLB), Mission Data Review (MDR), EMDR.</li> <li>• For GTI-03, developed and delivered IDMPs, DHPs, pre-mission truth database, TDPs, AEPs, TAR, EQLB.</li> <li>• For FTX-03, developed and delivered IDMPs, DHPs, AEPs, TAR, EQLB, MDR, EMDR.</li> <li>• For FTG-05, developed and delivered IDMPs, DHPs, draft AEP.</li> <li>• Developed and delivered software tool updates: Data Management System (DMS) with enhanced user profiles, Modular Analysis Reporting System (MARS) with Distributed Interactive Simulation Engagement Summary Tool upgrade, Generic Track Comparison tool upgrade, enhancements to the database schema to optimize performance, and Kill Vehicle Target Scene generation upgrade PHOENIX All Sensors Truth Evaluation and Reporting (ASTER) with performance enhancements to 2D plotting, performance enhancements for publishing data to the database, and automating the ASTER build process.</li> <li>• Designed architecture and begin implementation of analysis lab node at John Hopkins University/Applied Physics Lab facility.</li> <li>• Initiated expansion of BMDS Laboratory for Analysis and Data Evaluation (BLADE) at Missile Defense Integration and Operations Center (MDIOC).</li> </ul> <p>FY09 Planned Program:</p>		



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>
<ul style="list-style-type: none"> <li>• Executed GTD-03/GTG-03b.2 Distributed and FTX-03 System Post Flight Reconstruction (SPFR) HWIL system level ground test events.</li> <li>• Complete detailed test planning and execute FY09 BMDS system level test events.</li> <li>• Initiate planning for FY10 BMDS system level test events.</li> <li>• Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>• Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>• Refine scenario designs to support CECs and EMEs.</li> <li>• Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>• Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>• Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>• Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>• Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above.</li> <li>• Continue to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul> <p>FY10 Planned Program: N/A</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding. The Directorate for Test directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS. combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p>		

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test &amp; Evaluation Block 1.0</b>										
BMDS Flight Test	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	8,269	0	N/A	0	N/A	0	N/A	8,269
BMDS Ground Test	Various	MDIOC/ Colorado Springs, CO	13,504	5,740	1Q	0	N/A	0	N/A	19,244
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	10,940	0	N/A	0	N/A	0	N/A	10,940

Project: AX04 Test & Evaluation Block 1.0

Line Item 80 -

MDA Exhibit R-3 (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation			32,713	5,740		0		0		38,453
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			32,713	5,740		0		0		38,453
<b>Remarks</b>										

**UNCLASSIFIED**

Date \_\_\_\_\_

May 2009

## Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile

APPROPRIATION/BUDGET ACTIVITY


## R-1 NOMENCLATURE

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

## 0603888C Ballistic Missile Defense Test and Targets

[illegible]

### 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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[illegible]

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
BX04 Test & Evaluation Block 2.0	29,129	37,947	14,023					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA) T&amp;E program has six primary purposes: 1) demonstrate and assess Ballistic Missile Defense System (BMDS); 2) demonstrate and assess Block capability; 3) identify areas where technology can increase overall system performance; 4) identify BMDS issues; 5) provide anchoring and validation data for modeling and simulation (M&amp;S) tools; and 6) support early, partial, and full capability readiness decisions.</p> <p>The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&amp;S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p>								



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>																
<p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>The BMDS test program: (1) encompasses activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities, (2) describes test methods and approaches the Directorate for Test (DT) uses to test element capabilities to meet the system capabilities delineated in the System Specification Documents and Interface Design Documents, and (3) provides test data to support assessments to document and determine BMDS effectiveness. BMDS testing addresses system wide test objectives, critical engagement conditions (CECs) and empirical measurement events (EMEs)(vice ESGs) to anchor M&amp;S, test environments, testing methodologies (i.e., M&amp;S, FT, GT), and identifies test resources (e.g., Test Bed, M&amp;S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, contribute to verification of the BMDS capability.</p> <p>Block 2.0 defends allies and deployed forces from short- to medium-range threats in one region/theater. Initial Block 2.0 events test maturing BMDS Elements, including PATRIOT, Aegis BMD (SM-3), and THAAD. Events are identified to address the demonstration of PATRIOT Upper Tier Debris Mitigation capability and Aegis Weapon System SM-2 Block IV Sea-Based Terminal capability. Once baselined, Block 2.0 testing increases the number of concurrent participants across Elements, demonstrating operationally realistic multi-national communications networks, performing directed engagements and engagement coordination among all participants, and assessing increased capability with respect to BMDS measure of effectiveness (MOE). International partners include but are not limited to Japan, Israel, and other potential future BMD International Partners. Block 2.0 lays the ground work upon which Block 5.0 will continue to evolve additional capability for allies and deployed forces.</p>																		
<p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">FY 2008</th> <th style="width: 15%;">FY 2009</th> <th style="width: 15%;">FY 2010</th> <th style="width: 15%;">FY 2011</th> </tr> </thead> <tbody> <tr> <td>Test &amp; Evaluation Block 2.0</td> <td style="text-align: center;">29,129</td> <td style="text-align: center;">37,947</td> <td style="text-align: center;">14,023</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </tbody> </table>					FY 2008	FY 2009	FY 2010	FY 2011	Test & Evaluation Block 2.0	29,129	37,947	14,023		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011														
Test & Evaluation Block 2.0	29,129	37,947	14,023															
RDT&E Articles (Quantity)	0	0	0															
<p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Executed BMDS system level test events; FTT-08, FTT-09, FTM-13, FTM-14, FTX-04 and JFTM-01.</li> <li>Executed BMDS system level ground test events; GTX-03a and GTI-03.</li> <li>Completed detailed test planning for FTT-10.</li> </ul>																		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Supported BMDS Elements in planning and execution of program specific FTs.</li> <li>Conducted early planning for BMDS system level test event; JFTM-02.</li> <li>Coordinated integration of multiple Elements, OTA and Warfighter into BMDS test; FTT-11, Arrow CV-2, JFTM-02 and ATM-48.</li> <li>Refined scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.</li> <li>Provided system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and pre-mission analysis and studies.</li> <li>Initiated execution of GTD-03 and executed GTX-03d, Fast Shield HWIL and Distributed events.</li> <li>Integrated element representation and the test support team for system GTs.</li> <li>Supported Warfighter's requirements during GT-03 campaign.</li> <li>Conducted fully integrated GT-03 campaign with all MDA Elements represented via HWIL.</li> <li>Continued to populate the BMDS Test Database with test data to support capability assessments by Systems Engineers and OTAs, and provide validation data for M&amp;S.</li> <li>For GTI-02 and GTD-02, developed and delivered Test Analysis Report (TAR).</li> <li>For ATET, developed and delivered TAR, Mission Data Review (MDR), Executive Mission Data Review (EMDR).</li> <li>For GTX-03a, developed and delivered Integrated Data Management Plans (IDMPs), Data Handling Plan DHPs, pre-mission truth database, Truth Data Package TDPs, Analysis Execution Plan AEPs, TAR, Executive Quick Look Brief EQLB, Mission Data Review (MDR), EMDR.</li> <li>For GTI-03, developed and delivered IDMPs, Data Management System (DHPs), pre-mission truth database, TDPs, AEPs, TAR, EQLB.</li> <li>For FTX-03, developed and delivered IDMPs, DHPs, AEPs, TAR, EQLB, MDR, EMDR.</li> <li>For FTG-05, developed and delivered IDMPs, DHPs, draft AEP.</li> <li>Developed and delivered software tool updates: DMS with enhanced user profiles, Modular Analysis Reporting System (MARS) with Distributed Interactive Simulation Engagement Summary Tool upgrade, Generic Track Comparison Tool upgrade, enhancements to the database schema to optimize performance, and Kill Vehicle Target Scene generation upgrade, PHOENIX All Sensors Truth Evaluation and Reporting (ASTER) with performance enhancements to 2D plotting, performance enhancements for publishing data to the database, and automating the ASTER build process.</li> <li>Designed architecture and began implementation of analysis lab node at Johns Hopkins University/Applied Physics Lab facility.</li> <li>Initiated expansion of BMDS Laboratory for Analysis and Data Evaluation (BLADE) at Missile Defense Integration and Operations Center (MDIOC).</li> </ul> <p>FY09 Planned Program:</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>• Executed BMDS system level test events; JFTM-02 and FTT-10A.</li> <li>• Completed detailed test planning for FTT-11.</li> <li>• Conducted early planning for BMDS system level test events FTT-12 and JFTM-03.</li> <li>• Executed GTD-03/GTG-03b.2, GTX-03c-1 and GTX-03c-2 (FTM-15 System Pre-Mission Test (SPMT)) system level ground test events.</li> <li>• Complete detailed test planning and execute FY09 BMDS system level test events.</li> <li>• Initiate planning for FY10 BMDS system level test events.</li> <li>• Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>• Conduct early planning for FY10 major BMDS system level test events.</li> <li>• Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>• Refine scenario designs to support CECs and EMEs.</li> <li>• Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>• Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>• Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>• Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>• Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above.</li> <li>• Continue to populate the MARS Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete detailed test planning and execute FY10 BMDS system level test events to include but not limited too: <ul style="list-style-type: none"> <li>○ P2THF-04-I <ul style="list-style-type: none"> <li>▪ AB4-CEC-06 Multi-object threat-complex engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a threat in a complex debris environment</li> <li>▪ AB4-EME-11 Closure of Fire Control Loop</li> <li>▪ AB4-EME-14 ICBM surveillance and track</li> </ul> </li> </ul> </li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>▪ AB4-EME-15 AWS calibration</li> <li>▪ BC-CEC-03 Separation velocity with and without debris</li> <li>▪ BC-CEC-04 Intercept Debris</li> <li>▪ BC-CEC-06 Communications delays</li> <li>▪ SN-CEC-01 Advanced Algorithm (AA)</li> <li>▪ SN-CEC-05 Advanced Algorithm (AA)</li> <li>▪ SN-CEC-06 Post-Intercept Debris (UMDF / CX-4 Hit Assessment)</li> <li>▪ SN-CEC-08 Closely Spaced Objects (All Radars, Track, and Discrimination)</li> <li>▪ SN-CEC-16 X band discrimination</li> <li>▪ TH-CEC-07 Mixed threat complex</li> <li>▪ TH-EME-05 MRBM</li> <li>▪ TH-EME-09 RV dynamics</li> <li>▪ TH-EME-15 Multi-object scenes</li> <li>▪ TH-EME-18 RV types</li> <li>▪ TH-EME-19 CM types</li> <li>○ P2G-27-L <ul style="list-style-type: none"> <li>▪ GM-CEC-01 Solar Exclusion Angle</li> </ul> </li> <li>○ P2G-28-L <ul style="list-style-type: none"> <li>▪ TH-EME-09 RV Dynamics</li> <li>▪ GM-EME-16 EKV Discrimination of Countermeasures</li> </ul> </li> <li>○ P2G-29-L <ul style="list-style-type: none"> <li>▪ GM-EME-16 EKV Discrimination of Countermeasures</li> </ul> </li> <li>○ P2G-01b-L <ul style="list-style-type: none"> <li>▪ GM-CEC-01 Solar Exclusion Angle</li> </ul> </li> <li>○ P2THF-15-I (FTT-12)</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>
<ul style="list-style-type: none"> <li>▪ TH-EME-08 RV Signature</li> <li>▪ TH-EME-21 Multiple engagement scenarios</li> <li>▪ TH-EME-23 High off-boresite intercepts</li> </ul> <ul style="list-style-type: none"> <li>• Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>• Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>• Refine scenario designs for BMDS FTs and GT to support CECs and EMEs identified in BMDS IMTP.</li> <li>• Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>• Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>• Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>• Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>• Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified.</li> <li>• Continue to populate the MARS Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul>		
<b>C. Other Program Funding Summary</b>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding. The Directorate for Test directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS. combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p>		

**UNCLASSIFIED**

<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test &amp; Evaluation Block 2.0</b>										
BMDS Flight Test	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	10,141	11,230	1Q	8,729	1Q	0	N/A	30,100
BMDS Ground Test	Various	MDIOC/ Colorado Springs, CO	7,572	20,614	1Q	0	N/A	0	N/A	28,186
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	11,416	6,103	1Q	5,294	1Q	0	N/A	22,813

Project: BX04 Test & Evaluation Block 2.0

Line Item 80 -

MDA Exhibit R-3 (PE 0603888C)













**UNCLASSIFIED**

<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation			29,129	37,947		14,023		0		81,099
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			29,129	37,947		14,023		0		81,099
<b>Remarks</b>										

# UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile																	Date May 2009															
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	2008				2009				2010				2011				2012				2013				2014				2015			
	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-13	◆																															
FTT-08	◆																															
JFTM-01	◆																															
FTM-14			▼																													
FTT-09			◆																													
FTX-04			▼																													
FTT-10 (no test)				▼																												
JFTM-02 (Event 1 & 2)					◆																											
FTT-10a						▼																										
FTM-15												▽																				
FTT-11												▽																				
Caravan 2 (USFT 3 & 4)								◇	◇																							
FTT-12 (THF-15-I)										▽																						
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																

# UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile																	Date May 2009															
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	2008				2009				2010				2011				2012				2013				2014				2015			
	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																																
JFTM-03										◊																						
FTT-13 (P2THF-04-I)											▮																					
System Ground Tests																																
GTX-03a		▮																														
GTI-03			▮																													
Fast Shield				▮																												
Fast Shield II						▮																										
JDIE-08 (EIT #1)				◊																												
GTX-03d				▮																												
GTX-03c					▮																											
GTD-03						▮																										
JDIE-08 (EIT #2)							◊																									
GTI-04											▮																					
	<div>Legend</div> <div><div> Significant Event (complete)</div><div> Milestone Decision (complete)</div><div> Element Test (complete)</div><div> System Level Test (complete)</div><div> Complete Activity</div></div> <div><div> Significant Event (planned)</div><div> Milestone Decision (planned)</div><div> Element Test (planned)</div><div> System Level Test (planned)</div><div> Planned Activity</div></div>																															

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## Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile

Date

May 2009

APPROPRIATION/BUDGET ACTIVITY

## R-1 NOMENCLATURE

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

## 0603888C Ballistic Missile Defense Test and Targets

[illegible]

### Legend

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

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

## UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date May 2009		
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
System Flight Tests								
FTM-13	1Q							
FTT-08	1Q							
JFTM-01	1Q							
FTM-14	3Q							
FTT-09	3Q							
FTX-04	3Q							
FTT-10 (no test)	4Q							
JFTM-02 (Event 1 & 2)		1Q						
FTT-10a		2Q						
FTM-15		4Q						
FTT-11		4Q						
Caravan 2 (USFT 3 & 4)		3Q,4Q						
FTT-12 (THF-15-I)			1Q					
JFTM-03			1Q					
FTT-13 (P2THF-04-I)			3Q					
System Ground Tests								
GTX-03a	2Q							
GTI-03	3Q							
Fast Shield	4Q							
Fast Shield II		2Q						
JDIE-08 (EIT #1)	4Q							
GTX-03d	4Q							
GTX-03c		1Q						
GTD-03		2Q						
JDIE-08 (EIT #2)		3Q						
GTI-04			2Q					
GTD-04			3Q					
GTX-05a			4Q					
P2G-17-L			1Q					

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date May 2009		
APPROPRIATION/BUDGET ACTIVITY <b>RD&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
P2G-27-L			1Q					
P2G-28-L			1Q					
P2G-29-L			1Q					
P2G-01b-L			2Q					

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CX04 Test & Evaluation Block 3.0	9,631	45,023	52,643					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA) T&amp;E program has six primary purposes: 1) demonstrate and assess Ballistic Missile Defense System (BMDS); 2) demonstrate and assess Block capability; 3) identify areas where technology can increase overall system performance; 4) identify BMDS issues; 5) provide anchoring and validation data for modeling and simulation (M&amp;S) tools; and 6) support early, partial, and full capability readiness decisions.</p> <p>The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&amp;S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>																
<p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>The BMDS test program: (1) encompasses activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities, (2) describes test methods and approaches the Directorate for Test (DT) uses to test element capabilities to meet the system capabilities delineated in the System Specification Documents and Interface Design Documents, and (3) provides test data to support assessments to document and determine BMDS effectiveness. BMDS testing addresses system wide test objectives, critical engagement conditions (CECs) and empirical measurement events (EMEs) (vice ESGs) to anchor M&amp;S test environments, testing methodologies (i.e., M&amp;S, flight tests (FT), ground tests (GT)), and identifies test resources (e.g., Test Bed, M&amp;S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, contribute to verification of the BMDS capability.</p> <p>Block 3.0 expands defense of the U.S. to include limited Iranian long-range threats. Block 3.0 testing will occur in GT campaign GT-09 with the HWIL demonstrations of both Fylingdales and Thule. A sensor characterization test, using a foreign cooperative target will occur late in FY09.</p> <p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">FY 2008</th> <th style="width: 15%;">FY 2009</th> <th style="width: 15%;">FY 2010</th> <th style="width: 15%;">FY 2011</th> </tr> </thead> <tbody> <tr> <td>Test &amp; Evaluation Block 3.0</td> <td style="text-align: center;">9,631</td> <td style="text-align: center;">45,023</td> <td style="text-align: center;">52,643</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>FY08 Accomplishments:</li> <li>Provided support for the Force Development Evaluation (FDE) of the UEWR VCN-1 Software Upgrade.</li> <li>Provided support for the development of an executable test concept and complete test plan to measure the effectiveness and suitability of the system.</li> <li>Provided for development of the data management and analysis plan, data collection process, forms required for data collection and actual data collection.</li> <li>Executed GTI-03 and GTX-03d (Fast CAAT-East Hardware-In-the-Loop (HWIL) system level ground test events.</li> <li>Initiated detailed planning for the execution of a fully integrated GTX-3c with all MDA Elements represented via HWIL.</li> <li>Integrated element representation and the test support team for system GT.</li> </ul>					FY 2008	FY 2009	FY 2010	FY 2011	Test & Evaluation Block 3.0	9,631	45,023	52,643		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011														
Test & Evaluation Block 3.0	9,631	45,023	52,643															
RDT&E Articles (Quantity)	0	0	0															



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>
<ul style="list-style-type: none"> <li>Supported Warfighter's requirements during GT-03 campaign.</li> <li>Conducted fully integrated GT-03 campaign with all MDA Elements.</li> <li>Continued to populate the BMDS Test Database with test data to support capability assessments by Systems Engineers and OTAs, and provide validation data for M&amp;S.</li> <li>Completed initial implementation phase and began operations support (security, network, administrative) of the BMDS Laboratory for Analysis and Data Evaluation BLADE) facility and network at Defense Integration and Operations Center (MDIOC) (co-located BMDS and Element analysts).</li> <li>Established MDA CNET connectivity at Kodiak Launch Complex, John Hopkins University/Applied Physics Lab (JHU/APL), and Pt. Mugu (currently in coordination phase) to increase TA&amp;R data management and analysis capability.</li> <li>Provided Test Condition Analysis, software development, and Naval Surface Warfare Center (NSWC) analysis lab (at Dahlgren) design support.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Completed BVT-01 Test Planning Review and preparations for Executive Test Planning Review (ETPR).</li> <li>FTG-06 Test Design Approved through ISG/PCB.</li> <li>Conducted initial preparations for FTG-06 Test Planning Review and ETPR.</li> <li>Conducted early planning for FTG-07.</li> <li>Executed GTD-03/GTG-03b.2 Distributed system level ground test</li> <li>Complete detailed test planning and execute FY09 BMDS system level test events.</li> <li>Initiate planning for FY10 BMDS system level test events.</li> <li>Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>Conduct early planning for FY10 major BMDS system level test events.</li> <li>Support Warfighter requirements, integration of multiple Elements, Operational Test Agencies (OTA) and test support team into BMDS system flight and ground tests.</li> <li>Refine scenario designs to support CECs and EMEs.</li> <li>Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and pre-mission analysis and studies.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>• Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>• Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>• Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>• Develop and deliver products for Joint Analysis Team (JAT), data management, data processing, truth data, and analysis as identified above.</li> <li>• Continue to populate the Modular Analysis Reporting System (MARS) Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete detailed test planning and execute FY10 BMDS system level test events.</li> <li>• Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>• Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>• Refine scenario designs for BMDS FTs to support CECs and EMEs identified in BMDS IMTP.</li> <li>• Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>• Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>• Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>• Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>• Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified.</li> <li>• Continue to populate the MARS Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The MDA Test Program (formerly Responsible Test Organization (RTO)) acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capability Development. The DT directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p>		

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test &amp; Evaluation Block 3.0</b>										
BMDS Flight Test	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	233	22,031	1Q	19,901	1Q	0	N/A	42,165
BMDS Ground Test	Various	MDIOC/ Colorado Springs, CO	7,651	10,974	1Q	12,511	1Q	0	N/A	31,136
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	1,747	12,018	1Q	19,356	1Q	0	N/A	33,121

Project: CX04 Test & Evaluation Block 3.0

Line Item 80 -

MDA Exhibit R-3 (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Systems Engineering	Various		0	0	N/A	875	1Q	0	N/A	875
Subtotal Test and Evaluation			9,631	45,023		52,643		0		107,297
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			9,631	45,023		52,643		0		107,297
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date <b>May 2009</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDTE&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
<b>System Flight Tests</b>								
FTG-06		4Q						
<b>System Ground Tests</b>								
GTI-04			2Q					
GTD-04			3Q					
GTX-05b			4Q					
GTI-05			4Q					



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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
DX04 Test & Evaluation Block 4.0	0	0	2,900					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>Test &amp; Evaluation (T&amp;E) Block Testing: The Missile Defense Agency (MDA) T&amp;E program has six primary purposes: 1) to collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS), 2) to collect data to demonstrate and assess the Block capability, 3) to identify areas where technology can increase overall system performance, 4) to identify BMD System issues, 5) to provide anchoring and validation data for Modeling and simulation (M&amp;S) tools, and 6) to support early, partial, and full capability readiness decisions.</p> <p>The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&amp;S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>		
<p>system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p> <p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>The BMDS test program: (1) encompasses activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities, (2) describes test methods and approaches the MDA Test Program uses to test element capabilities to meet the system capabilities delineated in the System Specification Documents and Interface Design Documents, and (3) provides test data to support assessments to document and determine BMDS effectiveness. BMDS testing addresses system wide test objectives, critical engagement conditions (CECs) and empirical measurement events (EMEs) (vice ESGs) to anchor M&amp;S test environments, testing methodologies (i.e., M&amp;S, Flight Test (FT), Ground Test (GT)), and identifies test resources (e.g., Test Bed, M&amp;S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, contribute to verification of the BMDS capability.</p> <p>Funding in this project supports initial testing of the European Component (EC) of the BMDS with limited resources. The European Component of the BMDS is comprised of a third interceptor site, a European Midcourse Radar (EMR), and a European Forward-based Radar (EFBR). The Ground-Based Interceptor (GBI) emplaced at the European Interceptor Site will be comprised of a two-stage variant of the GBIs fielded in Alaska and California. The EMR will be the Ground-based Radar-Prototype unit from the Reagan Test Site (RTS) re-located to the European host site. The EFBR will be a forward-deployed AN/TPY-2 (FBM) unit. BMDS testing of the EC will involve vigorous ground testing of the European Elements combining the focused exercise of the Elements as well as integrated exercise of the EC capability. Funding in this block supports EC testing as well as the development of the OBV-2 Booster as related to the EC site.</p>				
<b><u>B. Accomplishments/Planned Program</u></b>				
	FY 2008	FY 2009	FY 2010	FY 2011
Third Site Testing European Component	0	0	2,900	
RDT&E Articles (Quantity)	0	0	0	
FY08 Accomplishments: N/A				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>FY09 Planned Program: N/A</p> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete detailed test planning and execute FY10 BMDS system level test events to include:             <ul style="list-style-type: none"> <li>○ P2F-07b-I (FTG-07):                 <ul style="list-style-type: none"> <li>▪ GM-CEC-08 Long Time of Flight</li> <li>▪ GM-EME-11 Booster Burnout with Large velocity Error</li> <li>▪ GM-EME-12 TPR 5920 Mitigation</li> <li>▪ GM-EME-13 2nd stage with heritage avionic flight</li> <li>▪ OTA-Effectiveness-Block-4</li> <li>▪ SN-CEC-06 Post-Intercept Debris (UMDF / CX-4 Hit Assessment)</li> <li>▪ SN-CEC-08 Closely Spaced Objects (All Radars, Track, and Discrimination)</li> <li>▪ SN-CEC-09 Large Scan Angles (All Radars Track)</li> <li>▪ SN-CEC-10 2 Stage GBI intercept against EC component representative threat</li> <li>▪ SN-CEC-11 Low Elevation Track (All Radars Tracking)</li> <li>▪ SN-EME-06 Solid Fuel Debris (All Radars Acquisition and Track)</li> </ul> </li> </ul> </li> <li>• Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>• Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>• Refine scenario designs for BMDS FTs to support CECs and EMEs identified in BMDS IMTP.</li> <li>• Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> </ul> <p><b>C. Other Program Funding Summary</b></p>		

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	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
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PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
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PE 0603895C BMD System Space Program	16,237	24,686	12,549						
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PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Third Site Testing European Component</b>										
Third Site Testing	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	0	N/A	2,900	1Q	0	N/A	2,900
Subtotal Test and Evaluation			0	0		2,900		0		2,900
<b>Remarks</b>										

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<p><b>IV. Management Services Cost ( \$ in Thousands )</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Cost Categories:</th> <th style="width: 10%;">Contract Method &amp; Type</th> <th style="width: 15%;">Performing Activity &amp; Location</th> <th style="width: 10%;">Total PYs Cost</th> <th style="width: 10%;">FY 2009 Cost</th> <th style="width: 10%;">FY 2009 Award/ Oblg Date</th> <th style="width: 10%;">FY 2010 Cost</th> <th style="width: 10%;">FY 2010 Award/ Oblg Date</th> <th style="width: 10%;">FY 2011 Cost</th> <th style="width: 10%;">FY 2011 Award/ Oblg Date</th> <th style="width: 10%;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>Subtotal Management Services</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p><b>Remarks</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Project Total Cost</td> <td style="width: 10%;"></td> <td style="width: 15%;"></td> <td style="width: 10%; text-align: center;">0</td> <td style="width: 10%; text-align: center;">0</td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">2,900</td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">0</td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">2,900</td> </tr> </table> <p><b>Remarks</b></p>											Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost	Subtotal Management Services											Project Total Cost			0	0		2,900		0		2,900
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost																																	
Subtotal Management Services																																											
Project Total Cost			0	0		2,900		0		2,900																																	

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Date  
**May 2009**

## Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile

APPROPRIATION/BUDGET ACTIVITY						

## R-1 NOMENCLATURE

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

## 0603888C Ballistic Missile Defense Test and Targets

[illegible]

### 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 May 2009		
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
System Flight Tests								
BVT-01		4Q						
FTG-07 (P2F-07b-I)			3Q					

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
EX04 Test & Evaluation Block 5.0	6,434	21,643	30,398					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA) Test and Evaluation (T&amp;E) program has six primary purposes: 1) demonstrate and assess Ballistic Missile Defense System (BMDS); 2) demonstrate and assess Block capability; 3) identify areas where technology can increase overall system performance; 4) identify BMDS issues; 5) provide anchoring and validation data for modeling and simulation (M&amp;S) tools; and 6) support early, partial, and full capability readiness decisions.</p> <p>The Missile Defense Agency (MDA) recently initiated a systematic review of BMDS testing that will establish a new convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS test Program is MDA is transitioning from ``architecture-based`` test objectives to ``technical parameter-based`` objectives to anchor models and simulations (M&amp;S). The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement.</p> <p>MDA conducted a three phase comprehensive test review in which MDA and the Army, Navy, and Air Force Operational Test Agencies reviewed the BMDS models and simulations to determine the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation (VV&amp;A) process. Much of the data needed to understand and assess system survivability, operational performance, reliability, and supportability can only be measured through ground and flight tests. In Phase One of the review, Critical Engagement Conditions (CECs) were identified that would be tested in order to provide the data for the VV&amp;A process. Additionally, Empirical Measurement Events (EMEs) were developed to collect system performance data.</p> <p>In Phase Two of the test review, prioritized test objectives and scenarios for a campaign of flight and ground tests were developed. The resulting test designs are based on requirements to determine the system's capabilities and limitations, and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect</p>								

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<p>system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system.</p> <p>During Phase Three of the review, the funding and infrastructure needed to implement the test campaigns was identified and resource trades accomplished.</p> <p>The BMDS test program: (1) encompasses activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities, (2) describes test methods and approaches the Directorate for Test (DT) uses to test element capabilities to meet the system capabilities delineated in the System Specification Documents and Interface Design Documents, and (3) provides test data to support assessments to document and determine BMDS effectiveness. BMDS testing addresses system wide test objectives, critical engagement conditions (CECs) and empirical measurement events (EMEs) to anchor M&amp;S test environments, testing methodologies (i.e., M&amp;S, Flight Tests (FT), Ground Tests (GT)), and identifies test resources (e.g., Test Bed, M&amp;S tools, targets, ranges) required to provide test data that when combined with analysis of data from multiple sources, contribute to verification of the BMDS capability.</p> <p>Block 5.0 fielding and development efforts are directed toward expanding defense of allies and deployed forces from short-to-intermediate range threats in two regions/theaters. The DT supports the developmental and integration efforts thru test and assessment of , CECs and EMEs attributed to Block 5.0.</p>			
<b><u>B. Accomplishments/Planned Program</u></b>			
	FY 2008	FY 2009	FY 2010
Test & Evaluation Block 5.0	6,434	21,643	30,398
RDT&E Articles (Quantity)	0	0	0
<p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Completed GTI-03, GTX-03a and GTX-03d (Fast CAAT-East Hardware-in-the-Loop (HWIL)) system level ground test events</li> <li>Initiated the planning and execution of GT-04 (formerly GT-09) campaign.</li> <li>Initiated detailed planning of GTX-03c with all MDA Elements represented via HWIL.</li> <li>Integrated element representation and the test support team for system GT.</li> </ul>			

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<ul style="list-style-type: none"> <li>Continued to populate the BMDS Test Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> <li>Initiated detailed planning for GTX-04a (formerly GTX-09a).</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Completed FTM-15 Test Planning Review and preparations for ETPR.</li> <li>Conducted early test planning for FTX-06.</li> <li>Completed GTD-03/GTG-03b.2 and Fast CAAT-East (FCE-A) Distributed system level ground test events.</li> <li>Complete detailed test planning and execute FY09 BMDS system level test events.</li> <li>Initiate planning for FY10 BMDS system level test events.</li> <li>Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>Conduct early planning for FY10 major BMDS system level test events.</li> <li>Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>Refine scenario designs to support CECs and EMEs.</li> <li>Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above.</li> <li>Continue to populate the Modular Analysis Reporting System (MARS) Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul> <p>FY10 Planned Program:</p>		

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<ul style="list-style-type: none"> <li>• Complete detailed test planning and execute FY10 BMDS system level test events to include but not limited too: <ul style="list-style-type: none"> <li>○ FTX-06 <ul style="list-style-type: none"> <li>▪ AB4-CEC-03 Large variation in threat extended IR image</li> <li>▪ AB4-CEC-06 Multi-object threat-complex engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a threat in a complex debris environment</li> <li>▪ AB4-CEC-12 Kill assessment and reengagement based on radar KW</li> <li>▪ AB4-EME-02 IR Threats</li> <li>▪ AB4-EME-05 Multi-mission engagement support</li> <li>▪ AB4-EME-20 Doctrine Qualification</li> <li>▪ BC-CEC-03 Separation velocity with and without debris</li> <li>▪ TH-EME-08 RV Signature.</li> </ul> </li> <li>○ P2RF-23-T (GT-200) <ul style="list-style-type: none"> <li>▪ AB4-CEC-06 Multi-object threat-Complex Engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a Threat in a Complex Debris Environment</li> <li>▪ AB4-EME-14 ICBM surveillance and track</li> <li>▪ AB4-EME-19 Categorization of satellite launch vehicles</li> <li>▪ SN-CEC-03 Advanced Algorithm (AA)</li> </ul> </li> <li>○ P2RF-24-T <ul style="list-style-type: none"> <li>▪ AB4-CEC-03 Large variation in threat extended IR image</li> <li>▪ AB4-CEC-06 Multi-object threat-complex engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a threat in a complex debris environment</li> <li>▪ AB4-CEC-12 Kill assessment and reengagement based on radar KW</li> <li>▪ AB4-EME-02 IR Threats</li> <li>▪ AB4-EME-15 AWS calibration</li> <li>▪ BC-CEC-03 Separation velocity with and without debris</li> <li>▪ SN-CEC-01 Advanced Algorithm (AA)</li> <li>▪ SN-CEC-05 Advanced Algorithm (AA)</li> <li>▪ SN-CEC-08 Closely Spaced Objects (All Radars, Track, and Discrimination)</li> </ul> </li> </ul> </li> </ul>		

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<ul style="list-style-type: none"> <li>▪ SY-CEC-04 Advanced Algorithm (AA)</li> <li>▪ TH-EME-08 RV Signature</li> <li>▪ TH-EME-19 CM types</li> <li>○ P2RF-25-I <ul style="list-style-type: none"> <li>▪ AB4-CEC-01 Closing velocity</li> <li>▪ AB4-CEC-06 Multi-object threat-complex engagements: RF Performance</li> <li>▪ AB4-CEC-07 Multi-object threat-complex engagements: SM-3 Performance</li> <li>▪ AB4-CEC-08 Engagement of a threat in a complex debris environment</li> <li>▪ AB4-CEC-12 Kill assessment and reengagement based on radar KW</li> <li>▪ AB4-EME-05 Multi-mission engagement support</li> <li>▪ AB4-EME-15 AWS calibration</li> <li>▪ BC-CEC-03 Separation velocity with and without debris</li> <li>▪ BC-CEC-04 Intercept Debris</li> </ul> </li> <li>○ P2RF-18-I <ul style="list-style-type: none"> <li>▪ AB4-CEC-06 Multi-object threat-Complex Engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a Threat in a Complex Debris Environment</li> <li>▪ AB4-CEC-12 Kill Assessment and Reengagement based on radar KW</li> <li>▪ AB4-EME-20 Doctrine Qualification</li> <li>▪ TH-EME-08 RV Signature</li> </ul> </li> <li>○ P2RF-19-I <ul style="list-style-type: none"> <li>▪ AB4-CEC-06 Multi-object threat-Complex Engagements: RF Performance</li> <li>▪ AB4-CEC-08 Engagement of a Threat in a Complex Debris Environment</li> <li>▪ AB4-CEC-12 Kill Assessment and Reengagement based on radar KW</li> <li>▪ AB4-EME-05 Multi-mission engagement support</li> <li>▪ AB4-EME-20 Doctrine Qualification</li> <li>▪ TH-EME-08 RV Signature</li> </ul> </li> </ul>		

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PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									



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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding. The Directorate for Test directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS. combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p>		

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test &amp; Evaluation Block 5.0</b>										
BMDs Flight Test	Various	USASMDC, WSMR, MITLL, MDOIC & VAFB/ AL, NM, MA, HI & CA	0	2,380	1Q	1,100	1Q	0	N/A	3,480
BMDs Ground Test	Various	MDIOC/ Colorado Springs, CO	6,434	18,001	1Q	28,630	1Q	0	N/A	53,065
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	0	1,262	1Q	668	1Q	0	N/A	1,930

Project: EX04 Test & Evaluation Block 5.0

MDA Exhibit R-3 (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation			6,434	21,643		30,398		0		58,475
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			6,434	21,643		30,398		0		58,475
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile																				Date May 2009												
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	2008				2009				2010				2011				2012				2013				2014				2015			
	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-15								▽																								
FTX-06 (P2RF-18-T, 19-T, 20-T)								◇																								
FTM-16 (P2RF-24-T, 25-T)												▽																				
System Ground Tests																																
GTX-04a								▽																								
GTI-04											▽																					
GTD-04												▽																				
GTI-05													▽																			
Glory Trips (USAF Operational)/Potential BMDS Tests																																
GT-200 (P2RF-23-T)											△																					

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<b>Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDTE&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
<b>System Flight Tests</b>								
FTM-15		4Q						
FTX-06 (P2RF-18-T, 19-T, 20-T)			1Q					
FTM-16 (P2RF-24-T, 25-T)			4Q					
<b>System Ground Tests</b>								
GTX-04a		4Q						
GTI-04			2Q					
GTD-04			3Q					
GTI-05			4Q					
<b>Glory Trips (USAF Operational)/Potential BMDS Tests</b>								
GT-200 (P2RF-23-T)			1Q					

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
WX04 Test & Evaluation Capability Development	3,290	18,609	69,679					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA) Test and Evaluation (T&amp;E) program has six primary purposes: 1) collect data to demonstrate and assess the Ballistic Missile Defense System (BMDS); 2) collect data to demonstrate and assess the block capability; 3) identify areas where technology can increase system performance; 4) identify BMDS issues; 5) provide anchoring and validation data for modeling and simulation (M&amp;S) tools; and 6) support early, partial, and full capability readiness decisions.</p> <p>The BMDS developmental and operational test program encompasses all T&amp;E activities associated with technology developments, demonstrations, experiments, research, deployment, and maintenance activities. The T&amp;E program describes test methods and approaches that the Directorate for Test uses to test element capabilities to meet the system-necessary capabilities delineated in the System Specification Documents and Interface Design Documents. The MDA T&amp;E program provides test data to support assessments used to document and determine BMDS effectiveness.</p> <p>T&amp;E Capability Development Funding supports detailed planning and execution of flight test events plus test analysis and reporting functions: Capability development provides funding for efforts which address technologies, functionalities and capabilities not mature enough for fielding under the Block Construct, are experimental in nature or do not support one of the five blocks. The Directorate for Test supports the developmental and integration efforts through test and assessment of critical engagement conditions (CECs) and empirical measurement events (EMEs) (vice Engagement Sequence Groups (ESGs)) to anchor M&amp;S. Funding provides manpower, range and logistics support for system FT planning, integration, execution, data collection, and analysis and range and auxiliary sensor support. Funding supports overlaying system-level objectives onto element flight tests (FTs) where appropriate and non-element specific testing. Funding also support BMDS Flight Test Targets of Opportunity (TOO) and experimental flight tests to support Capability Development.</p> <p>BMD System Flight Tests (FTs): Capability Development programs such as STSS, ABL, Arrow, KEI, etc. examine the capability of the BMDS to detect, track, and engage targets. More advanced tests are planned that will provide data to support verification of more complex CECs and EMEs. These projects will provide analysis of each system test event through the Joint Analysis Team (JAT). BMDS Flight Tests related to Capability Development include but are not limited to:</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Emerging Technologies: programs that develop technologies and test future capabilities; including programs such as STSS and ABL. Other programs that complement the BMDS such as Patriot are included. Certain technologies in early development and potential future capabilities such as NGSP and NFIRE are tested in this program.</li> <li>Targets of Opportunity (TOO)s: Events (e.g., Minuteman FT, Air Force Space Command operations, or approved foreign launches) that afford the opportunity to exercise some portion of BMDS, conduct on-board and off-board experiments, and gather phenomenology data on representative objects and events. These events are categorized as domestic, foreign co-operative, or non-cooperative tests. TOOs support risk reduction through early identification of integration issues. Specifically, TOOs provide a cost-effective means of exercising and collecting data on component interfaces in real-time; exercising communication links and connectivity, real-time element loading, timing, cueing, tracking capabilities, algorithm development, and test checklists for the Integrated Test Team.</li> <li>Critical Measurements and Counter Measures (CMCM) FTs: Events that provide a venue for risk reduction, addressing phenomenology (understanding the physics of what was observed and its effects on BMDS sensors), countermeasures and counter-countermeasures requirements, providing critical measurements to support development and validation of algorithms, M&amp;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).</li> </ul> <p>Test Analysis &amp; Reporting: The Test Analysis and Reporting (TA&amp;R) function develops, integrates, and delivers BMDS TA&amp;R products for Integrated Master Test Plan (IMTP) FTs, GTs and Targets of Opportunity and maintains and executes critical path TA&amp;R functions, tools, processes, and infrastructures supporting development and delivery of TA&amp;R products within an integrated reporting process. Test analysis is critical in managing risk for BMDS test events and providing post-mission assessment of BMDS performance. Functional Products and Processes:</p> <ul style="list-style-type: none"> <li>Joint Analysis Teams (JAT)-Integrate BMD System-level and Element-level test analysis results into a single, joint analysis effort and develop integrated, standardized reporting and briefing products. Products include Quick Look Briefing (QLB), Executive QLB (EQLB), Mission Data Review (MDR) and Executive MDR (EMDR).</li> <li>Data Management-Coordinate and document all element and system data products and requests. Provide event-specific reports to ensure timely and complete data distribution. Products include: Integrated Data Management Plans (IDMP) and Data Handling Plans (DHP).</li> <li>Truth Data-Develop truth data requirements and provide post-test trajectory and phenomenology truth data. Products include pre-mission truth databases and post-mission Truth Data Packages (TDP).</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Analysis-Develop analysis plans to document analysis processes, timelines, and areas of responsibility. Conduct BMDS test analysis, produce test analysis briefings for leadership decision support and provide final test analysis reporting products. Products include Analysis Execution Plans (AEP) and Test Analysis Report (TAR).</li> </ul> <p>Distributed Analysis Tools and Infrastructures:</p> <ul style="list-style-type: none"> <li>Develop, integrate, deploy, and operate spiral releases of software tools to automate and enhance the TA&amp;R process of the BMDS test program and associated data products. Tools include: Data Management System (DMS) for data management, Test Event Asset Management System (TEAMS), All Sensors Truth Evaluation and Reporting (ASTER) for truth analysis, Modular Analysis and Reporting Suite (MARS) for system analysis, and PHOENIX for common tool framework.</li> <li>Develop, coordinate, implement, and maintain requirements and capabilities for distributed and virtual data architectures supporting timely data distribution, processing and analysis across a distributed TA&amp;R community. Nodes include Joint Data Analysis Center (JDAC) in Huntsville and BMDS Laboratory for Analysis and Data Evaluation (BLADE) at Missile Defense Integration and Operations Center (MDIOC).</li> </ul> <p>The Target Certification function was transferred from budget project YX04, and is included within the planned program of this budget project for FY09 and FY10.</p> <p>The WX04 budget project also includes Modeling and Simulation efforts as detailed below.</p> <p>The mission of the Modeling and Simulation (M&amp;S) program is to engineer and deliver validated, integrated simulation solutions for the primary uses of Ballistic Missile Defense System (BMDS) Performance Assessment and Ground Test, with additional capability to support BMDS-Element integration, missile defense Wargames and exercises (national and international), BMDS training, and BMDS concept analysis. In this role, M&amp;S provides cost-effective and proactive tools to assess the fielded capabilities of the BMDS, analyze and foster accelerated integration of Element and component capability into the BMDS, and is a valuable training and planning tool for Warfighting Concept of Operations and missile defense planning.</p> <p>BMDS Digital Modeling and Simulation:</p>		



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>BMDS Digital Modeling and Simulation produces and integrates digital M&amp;S assets for use with the Digital Simulation Architecture to form system-level constructive simulations for full-envelope BMDS performance assessment with surrogate capability for BMDS ground tests. Digital M&amp;S creates system-level stimulus for Element integration testing and system-level M&amp;S capabilities which augment BMDS flight tests. Other mission areas include digital M&amp;S capability for system-level concept definition and exploration; real-time, interactive system-level M&amp;S capability to support Warfighter-in-the-loop Wargaming, training and exercises, and capabilities to support rapid, flexible scenario development and execution control.</p> <p>Verification, Validation, and Accreditation (VV&amp;A):</p> <p>Accredited system-level models and simulations (M&amp;S) anchored to real-world events, are required to perform an accurate and comprehensive assessment of the BMDS. The implementation and documentation system-level M&amp;S verification, validation, and accreditation will establish credibility and increase confidence in the M&amp;S that provides a cornerstone for the Agency's simulation-based acquisition approach. The individual MDA elements and components are responsible for conducting the VV&amp;A of their own models and providing that evidence to system-level VV&amp;A for each event. This includes benchmarking their M&amp;S to higher fidelity simulations, anchoring to real world events, and planning and conducting post-flight reconstruction. Verifying, validating and, accrediting multiple MDA events to include Performance Assessment, Ground Tests which supports BMDS fielding decisions, and tier one COCOM exercises will be performed. Development and promulgation of system-level VV&amp;A policies and standards, benchmarked against leading industry practices will be assessed. Providing model, simulation, and event credibility across Performance Assessment, Ground Tests, Element Integration, Wargames and Exercises, Training, will be conducted and all associated infrastructure that supports BMDS fielding decisions. Through the consistent practice of verifying model representations benchmarked to other higher-fidelity models, and anchored to operational tests, increase model confidence and acceptability by outside agencies like the Operational Test Agency will be achieved. The implementation of the Model-Test-Model process requires close collaboration with the test community, and the capability to predict system-level test results and perform post-flight test reconstruction in order to improve model confidence and future performance. Robust VV&amp;A requires flexibility and capability to explore new BMDS concepts, and evaluate new Element representations to identify and correct flaws early in the development process.</p> <p>BMDS HWIL Modeling and Simulation:</p> <p>BMDS HWIL Modeling and Simulation is responsible to provide and integrate the BMDS system-level HWIL stimulation framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and warfighter needs. BMDS HWIL provides development,</p>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>integration, and test funding to both MDA and non-MDA Elements participating in the BMDS ground test campaigns. BMDS HWIL also provides the core Lethality and Phenomenology models for use in analysis of BMDS and Element mission requirements.</p>			
<p><b><u>B. Accomplishments/Planned Program</u></b></p>			
	FY 2008	FY 2009	FY 2010
Test & Evaluation Capability Development	3,290	17,976	0
RDT&E Articles (Quantity)	0	0	0
<p><b>FY08 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>• Completed detailed test plans and executed BMDS System Level Capability Development Flight Tests; GT-194, GT-196, GT-197, and NFIRE-2B.</li> <li>• Supported BMDS Elements in planning and execution of NGSP and planning of NFIRE-2B.</li> <li>• Conducted early planning for major BMDS System Level Capability Development test events; GT-198, FTS-01, FTL-01.</li> <li>• Coordinated integration of multiple Elements, OTA and Warfighter into BMDS tests.</li> <li>• Refined scenario designs for BMDS FTs to support ESGs identified in BMDS IMTP.</li> <li>• Provided system-level range support, mission assurance, logistics support, support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>• Populated the BMDS Test Database with test data to support capability assessments by Systems Engineers and Operational Test Agencies (OTAs), and provide validation data for M&amp;S.</li> <li>• For ATM-48, developed and delivered draft IDMP.</li> <li>• For Caravan-2, developed and delivered draft IDMP, draft AEP.</li> <li>• For GT-194, developed and delivered IDMPs, DHPs.</li> <li>• For GT-195 and GT-196, developed and delivered IDMPs.</li> <li>• For GT-197, developed and delivered IDMPs, DHPs, pre-mission truth database, TDPs, AEPs.</li> <li>• For GT-198, developed and delivered IDMPs, draft DHP.</li> <li>• For NGSP-01, developed and delivered IDMPs.</li> <li>• For NFIRE 2b, developed and delivered IDMPs, DHPs, pre-mission truth database, AEPs.</li> <li>• For FTS-01 and FTK-01, developed and delivered draft IDMP.</li> </ul>			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>Began implementation phase and operations support (security, network, administrative) of the BLADE facility and network at MDIOC (co-located BMDS and Element analysts).</li> <li>Initiated expansion of BLADE at MDIOC.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Executed BMDS System Level Capability Development Flight Tests; GT-198.</li> <li>Coordinated the integration and execution of BMDS Overlay elements in the host nation of Israel in conjunction with the Arrow System Test -13.</li> <li>Coordinated the integration of the PATRIOT element in conjunction with executing FTT-10a.</li> <li>Coordinated PATRIOT, THAAD, and target payload in PAC 3 7-2 Flight Test as a BMDS component.</li> <li>Conducted detailed test planning for major BMDS System Level Capability Development test events; Caravan -2, GT-195, GT-199, FTS-01 and FTL-01.</li> <li>In conjunction with System Engineering, coordinated removal of ¿satisfied¿ system objectives for ATM-48 BMDS Overlay.</li> <li>Conducted planning for Associated Operations in the FTK-01 Pathfinder test event.</li> <li>Conducted initial planning for NGSP 2.0, -3.0, and GT-200.</li> <li>Complete detailed test planning and execute FY09 BMDS system level test events.</li> <li>Initiate planning for FY10 BMDS system level test events.</li> <li>Support BMDS Elements in planning and execution of their program specific FTs.</li> <li>Conduct early planning for FY10 major BMDS system level test events.</li> <li>Support Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.</li> <li>Refine scenario designs to support CECs and EMEs.</li> <li>Provide system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies.</li> <li>Develop and facilitate requirements and implementation of virtual TA&amp;R nodes enabling distributed, collaborative analysis across all block nodes.</li> <li>Develop, integrate, test, train, deploy, and operate spiral releases of software tools.</li> <li>Plan, schedule, and facilitate the integration of BMDS analysis activities within joint venues.</li> <li>Develop and deliver products for JAT, data management, data processing, truth data, and analysis as identified above.</li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Continue to populate the MARS Analysis Database with most current test data to support capability assessments by Systems Engineering and OTAs, and provide validation data for M&amp;S.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Target Certification	0	633	679	
RDT&E Articles (Quantity)	0	0	0	
<p>FY08 Accomplishments: N/A</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Prepare Target Accreditation Reports for appropriate major flight tests in support of the IMTP.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Prepare Target Accreditation Reports for appropriate major flight tests in support of the IMTP.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Modeling and Simulation	0	0	69,000	
RDT&E Articles (Quantity)	0	0	0	
<p>FY08 Accomplishments: N/A</p>				

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>FY09 Planned Program: N/A</p> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Missile Defense Space warning Tool (models validated space-borne assets of BMDS)</li> <li>Threat Modeling Simulation System</li> <li>Provide software operations/maintenance of the BMD International Simulation</li> <li>Review development requirements from international agreements &amp; track resulting M&amp;S developments</li> <li>Perform foreign release review on M&amp;S related documents, briefings, screen views and data</li> <li>Provide integrated Verification, Validation, and Accreditation (VV&amp;A) of MDA Models and Simulations (M&amp;S) at the system-level for specific events to include Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises</li> <li>Conduct system-level V&amp;V to include threat trajectory and signature V&amp;V throughout the system; end-to-end environmental implementation is consistent and correct; communications and architecture behave properly; and interoperability is adequately addressed [Conduct system-level post flight reconstruction for validation of BMDS performance assessment M&amp;S]</li> <li>Work closely with Elements, Test Community, System Engineering, and OTA to ensure M&amp;S for event meets intended uses and objectives, and has proper VV&amp;A documentation and evidence to include benchmarking/anchoring pedigree</li> <li>Develop, integrate and test a common BMDS HWIL stimulation framework with the Elements for the GTI-04, GTD-04 ground tests.</li> <li>Conduct BMDS HWIL stimulation framework V&amp;V for BMDS GTI-04 and GTD-04 ground tests</li> <li>Define and plan for enhancements to the SSF required for execution of the GT05 campaign to include identification of interdependencies required for execution</li> <li>Initiate planning to integrate SSF interface with the CD UEWR and close the air gap</li> <li>Initiate planning to integrate SSF interface with the GMD Fielded assets</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

Project: WX04 Test & Evaluation Capability Development  
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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding thought the use of Blocks and Capability Development. The Directorate for Test directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, FFRDC, and other MDA programs to execute the various diverse efforts within the BMDS test program. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conform to their respective headquarters regulations are utilized. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.</p> <p>The M&amp;S acquisition strategy is to develop, acquire and deliver the integrated architectures/frameworks while the Elements develop and deliver models of their system. The Digital and HWIL product centers integrate the suite of M&amp;S into a composite simulation capability, all based on an open architecture. M&amp;S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the Element prime contractors, with additional technical standards and engineering oversight provided by FFRDC and UARCs.</p>		

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>						<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>				
<b>I. Product Development Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Product Development										
<b>Remarks</b>										
<b>II. Support Costs Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Modeling and Simulation</b>										
Single Stimulation Framework Increment 1 Phase 2.0	Various		0	0	N/A	46,920	1Q	0	N/A	46,920
Digital M&S and VV&A	Various		0	0	N/A	22,080	1Q	0	N/A	22,080
Subtotal Support Costs			0	0		69,000		0		69,000
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
<b>Test &amp; Evaluation Capability Development</b>										



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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
BMDs Flight Test	Various	USASMDC, WSMR, MITLL, MDOIC/ VAFB/AL, NM, MA, HI & CA	1,311	11,632	1Q	0	N/A	0	N/A	12,943
Test Analysis and Reporting	Various	CTF TA&R/ Huntsville, AL	1,979	6,344	1Q	0	N/A	0	N/A	8,323
<b>Target Certification</b>										
Target Certification	Various	USASMDC/ Huntsville, AL	0	633	1Q	679	1Q	0	N/A	1,312
Subtotal Test and Evaluation			3,290	18,609		679		0		22,578
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			3,290	18,609		69,679		0		91,578
<b>Remarks</b>										

# UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile																	Date May 2009															
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	2008				2009				2010				2011				2012				2013				2014				2015			
	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																																
NGSP-01			◆																													
NFIRE-2b				◆																												
Patriot 7-2						◆																										
FTL-01								▽																								
Patriot 7-3										◆																						
PIM-01										▽																						
JUNO RRF										▽																						
FTS-01											▽																					
Patriot 16-2												◆																				
FTL-02										▽																						
FTL-03												▽																				
FTL-04													▽																			
FTK-01								◆																								
																	Legend															
																	▲ Significant Event (complete)															
																	★ Milestone Decision (complete)															
																	◆ Element Test (complete)															
																	▽ System Level Test (complete)															
																	▲ Complete Activity															
																	▲ 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  
**May 2009**











APPROPRIATION/BUDGET ACTIVITY

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

## R-1 NOMENCLATURE

## 0603888C Ballistic Missile Defense Test and Targets

[illegible]

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 May 2009		
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
System Flight Tests								
NGSP-01	3Q							
NFIRE-2b	4Q							
Patriot 7-2		2Q						
FTL-01		4Q						
Patriot 7-3			2Q					
PIM-01			1Q					
JUNO RRF			1Q					
FTS-01			2Q					
Patriot 16-2			3Q					
FTL-02			1Q					
FTL-03			3Q					
FTL-04			4Q					
FTK-01		4Q						
FTK-02			2Q					
System Ground Tests								
GT-196	3Q							
GT-197	3Q							
GT-194	4Q							
GT-198		1Q						
GT-195		3Q						
GT-199		3Q						

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>						Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 NOMENCLATURE</b>				
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603888C Ballistic Missile Defense Test and Targets</b>				
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
XX04 Concurrent, Test, Training & Ops (CTTO)	40,522	37,569	35,722					
RDT&E Articles Qty	0	0	0					
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The purpose of the BMDS Concurrent Test, Training, and Operations (CTTO) effort is to address the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance; training; and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO will enable continued BMDS incremental and spiral development and testing while providing the Unified Combatant Commanders the ability to maintain their operational capability, participate in exercises, train, and rehearse mission scenarios while the system is in an operational state or ``on alert.'' The functions of the CTTO are to:</p> <ul style="list-style-type: none"> <li>• Increase confidence in the BMDS through rigorous concurrent test, training, and operations.</li> <li>• Enable BMDS testing and training in the field without degrading protection capability.</li> <li>• Sustain Unified Combatant Commanders BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition to defend the United States, its deployed forces, friends, and allies.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p>The Distributed Multi-Echelon Training System (DMETS) will specifically addresses the high priority Unified Combatant Commanders requirement to conduct distributed, high fidelity, and end-to-end strategic and operational training for missile defense operations that incorporates missile warning activity in any or all of the BMDS Elements. The system will allow for scalable testing of the BMDS over the operational architecture as well as allow operators to train where they fight using a parallel architecture either physically separated or logically separated from the operational one; training will be scalable as well; from individual BMD assets to regional BMDS capabilities to the full BMDS global community.</p>								

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<b><u>B. Accomplishments/Planned Program</u></b>				
	FY 2008	FY 2009	FY 2010	FY 2011
DMETS	12,499	10,361	9,066	
RDT&E Articles (Quantity)	0	0	0	
<p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Operated and sustained DMETS training and exercise suites and associated hardware and software at 50 hours per week. Continue to provide BMD training events across the Unified Combatant Commands while maintaining the existing architecture.</li> <li>Initiated alignment of training and exercise environments by standardizing and streamlining architectures and infrastructure to provide a common environment for training and exercises.</li> <li>Progressing with Aegis Phase 2 (pier side) connectivity (expanding the integrated training audience).</li> <li>Progressing towards integrating THAAD User System Operator Trainer training facility with DMETS.</li> <li>Improved training availability for Unified Combatant Commanders by completing the second DMETS Control Center Suite at the Missile Defense Integration and Operations Center. Additional equipment was installed and integrated to allow DMETS to train on the current fielded version of BMDS and the next version of BMDS. This capability also benefits the exercise and wargame community by providing the resources to integrate and execute events.</li> <li>Implemented a new capability that allows for an interactive training environment that enhances Warfighter training realism.</li> <li>Deployed software to Unified Combatant Commanders which provides an Integrated Tactical Warning and Attack Assessment (ITW/AA) BMDS integrated picture on ITW/AA Processing Display System - Migration hardware.</li> <li>Developed the Enterprise Service Framework (ESF) software version 1.0 capability and demonstrated capability to the government in December 2007. ESF capability will provide event control by establishing training session configurations to include establishing internal and external communication links, selecting blue force laydowns, and selecting and downloading threat scenarios. Rapid reconfiguration of events and scenarios will be delivered.</li> </ul> <p>FY09 Planned Program:</p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Operate and Sustain DMETS training and exercise suites and associated hardware and software at 50 hours per week. Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Operate and Sustain DMETS training and exercise suites and associated hardware and software at 76 hours per week. Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
CTTO	28,023	27,208	26,656	
RDT&E Articles (Quantity)	0	0	0	
<p>CTTO will specifically address the Unified Combatant Commanders high priority requirement for a capability to sustain BMDS operations while simultaneously supporting concurrent research, development, test, and evaluation; maintenance; training; and system upgrade activities without degrading the ability to defend the United States, its deployed forces, friends, and allies. CTTO will concurrently maintain operational capability while conducting testing and training using current and upgraded systems on BMDS operational-site communications networks by stimulating with live-fly test targets, targets of opportunity, and high fidelity simulated scenarios. CTTO will allow for vertical and horizontal scalability of the BMDS over the operational architecture using a parallel architecture either physically separated or logically separated from the operational one. BMDS CTTO will safely separate test, evaluation, and training venues from real-world activities; and allow injection of high-fidelity simulations to run realistic scenarios on operational equipment and networks. CTTO will enable end-to-end testing of the BMDS and enable BMDS training that allows operators to exercise any or all BMDS Elements, as needed.</p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Concept Description approved by Systems Engineering and Integration Council. Developed Change Notice to BMDS Integrated Build D Description Document.</li> <li>Identified and documented Ground-based Midcourse Defense Simultaneous Training and Operations and the Command, Control, Battle Management, and Communications Parallel Staging Network convergence efforts to ensure safety and effectiveness.</li> <li>Demonstrated the capability to distinguish between live and stimulated radar beam tagging data in order to address radar data signal injection system safety concerns.</li> <li>Conducted requirements and design reviews for Network and Application Prototypes.</li> <li>Conducted requirements and design reviews for prototype Truth Interface Unit with the AN/TPY-2 radar.</li> <li>Drafted Standards for System States and Modes and System Message Tagging and Routing.</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Conduct a phased implementation for Data Labeling.</li> <li>Demonstrate a prototype on-site stimulation for AN/TPY-2.</li> <li>Demonstrate redundant Command and Control, Battle Management, and Communications Network Interface Processors to support rapid recall times.</li> <li>Demonstrate a prototype of a dynamic asset control capability that will allow element components to be assigned to the operations, test, or training domains and networks.</li> <li>Demonstrate a prototype of an improved truth network in order to facilitate test execution and transitioning to and from tests.</li> <li>When the Specification Change Notice for CTTO to the BMDS System Specification for Integrated Build D is approved, collaborate across the Agency to focus attention on CTTO critical system engineering and integration challenges across all Elements, Components and functions comprising the BMDS.</li> </ul>		



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>
<p>FY10 Planned Program:</p> <ul style="list-style-type: none"><li>• Coordinate and integrate BMDS CTTO Element-level activities and capabilities for Integrated Build D.</li><li>• Initiate CTTO Integrated Build E requirements development and prepare a Description Document, and Specification change notices for all impacted elements.</li><li>• Prototype impacted Element implementations to validate requirements development process.</li><li>• Develop process and procedures for the inclusion of CTTO functionality within the BMDS.</li></ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date May 2009		
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

Project: XX04 Concurrent, Test, Training & Ops (CTTO)

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MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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><b><u>D. Acquisition Strategy</u></b></p> <p>The CTTO systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes fielding capabilities that address particular threats. The design and development of the BMDS CTTO capability is a collaborative effort. The government is the task manager to integrate the technical effort and manage the contracting efforts. The government, using existing contract structures, established a CTTO Project Office, determine BMDS CTTO requirements and standardization, determine BMDS Core Protocol and Standards, upgrades, technology insertion points, and synchronize BMDS Element level activities, training exercises and events and capabilities. The long term acquisition strategy is to normalize CTTO requirements into existing contract structures. The intent is to develop a fully capable CTTO capability that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.</p>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
DMETS										
Integrated Training Operation and Sustainment	C/CPAF	MDIOC/GM/BO EING/MNTB/ Colorado Springs, CO/Huntsville, AL/Arlington, VA	7,053	6,861	1/4Q	7,100	1/4Q	0	N/A	21,014
Expand Integration Training Audience	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	1,274	1,000	1/4Q	650	1/4Q	0	N/A	2,924
Improve Training Availability	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	1,918	1,196	2/3Q	600	1/4Q	0	N/A	3,714
Improve Training Effectiveness	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	1,960	1,004	2/3Q	610	1/4Q	0	N/A	3,574
Improve Training Quality	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	294	300	2/3Q	106	1/4Q	0	N/A	700
CTTO										

Project: XX04 Concurrent, Test, Training & Ops (CTTO)  
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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
APPROPRIATION/BUDGET ACTIVITY					R-1 NOMENCLATURE					
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					0603888C Ballistic Missile Defense Test and Targets					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
CTTO Rapid Prototyping	C/CPAF	MDIOC/GM/BO EING/MNTB/ Colorado Springs, CO/Arlington, VA/Huntsville, AL	12,641	23,908	1/4Q	12,656	1/4Q	0	N/A	49,205
Initial CTTO Staging and Integration	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	4,997	3,300	1/4Q	13,000	1/4Q	0	N/A	21,297
Initial Training with Operations and Test	C/CPAF	MDIOC/MNTB/ Colorado Springs, CO/Arlington, VA	3,233	0	N/A	500	3Q	0	N/A	3,733
Initiate Fielding to COCOM's	C/CPAF	MNTB/ Arlington, VA	7,152	0	N/A	500	3Q	0	N/A	7,652
Subtotal Product Development			40,522	37,569		35,722		0		113,813
Remarks										

Project: XX04 Concurrent, Test, Training & Ops (CTTO)  
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MDA Exhibit R-3 (PE 0603888C)

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>		
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>					
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Support Costs										
<b>Remarks</b>										
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										
<b>Remarks</b>										
<b>IV. Management Services Cost ( \$ in Thousands )</b>										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Subtotal Management Services										
<b>Remarks</b>										
Project Total Cost			40,522	37,569		35,722		0		113,813
<b>Remarks</b>										

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile																	Date May 2009																
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	2008				2009				2010				2011				2012				2013				2014				2015				
	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	
CTTO																																	
Operated & Sustained DMETS 50 Hours a Week			▲	▲																													
Expand Training Audience to Aegis BMD					▲	▲																											
Integrate THAAD Operator Training							▲	▲																									
Operated DMETS 50 Hours a Week					▲	▲																											
Sustain DMETS 50 Hours a Week							▲	▲																									
Operated DMETS 76 Hours a Week									▲	▲																							
Sustain DMETS 76 Hours a Week											▲	▲																					
CTTO Concept Description Approved	▲																																
Demonstrated Safe Beam Data Tagging		▲																															
Demonstrate Stimulation for AN/TPY-2							▲	▲																									
Demonstrate Improved Truth Network							▲	▲																									
Initiate BMDS Build E Requirements									▲	▲																							
Prototype Element CTTO Instantiations											▲	▲																					
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

May 2009

APPROPRIATION/BUDGET ACTIVITY

## R-1 NOMENCLATURE

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

## 0603888C Ballistic Missile Defense Test and Targets

[illegible]

Project: XX04 Concurrent, Test, Training &amp; Ops (CTTO)

Line Item 80 -

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MDA Exhibit R-4 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date May 2009		
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CTTO								
Developed Event Control Framework	1Q							
Operated & Sustained DMETS 50 Hours a Week	3Q-4Q							
Expand Training Audience to Aegis BMD		1Q-2Q						
Integrate THAAD Operator Training		3Q-4Q						
Operated DMETS 50 Hours a Week		1Q-2Q						
Sustain DMETS 50 Hours a Week		3Q-4Q						
Operated DMETS 76 Hours a Week			1Q-2Q					
Sustain DMETS 76 Hours a Week			3Q-4Q					
CTTO Concept Description Approved	1Q							
Demonstrated Safe Beam Data Tagging	2Q							
Demonstrate Stimulation for AN/TPY-2		3Q-4Q						
Demonstrate Improved Truth Network		3Q-4Q						
Initiate BMDS Build E Requirements			1Q-2Q					
Prototype Element CTTO Instantiations			3Q-4Q					
CTTO Functionality Processes/Procedures			3Q-4Q					

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date <b>May 2009</b>																	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>																			
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015															
YX05 Targets and Countermeasures Core	180,134	244,474	503,696																				
RDT&E Articles Qty	0	0	0																				
<p><i>Note:</i></p> <p><i>Starting in FY09 YX05 funding transitioned to the Targets and Countermeasures Program Element.</i></p> <p><i>Starting in FY10 YX05 funding includes funding transitioned from projects BX05, CX05 and WX05.</i></p>																							
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Missile Defense Agency (MDA)/Targets and Countermeasures (TC) program provides threat representative, capability-based targets to support layered Ballistic Missile Defense System (BMDS) testing. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program acquires and launches short, medium, and long range capability-based targets with enhanced payloads to test, verify, and validate the performance of the BMDS.</p> <p>Funding for MDA/TC supports the continuation of the target program's source activities which include the design, prototyping, development, certification, product improvement, and qualification testing of BMDS targets and associated payloads. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing government furnished equipment (GFE) boosters as well as the purchase of long lead material assets and asset management items for short, medium and long-range target components.</p> <p>MDA/TC will also continue to assess and utilize other contracts and Foreign Material Acquisitions (FMAs) where appropriate.</p>																							
<p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 2008</td> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">FY 2010</td> <td style="text-align: center;">FY 2011</td> </tr> <tr> <td>Program Operations</td> <td style="text-align: center;">32,271</td> <td style="text-align: center;">55,890</td> <td style="text-align: center;">54,390</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </table>										FY 2008	FY 2009	FY 2010	FY 2011	Program Operations	32,271	55,890	54,390		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011																			
Program Operations	32,271	55,890	54,390																				
RDT&E Articles (Quantity)	0	0	0																				

Project: YX05 Targets and Countermeasures Core  
Line Item 80 -

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
<p>Program operations effort provides an integrated Missile Defense Agency (MDA)/Targets and Countermeasures (TC) management team utilizing resources from government, industry, and Federally Funded Research and Development Centers (FFRDC). This effort provides for the overall management of the program and includes salary and travel for the following personnel: systems engineering, test and evaluation, logistics, program management and acquisition, scheduling, business management, financial management, contract administration, earned value management, cost estimation and analysis, data management, security, quality assurance, mission assurance, and safety.</p> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>• Provided government, contractor, and FFRDC program staff (salary and travel) for the overall management of the program including the following functions: systems engineering, test and evaluation, logistics, program management and acquisition, scheduling, business management, financial management, contract administration, earned value management, cost estimation and analysis, data management, security, quality assurance, mission assurance, and safety</li> </ul> <p>FY09 and FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Provide government, contractor, and FFRDC program staff (salary and travel) for the overall management of the program including the following functions: systems engineering, test and evaluation, logistics, program management and acquisition, scheduling, business management, financial management, contract administration, earned value management, cost estimation and analysis, data management, security, quality assurance, mission assurance, and safety</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Launch Vehicle (LV) Development	51,353	55,212	37,282	
RDT&E Articles (Quantity)	0	0	0	
<p>Launch Vehicle (LV) development effort provides for the non-recurring development of strategic, regional and tactical LV systems to support Ballistic Missile Defense System (BMDS) flight testing. It includes Flexible Target Family (FTF) short, medium, and long range target systems with</p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>air, sea, and ground launch capabilities as well as enhancements to legacy target systems for cost effective target solutions. Efforts include requirements decomposition, LV design, LV and component qualification testing, and LV characterization. Efforts include ensuring boosters, inter-stages, and avionics adhere to interface specifications and meet reliability, mission assurance, and cost goals. Efforts address producibility, manufacturing maturity and affordability for LV. Supporting this objective are the necessary modeling and simulation efforts, analyses, configuration management, and design reviews resulting in LV designs that meet BMDS requirements.</p> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Completed Critical Design Review for Castor IVB (air/ground launch) and SR-19 (air launch) FTF vehicles</li> <li>Performed environmental qualification of two stage LV-2 target vehicle components (ordnance, connectors, avionics boxes, antennas)</li> <li>Completed common test set for air launch upgrades</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Complete FTF two stage LV-2 development. Finish LV-2 Launch Vehicle and component qualification testing</li> <li>Complete Enhanced Long Range Air Launch Target (E-LRALT) non-recurring development</li> <li>Complete Aegis Readiness Assessment Vehicle (ARAV-C) non-recurring development</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Continue development activities, to include system capability enhancements and completion of remaining engineering design, for short and medium range target systems.</li> <li>Initiate Intermediate Range Ballistic Missile (IRBM) Development</li> <li>Initiate Intercontinental Ballistic Missile (ICBM) Development</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date May 2009	
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 2008	FY 2009	FY 2010	FY 2011
Re-entry Vehicle (RV) Development	7,733	12,645	41,577	
RDT&E Articles (Quantity)	0	0	0	
Re-entry Vehicle (RV) development effort provides for non-recurring development of RV and Payload Deployment Modules (PDM) for strategic, regional, and tactical targets. This effort includes RV and PDM requirements decomposition and analysis; characterization, qualification, and performance measurements; mission support; and pre-and post-mission data analysis. This effort addresses producibility, manufacturing maturity and affordability for RV. It provides interface standardization and ensures product adherence to interface specifications for successful integration and launch of RV and PDM products. This effort also includes RV and PDM design reviews and supports other product design reviews to provide product and mission assurance.				
FY08 Accomplishments:				
<ul style="list-style-type: none"><li>Coordinated buildup and delivered:<ul style="list-style-type: none"><li>One (1) Modified Ballistic Re-entry Vehicles (MBRV-1) New Design</li><li>Nine (9) Modified Ballistic Re-entry Vehicles (MBRV-2) New Design</li><li>Two (2) Modified Ballistic Re-entry Vehicles (MBRV-3)</li><li>One (1) Generic Rest Of World (GROW) Re-entry Vehicle with Payload Deployment Module</li></ul></li><li>Coordinated and completed testing of:<ul style="list-style-type: none"><li>Radar Cross Section characterization on MBRV-2 New Design</li><li>Dielectric materials testing on Thermal Protection System (TPS) and various coatings for the MBRV-2 New Design</li><li>Material properties testing and analysis on various coatings for the MBRV-2 New Design</li><li>Radar Cross Section characterization on the unmodified Foreign Military Asset (FMA) Target Re-entry Vehicle</li><li>Radar Cross Section characterization on the modified FMA Target Re-entry Vehicle</li><li>Radar Cross Section characterization on the target stack-up for FTT-10</li><li>Radar Cross Section characterization on the SRALT/MBRV-1 New Design for FTT-11/-12b</li><li>Dielectric materials testing on Modified Ballistic Re-entry Vehicles (MBRV-1) New Design</li></ul></li><li>Coordinated requirements (specifications) for:<ul style="list-style-type: none"><li>Modified Ballistic Re-entry Vehicles (MBRV-6) development</li></ul></li></ul>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date May 2009	
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"><li>○ Modified Ballistic Re-entry Vehicles (MBRV-5) development</li><li>• Coordinated the development of:<ul style="list-style-type: none"><li>○ Three (3) Modified Ballistic Re-entry Vehicles (MBRV-1) New Design through Critical Design Review</li></ul></li><li>• Continued the following advanced development efforts:<ul style="list-style-type: none"><li>○ Directed Satellite Telemetry (DST) link design</li><li>○ Wireless Local Area Network (WLAN) capability design</li></ul></li></ul>				
FY09 Planned Program:				
<ul style="list-style-type: none"><li>• Initiate development of new MBRV for future missions</li><li>• Continue Directed Satellite Telemetry (DST) and Wireless Local Area Network (WLAN) telemetry effort<ul style="list-style-type: none"><li>○ Finish data analysis for FTX-03 flight</li><li>○ Provide all of the necessary hardware and support for wireless local area network. This includes building modules, mounting fixtures, preparing the ground support equipment, supporting various tests, and supporting the fielding effort</li><li>○ Purchase and install communication gear in Sandia National Laboratory (SNL)</li></ul></li></ul>				
FY10 Planned Program:				
<ul style="list-style-type: none"><li>• Initiate and continue development of a new Modified Ballistic Re-entry Vehicles (MBRV)</li><li>• Complete materials properties testing and Radar Cross Section characterization for MBRV.</li><li>• Initiate transition of Directed Satellite Telemetry (DST) and Wireless Local Area Network (WLAN) effort to industry.</li></ul>				
	FY 2008	FY 2009	FY 2010	FY 2011

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
Associated Objects Development	12,122	9,777	16,685	
RDT&E Articles (Quantity)	0	0	0	

Associated Objects (AO) development effort provides for non-recurring development of countermeasures (CM) to make more challenging, threat representative target scenarios for Ballistic Missile Defense System (BMDS) flight tests. It includes requirements decomposition, analysis, design, and test for all countermeasures activities based on best available threat and capabilities information. Additional activities include characterization, ground testing, and pre- and post mission data analysis. This effort addresses producibility, manufacturing maturity and affordability for AO. Further support includes program reviews, design reviews, and technical interchange meetings to ensure mission success.

**FY08 Accomplishments:**

- Developed materials and processes for new prototype countermeasures to support Ballistic Missile Defense System tests
- Completed trade studies and countermeasures design. Built prototypes and qualified hardware to support Ballistic Missile Defense System tests
- Conducted system requirements reviews and preliminary design reviews for countermeasures development activities (Family 1C, Family 2D-2, and Family 1F) in preparation for progression to Critical Design Review (CDR).
- Conducted mechanical and electrical interface testing between the countermeasures and the Flexible Target Family (FTF) payload deployment module electrical/communications system.
- Completed the Critical Design Review (CDR) for the Family 1C and 2D countermeasures.
- Solved interface issues to ensure new countermeasure designs from national labs are compatible with the prime contractor Flexible Target Family (FTF) vehicles
- Developed the Flexible Target Family (FTF) payload deployment module to countermeasure interface control document
- Provided countermeasures hardware for the FTX-03 mission
- Conducted an aging/shelf life study to analyze the key materials that are prone to aging and identified potential methods to improve the shelf life of countermeasures

**FY09 Planned Program:**

- Conduct countermeasures qualification testing in preparation for mission execution.
- Develop Family 1G NRE countermeasures in support of future flight test requirements. Design and build prototypes to analyze against signature requirements.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Develop Family 1C NRE countermeasures in support of future flight test requirements. Design and build prototypes to analyze against signature requirements.</li> <li>Develop Family 2D-2 NRE countermeasures in support of future flight test requirements. Design and build prototypes to analyze against signature requirements.</li> <li>Develop countermeasures Government Support Equipment (GSE) to support future flight tests</li> <li>Complete Phase II of the countermeasures material shelf life study.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Continue the Family 1G development effort in support of future flight tests. Build and test prototypes to analyze against test requirements</li> <li>Modify existing Family 1 countermeasures hardware for use in future flight tests</li> <li>Initiate the design and development of countermeasures hardware in support of future flight tests</li> <li>Initiate Critical Design Review (CDR) level design for the United Kingdom payload concept</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
System Engineering/Program Management	33,299	38,927	50,266	
RDT&E Articles (Quantity)	0	0	0	
<p>System engineering/program management effort provides system engineering and program management activities by the Flexible Target Family (FTF) prime contractor as well as systems engineering efforts not on the prime FTF contract. This effort provides target program technical direction to meet program requirements while balancing cost, schedule, performance, and risk. This effort utilizes the spiral development process for long-range plans initiating new developments. It conducts functional requirements allocation to product lines, defines product line specifications/interfaces, and follows guidelines for design reviews. It performs target system analysis with new concepts to verify system performance, defines target program baselines, controls flight test configurations, and conducts pre and post-flight analysis. It identifies treaty and environmental issues and develops plans for issue resolution. Efforts not on the prime FTF contract in support of the Missile Defense Agency (MDA)/Targets and Countermeasures (TC) program include modeling and simulation execution and improvements to evolve TC M&amp;S capability;</p>				



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>trajectory analyses; signature analyses and characterization; studies to assess alternative target and platform solutions; assessments of risk and mission assurance; and design approval of government furnished equipment (GFE).</p> <p>BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Compliance of Targets and Countermeasures to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels.</p> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>• Performed prime contractor program management and systems engineering functions including: program management, systems engineering, specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and test</li> <li>• Performed studies and analysis of future Launch Vehicle capabilities including the two stage air Launch Vehicle (LV-2), three stage Launch Vehicle (LV-3) and 52 inch target program.</li> <li>• Completed LV-2 air drop from C-5 feasibility study</li> <li>• Completed the Flexible Target Family Spiral III development and enhancement activities</li> <li>• Completed Air Borne Laser Target Instrumentation and Laser Hit Detection System Study</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>• Perform prime contractor program management and systems engineering functions including: program management, systems engineering, specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and test</li> <li>• Perform studies/analyses of future target Launch Vehicles, launch platforms, Re-entry Vehicles, and associated objects</li> <li>• Continue planning, coordinating, and developing characterization test plans and deliverables for Launch and Re-entry Vehicles</li> <li>• Provide support to ensure that countermeasures are Flexible Target Family compliant</li> <li>• Conduct CAIV Radar Cross Section (RCS) Characterization studies to reduce target costs</li> <li>• Conduct Sea-Launch Long-Range Targets Platform study</li> <li>• Conduct Business Case Analysis for long term target planning and acquisition</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>Conduct Independent Review Assessment (IRT) review of target development programs.</li> <li>Update target modeling and simulation for current threat scenarios and to add capability to model wakes, plumes, chuff, and debris.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Perform prime contractor program management and systems engineering functions including: program management, systems engineering, specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and tests</li> <li>Perform studies/analyses of future target Launch Vehicles, launch platforms, Re-entry Vehicles, and Associated Objects</li> <li>Continue planning, coordinating, and developing characterization test plans and deliverables for Launch and Re-entry Vehicles</li> <li>Provide support to ensure that countermeasures are Flexible Target Family compliant</li> <li>Conduct Independent Review Assessment (IRT) review of target development programs.</li> <li>Conduct risk and mission study assurance assessments</li> <li>Update target modeling and simulation for current threat scenarios; to establish formal validation documentation process and configuration management of all models; to incorporate detailed models for navigation error, thrust vector control errors, and missile bending effects in trajectory tools; and to further develop models for wakes, plumes, chuff, and debris.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Logistics	18,009	23,522	37,854	
RDT&E Articles (Quantity)	0	0	0	
<p>Logistics effort provides Missile Defense Agency (MDA) with inventory storage, aging surveillance, and transportation of Targets and Countermeasures (TC) hardware in support of Ballistic Missile Defense System (BMDS) testing. These efforts are essential in providing a dependable and reliable target system that enables the Missile Defense Agency to build more operational realistic targets to emulate known threats or potential threats. This effort includes integrated logistics support for all TC material including facilities, inventory maintenance; spare parts, aging surveillance, and special testing for Government Furnished Equipment (GFE) target rocket motor propellants and other hazardous material handling.</p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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>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 Materiel Assets (FMA).</p> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>Conducted inventory, storage, maintenance, and aging surveillance program for MDA's rocket motors, ground/launch support equipment and associated hardware to include: 200 plus Minuteman M55, M57 and SR19 motors; 200 plus Trident C-4 motors; 95 Lance Motors; 12 STARS target systems; 8 FMA Motors; 35 Patriot motors; 72 Hawk Orion motors; 70 terrier motors and 6 Oriole motors</li> <li>Provided Government Furnished Equipment (GFE) tracking, administration and property management</li> <li>Coordinated maintenance of existing support equipment and facilities located at Redstone Arsenal, White Sands Missile Range, Kodiak Launch Complex, Courtland and Pacific Missile Range Facility</li> <li>Refurbished, assembled, and delivered target systems for all fiscal year requirements</li> </ul> <p>FY09 Planned Program</p> <ul style="list-style-type: none"> <li>Initiate Forward Exit Ring Crack/static fire analysis to characterize the risk of the forward exit ring crack on C-4 first stage motors.</li> <li>Continue inventory, storage, maintenance, and aging surveillance program for MDA's rocket motors, ground/launch support equipment and associated hardware</li> <li>Continue maintenance of existing support equipment and facilities at Redstone Arsenal, China Lake, Camp Navajo, Eglin AFB, Hawthorne Western Ammunition Depot, White Sands Missile Range, Kodiak Launch Complex, Courtland and Pacific Missile Range Facility</li> <li>Activate support capability at Hill AFB (Oasis), Utah</li> <li>Maintain Single Integration Capability (SIC)</li> <li>Transport assets, hazardous material, and rocket motors</li> <li>Continue Government Furnished Equipment tracking, administration and property management</li> </ul> <p>FY10 Planned Program</p> <ul style="list-style-type: none"> <li>Complete Forward Exit Ring Crack /static fire analysis to characterize the risk of the forward exit ring crack on C-4 first stage motors.</li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
<ul style="list-style-type: none"> <li>• Continue inventory, storage, maintenance, and aging surveillance program for MDA's rocket motors, ground/launch support equipment and associated hardware</li> <li>• Continue maintenance of existing support equipment and facilities at Redstone Arsenal, China Lake, Camp Navajo, Eglin AFB, Hawthorne Western Ammunition Depot, White Sands Missile Range, Kodiak Launch Complex, Courtland and Pacific Missile Range Facility and Hill AFB (Oasis), Utah</li> <li>• Maintain Single Integration Capability (SIC)</li> <li>• Transport assets, hazardous material, and rocket motors</li> <li>• Continue Government Furnished Equipment tracking, administration and property management</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Support Equipment	12,313	13,962	18,646	
RDT&E Articles (Quantity)	0	0	0	
<p>Support equipment effort provides for the development of support equipment for newly developed Launch Vehicles, Re-entry Vehicles and all up integrated target rounds. It also supports launch site activations through the transportation of support equipment to various test sites (e.g. Reagan Test Site and Kodiak Test Site). This effort will address producibility, manufacturing maturity and affordability for support equipment. Finally, it supports development and delivery of air launch support equipment.</p> <p>FY08 Accomplishments:</p> <ul style="list-style-type: none"> <li>• Delivered 4 Common Test Sets</li> <li>• Delivered 1 Common Transporter/Erector System</li> <li>• Delivered 1 Launch Support System</li> <li>• Delivered Variety of Common Support Equipment</li> <li>• Integrated 1 Flight/Ground Software Development Lab</li> <li>• Procured support equipment for target launches from Reagan Test Site (Meck Island)</li> </ul>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
<p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>Provide transportation, sparing, and logistics support of equipment to support mission execution</li> <li>Complete development and delivery of two stage Launch Vehicle (LV-2) Ground Support Equipment (GSE) and spares</li> <li>Transport GSE to Reagan Test Site and complete activation of site for LV-2 operations.</li> <li>Continue development of Kodiak test site support equipment and conduct pathfinder operations. Transport GSE to Kodiak test site.</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>Provide transportation, sparing, and logistics support of equipment to support mission execution</li> <li>Complete activation of Kodiak test site for LV operations.</li> <li>Initiate development of Government Support Equipment (GSE) due to development activities associated with new target systems.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Inventory/Spares	13,034	34,539	59,307	
RDT&E Articles (Quantity)	0	0	0	
<p>Inventory/spares effort provides inventory to support program risk reduction for Ballistic Missile Defense System (BMDS) testing. It includes short, medium, and long range target spares at various levels of build up including full up components (e.g. Re-entry Vehicle) and all up integrated target rounds. This effort addresses producibility, manufacturing maturity and affordability for inventory/spares. This effort enables quicker turn around in the event there is a test target failure and to quickly react to emerging flight test requirements, which will ultimately result in reduced BMDS costs. MDA/TC will utilize a rolling spare concept to ensure inventory is available when required.</p> <p>FY08 Accomplishments:</p>				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>
<ul style="list-style-type: none"> <li>• Initiated procurement of 5 Castor IVB motors for future missions</li> <li>• Procured Communication Security (COMSEC) equipment and encryptors</li> <li>• Initiated Generic Rest of World (GROW) rolling spare</li> </ul> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete procurement of 5 Castor IVB motors for future missions</li> <li>• Procure COMSEC equipment and encryptors</li> <li>• Complete GROW rolling spare</li> <li>• Initiate build of one two-stage Launch Vehicle (LV-2) spare</li> <li>• Complete build of one Aegis Readiness Assessment Vehicle (ARAV-C) spare</li> <li>• Complete build of one Foreign Military Asset (FMA) spare</li> </ul> <p>FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Procure COMSEC equipment and encryptors</li> <li>• Complete build of one Launch Vehicle (LV-2) spare</li> <li>• Initiate build of one Enhanced Long Range Air Launch Target (E-LRALT) spare</li> <li>• Initiate build of one Long Range Air Launch Target (LRALT) spare</li> <li>• Initiate build of one Modified Ballistic Re-entry Vehicle 4 (MBRV-4)</li> <li>• Initiate build of one MBRV-6 spare</li> <li>• Initiate build of ARAV and FMA spares</li> </ul>		

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>R-1 NOMENCLATURE</b>		
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603888C Ballistic Missile Defense Test and Targets</b>		
	FY 2008	FY 2009	FY 2010	FY 2011
Intermediate Range Ballistic Missile (IRBM) Missions	0	0	109,964	
RDT&E Articles (Quantity)	0	0	0	

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Targets and Countermeasures Element Level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP).

Funding for this effort supports Intermediate Range Ballistic Missile (IRBM) tests and the continued development and verification of the Ballistic Missile Defense System (BMDS). Specifically, it provides the Missile Defense Agency with integrated ballistic missile flight test target hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; target range support (telemetry data collection equipment, range safety support equipment and launch control center unique displays); transportation and logistics support; element and range mission coordination; and launch services (includes mission planning, range and element data deliverables, communications security equipment and management).

FY10 Planned Program:

- Complete target hardware build and integration for the following target types:
  - 2 Enhanced Long Range Air Launched Targets (ELRALT)
  - Launch Vehicle-2 (LV-2)
- Conduct mission planning and range coordination activity, execute target mission, and collect and analyze target system data for 3 missions.
- Initiate and/or continue target hardware development, target integration, mission planning, and range coordination for future missions of the following target types:
  - 6 Enhanced Long Range Air Launched Targets (ELRALT)
  - 2 Launch Vehicle-2 (LV-2)

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<b>Missile Defense Agency (MDA) Exhibit R-2A RDT&amp;E Project Justification</b>			Date <b>May 2009</b>	
<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 NOMENCLATURE</b>	
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>			<b>0603888C Ballistic Missile Defense Test and Targets</b>	
<ul style="list-style-type: none"> <li>• Provide Quality Assurance and Mission Assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.</li> </ul>				
	FY 2008	FY 2009	FY 2010	FY 2011
Short Range Ballistic Missile (SRBM) Missions	0	0	77,725	0
RDT&E Articles (Quantity)	0	0	0	0
<p>MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Targets and Countermeasures Element Level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (Jan 09). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP). Funding for this effort supports Short Range Ballistic Missile (SRBM) tests and the continued development and verification of the Ballistic Missile Defense System (BMDS). Specifically, it provides the Missile Defense Agency with integrated ballistic missile flight test target hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; target range support (telemetry data collection equipment, range safety support equipment and launch control center unique displays); transportation and logistics support; element and range mission coordination; and launch services (includes mission planning, range and element data deliverables, communications security equipment and management). FY10 Planned Program:</p> <ul style="list-style-type: none"> <li>• Complete target hardware build and integration for the following target types:                         <ul style="list-style-type: none"> <li>○ 2 Aegis Readiness Assessment Vehicles (ARAV)- Bs (ARAV-B)</li> <li>○ 2 ARAV-Cs</li> <li>○ Foreign Military Asset (FMA)</li> <li>○ 3 Junos</li> <li>○ 3 Lances</li> <li>○ Short Range Air Launched Target (SRALT)</li> <li>○ 2 Medium Range Targets (MRT) (ground-launched)</li> </ul> </li> </ul>				



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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date May 2009
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"> <li>○ MRT (air-launched)</li> <li>• Conduct mission planning and range coordination activity, execute target mission, and collect and analyze target system data for 13 missions (3 dual target launch missions).</li> <li>• Initiate and/or continue target hardware development, target integration, mission planning, and range coordination for future missions of the following target types: <ul style="list-style-type: none"> <li>○ 3 ARAV-As</li> <li>○ 2 ARAV-Bs</li> <li>○ 2 ARAV-Cs</li> <li>○ FMA</li> <li>○ MRT (ground-launched)</li> <li>○ MRT (air-launched)</li> </ul> </li> <li>• Provide Quality Assurance and Mission Assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date <b>May 2009</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	R-1 NOMENCLATURE <b>0603888C Ballistic Missile Defense Test and Targets</b>	
<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Targets and Countermeasures Program develops, procures, and supports short, medium, and long-range capability-based targets with enhanced payloads. The Targets and Countermeasures Program develops recommended target and countermeasures configurations based upon the requirements in the Target Capability Roadmap (TCR). These configurations are approved through the Target Program Baseline (TPB) and articulated in the Integrated Master Test Plan (IMTP). The Targets and Countermeasures Program utilizes multiple contract vehicles and Federally Funded Research and Development Laboratories (FFRDC's), and Other Government Agencies (OGA's) for the acquisition and procurement of targets and target components in support of the Ballistic Missile Defense System (BMDS) testing. This includes the Lockheed Martin Prime Contract for the Flexible Target Family (FTF), Sounding Rocket Program ID/IQ contract; Orbital-Suborbital Program contract; several direct ATK contracts; Physical Science Laboratory (University of New Mexico); Economy Act Orders through National Aeronautical and Space Administration (NASA); Sandia National Labs; Massachusetts Institute of Technology; NAVSEA; and Missile Space Intelligence Center (MSIC); and as well as the Medium Range Target Contract with Orbital Sciences. The IMTP (rev 9.2) provides mission configuration and schedule requirements through 1st Quarter FY10. All currently approved mission requirements in support of the Integrated Master Test Plan (IMTP) have been contracted and will only be adjusted as necessary to support approved baseline changes. Missile Defense Agency/Directorate Engineering (MDA/DE) developed a Target Capability Roadmap (TCR) that identifies overarching mission requirements through the Future Year Defense Plan (FYDP). These requirements will be refined and further detailed in the pertinent mission Target Mission Description Document (TMDD) and the approved Missile Defense Agency/Targets and Countermeasures Target Program Baseline. Missile Defense Agency/Target and Countermeasures will brief a short series of Acquisition Strategy Panels (ASPs) in FY09 to obtain acquisition guidance for those missions detailed in the Target Capability Roadmap with the following goals/objectives:</p> <ul style="list-style-type: none"> <li>• Utilize/Develop a Business Case Analysis to definitive the Targets Program long term Acquisition Strategy</li> <li>• Reduce Costs by maximizing existing inventory and Government Furnished Equipment (GFE), and introducing acquisition stability with the contractors so they can streamline vendor agreements and establish lot procurements or long-term relationships.</li> <li>• Simplify the Government's administrative burden and understanding of the available contract vehicles by limiting the number of contract vehicles.</li> <li>• Improve delivered product quality and capability.</li> </ul>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Program Operations										
Government Personnel and Travel		MDA/ Wash., DC	5,733	10,790	N/A	14,031	4Q	0	4Q	30,554
Personnel Support	C/FFP	Teledyne Solutions/ Huntsville, AL	7,936	16,948	1Q	11,385	4Q	0	4Q	36,269
Personnel Support	C/FFP	Sparta/ Huntsville, AL	5,156	8,185	1Q	9,998	4Q	0	4Q	23,339
Government Support	MIPR	US Army Space and Missile Defense Command/ Redstone Arsenal, AL	8,432	7,336	1Q	6,887	4Q	0	4Q	22,655
Personnel Support	C/FFP	Northrop Grumman/ Albuquerque, NM	2,752	7,214	1Q	6,306	4Q	0	4Q	16,272
Personnel Support	C/FFP	Tecolote/ Huntsville, AL	453	1,278	4Q	1,382	4Q	0	4Q	3,113
Personnel Support	MIPR	US Army Aviation and Missile Command/ Redstone Arsenal, AL	499	1,218	1Q	1,316	4Q	0	4Q	3,033
Government Support	MIPR	AMRDEC/ Huntsville, AL	27	420	1Q	454	4Q	0	4Q	901

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Personnel Support	C/FFP	SRS/ Redstone Arsenal, AL	0	782	1Q	845	4Q	0	4Q	1,627
Personnel Support	C/FFRDC	John Hopkins University Applied Physics Lab/ Baltimore, MD	1,042	295	1Q	319	4Q	0	4Q	1,656
Personnel Support	MIPR	SMC US Air Force Space and Missile Systems Center/ Kirtland AFB, NM	0	630	4Q	681	4Q	0	4Q	1,311
Personnel Support	C/CPFF	Paradigm/ Redstone Arsenal, AL	0	20	1Q	21	4Q	0	4Q	41
Personnel Support	MIPR	AMRDC/ UAH	28	0	4Q	0	4Q	0	4Q	28
Personnel Support	MIPR	USAASC/ Redstone Arsenal Alabama	214	438	4Q	474	4Q	0	N/A	1,126
Personnel Support	MIPR	Patuxie Partnership/ Huntsville, AL	0	336	4Q	291	4Q	0	N/A	627
Launch Vehicle (LV) Development										
Launch Vehicle Development NRE	C/CPAF	Lockheed Martin/ Denver, CO	41,199	47,247	1Q	23,000	4Q	0	4Q	111,446

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Launch Vehicle Development NRE	C/CPAF	Orbital Science/ Chandler, AZ	0	0	1Q	14,282	4Q	0	4Q	14,282
Launch Vehicle Development NRE	MIPR	Sandia National Labs/ /Albuquerque, NM	2,318	4,393	1Q	0	4Q	0	4Q	6,711
Launch Vehicle Development NRE	MIPR	Naval Air Warfare Center Port Hueneme Division / White Sands, NM	1,573	3,269	1Q	0	N/A	0	N/A	4,842
Launch Vehicle Development NRE	MIPR	United States Army Space & Missile Defense Command/ Redstone Arsenal, AL	994	0	N/A	0	N/A	0	N/A	994
Launch Vehicle Development	C/FFP	Coleman/ Aerospace	4,209	202	4Q	0	N/A	0	N/A	4,411
Launch Vehicle Development	C/CPAF	Northrop Grumman/ Albuquerque, NM	382	101	2/4Q	0	N/A	0	N/A	483
Launch Vehicle Development	MIPR	AMC/ White Sands, NM	330	0	N/A	0	N/A	0	N/A	330

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Launch Vehicle Development	MIPR	Naval Air Warfare Center Port Hueneme Division / White Sands, NM	348	0	N/A	0	N/A	0	N/A	348
Re-entry Vehicle (RV) Development										
Re-entry Vehicle Development NRE	C/CPAF	Lockheed Martin/ Denver, CO	5,986	10,621	1Q	36,204	4Q	0	N/A	52,811
Re-entry Each Development NRE	C/FFRDC	Sandia National Labs/ Albuquerque, NM	918	2,024	1Q	2,271	4Q	0	N/A	5,213
Re-entry Vehicle Development NRE	MIPR	United States Army Space & Missile Defense Command/ Redstone Arsenal, AL	0	0	N/A	0	N/A	0	N/A	
Re-entry Vehicle Development NRE	C/CPAF	Naval Air Warfare Center Weapons Division/ Pt. Magu, CA	0	0	N/A	0	N/A	0	N/A	
Re-entry Vehicle Development NRE	MIPR	SMDC/ US Army Space and Missile Defense Command	578	0	N/A	3,102	N/A	0	N/A	3,680

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Re-entry Vehicle Development NRE	Various	Various/ Various	252	0	N/A	0	N/A	0	N/A	252
Associated Objects Development										
Associated Objects	C/FFRDC	Sandia National Labs/ Albuquerque, NM	11,735	6,741	1Q	8,945	4Q	0	N/A	27,421
Associated Objects	C/FFP	Massachusetts Institute of Technology/Linc oln / Lexington, MA	0	1,771	1Q	2,534	4Q	0	N/A	4,305
Associated Objects	MIPR	Military Defense Technologies/ Pt. Mugu, CA	0	759	4Q	0	N/A	0	N/A	759
Associated Objects	MIPR	Sandia National Labs/ Albuquerque, NM	387	506	4Q	1,329	4Q	0	N/A	2,222
Associated Objects	Various	Various/ Various	0	0	4Q	3,877	4Q	0	N/A	3,877
System Engineering/Program Management										
System Engineering/Program Management	C/CPAF	(LMSS) Lockheed Martin Space Systems/ Denver, CO	30,078	30,900	1Q	36,549	4Q	0	N/A	97,527

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
System Engineering/Program Management	C/FFRDC	John Hopkins University Applied Physics Lab/ Baltimore, MD	0	2,167	4Q	2,490	4Q	0	N/A	4,657
System Engineering/Program Management	C/FP	Teledyne Solutions, Inc. / Huntsville, AL	1,029	3,229	4Q	8,834	4Q	0	N/A	13,092
System Engineering/Program Management	C/FFP	COLSA, Inc/ Huntsville, AL	797	1,017	1Q	1,108	4Q	0	N/A	2,922
System Engineering/Program Management	MIPR	Lincoln Labs/ Lexington, MA	234	455	4Q	0	N/A	0	N/A	689
System Engineering/Program Management	MIPR	Air launch LLC/ Kirkland, WA	580	0	4Q	0	N/A	0	N/A	580
System Engineering/Program Management	C/FFP	TSI/Earth-to-Sky/ Huntsville, AL	139	121	4Q	0	N/A	0	N/A	260
System Engineering/Program Management	MIPR	SMDC/ US Army Space and Missile Defense Command	403	0	N/A	0	N/A	0	N/A	403
System Engineering/Program Management	MIPR	NAWC/ Pax River, MD	39	0	N/A	0	N/A	0	N/A	39
System Engineering/Program Management	MIPR	Raytheon Company/ White Sands, NM	0	101	4Q	0	N/A	0	N/A	101
System Engineering/Program Management	MIPR	Military Defense Technology/ Pt. Mugu, CA	0	121	4Q	0	N/A	0	N/A	121

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MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
System Engineering/Program Management	MIPR	Sandia National Labs/ Albuquerque, NM	0	202	N/A	0	N/A	0	N/A	202
System Engineering/Program Management	C/FFP	Boeing/ Huntsville, AL	0	76	N/A	0	N/A	0	N/A	76
System Engineering/Program Management	Various	Various/ Various	0	0	4Q	1,108	4Q	0	N/A	1,108
System Engineering/Program Management	MIPR	MDT/Toyan/SR A/ Various	0	304	3/4Q	0	N/A	0	N/A	304
System Engineering/Program Management	C/Various	Paradigm/ Huntsville, AL	0	234	2/4Q	177	4Q	0	N/A	411
Logistics										
Logistics	C/CPAF	Lockheed Martin/ Courtland, AL	5,700	2,070	4Q	10,410	4Q	0	N/A	18,180
Logistics	MIPR	Redstone Arsenal Garrison/ Huntsville, Al	516	3,911	2Q	4,494	4Q	0	N/A	8,921
Logistics	C/CPFF	Alliant Techsystems/ Magna, UT	1,948	4,489	4Q	7,391	4Q	0	N/A	13,828
Logistics	MIPR	United States Air Force Space & Missile Systems / Kirtland AFB, NM	100	0	4Q	0	4Q	0	N/A	100

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Logistics	MIPR	United States Property & Fiscal Office for Arizona/ Phoenix, AZ	1,292	2,429	4Q	2,749	4Q	0	N/A	6,470
Logistics	MIPR	New Mexico State University Physical Sciences Lab/ Las Cruces, NM	407	658	4Q	756	4Q	0	N/A	1,821
Logistics	MIPR	Naval Air Warfare Center Weapons Division/ China Lake, CA	619	1,431	4Q	1,662	4Q	0	N/A	3,712
Logistics		Defense Finance and Accounting Services/ Indianapolis, In	1,724	392	4Q	392	4Q	0	N/A	2,508
Logistics	MIPR	US Naval Surface Warfare Center/ Crane, In	485	144	1Q	165	4Q	0	N/A	794
Logistics	MIPR	US Army Aviation and Missile Command/ Redstone Arsenal, AL	0	334	4Q	384	4Q	0	N/A	718
Logistics	MIPR	CECOM/ Indian Eglin AFB, FL	42	56	4Q	64	4Q	0	N/A	162

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Logistics	MIPR	DISA/ Scott, AFB	5	7	4Q	8	4Q	0	N/A	20
Logistics	MIPR	Vandenberg/ Vandenberg	116	0	4Q	0	4Q	0	N/A	116
Logistics	MIPR	White Sands Missile Range/ White Sands Missile Range, NM	50	69	4Q	79	4Q	0	N/A	198
Logistics	MIPR	US Army Joint Munitions Command/ Hawthorne Army Depot, NV	22	0	4Q	853	4Q	0	N/A	875
Logistics	MIPR	Naval Surface Warfare Center/ Indian Head, MD	39	76	4Q	87	4Q	0	N/A	202
Logistics	C/CPAF	Lockheed Martin/ Denver, CO	1,037	0	N/A	0	N/A	0	N/A	1,037
Logistics	MIPR	US Army Joint Munitions Command/ Hawthorne Army Depot	25	97	3/4Q	112	N/A	0	N/A	234
Logistics	MIPR	SRCC/ Redstone Arsenal AL	1,000	0	N/A	0	N/A	0	N/A	1,000
Logistics	MIPR	PMRF/ Bark Sands, HI	39	0	N/A	0	N/A	0	N/A	39

Project: YX05 Targets and Countermeasures Core  
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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Logistics	MIPR	Chugach Development Corp. / Anchorage, AK	2	0	N/A	0	N/A	0	N/A	2
Logistics	Various	Various/ Various	0	380	4Q	0	N/A	0	N/A	380
Logistics	MIPR	Sandia National Labs/ Albuquerque, NM	50	3,010	4Q	4,156	N/A	0	N/A	7,216
Logistics	MIPR	SMDC/ Huntsville, AL	36	0	N/A	0	N/A	0	N/A	36
Logistics	MIPR	Aerojet/ Albuquerque, NM	629	810	1Q	930	1/2Q	0	N/A	2,369
Logistics	MIPR	AMC/ White Sands, NM	155	196	1Q	225	2Q	0	N/A	576
Logistics	FFP	NG/ White Sands, NM	0	434	1/2Q	465	1/3Q	0	N/A	899
Logistics	MIPR	Chugach Support Services/ Huntsville, AL	128	202	1Q	0	N/A	0	N/A	330
Logistics	MIPR	Hill Air Force Base/ Hill AFB	36	582	1Q	134	1Q	0	N/A	752
Logistics	MIPR	RTTC/ Redstone Arsenal, AL	0	638	4Q	964	4Q	0	N/A	1,602

Project: YX05 Targets and Countermeasures Core  
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MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Logistics	MIPR	SAIC/ Huntsville, AL	684	207	4Q	110	4Q	0	N/A	1,001
Logistics	MIPR	Camp Navajo/ Bellemont, AZ	31	0	N/A	0	N/A	0	N/A	31
Logistics	MIPR	DESC/ San Antonio, TX	58	159	N/A	415	N/A	0	N/A	632
Logistics	MIPR	Navy-SSP/ Arlington, VA	70	253	4Q	291	N/A	0	N/A	614
Logistics	MIPR	NAWC-Pax/ Pax River, MD	697	0	N/A	0	N/A	0	N/A	697
Logistics	MIPR	OO-ALC/ Hill AFB, UT	152	0	N/A	0	N/A	0	N/A	152
Logistics	MIPR	309th Missile Maintenance Wing/ Hill AFB, UT	0	455	N/A	521	N/A	0	N/A	976
Logistics	MIPR	ADMC/ Anniston, AL	24	33	N/A	37	N/A	0	N/A	94
Logistics	MIPR	AFCESA/ Courtland, AL	85	0	N/A	0	N/A	0	N/A	85
Logistics	MIPR	AST/ Huntsville, Al	5	0	N/A	0	N/A	0	N/A	5
Support Equipment										
Support Equipment	C/CPAF	Lockheed Martin/ Denver, CO	12,206	11,081	1Q	13,052	4Q	0	4Q	36,339
Support Equipment		Defense Finance and Accounting Services/ Indianapolis, IN	0	145	4Q	5,594	4Q	0	N/A	5,739

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MDA Exhibit R-3 (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Support Equipment	Various	Various/ Various	0	0	N/A	0	N/A	0	N/A	
Support Equipment	MIPR	Ronald Reagan Ballistic Missile Defense Test Site/ Kwajalein, Marshall Island	0	0	N/A	0	N/A	0	N/A	
Support Equipment	MIPR	SAIC/ Huntsville, AL	0	2,571	4Q	0	N/A	0	N/A	2,571
Support Equipment	MIPR	Redstone Arsenal Garrison/ Huntsville, AL	0	165	4Q	0	N/A	0	N/A	165
Support Equipment	MIPR	US Naval Surface Warfare Center/ Crane, IN	107	0	N/A	0	N/A	0	N/A	107
Inventory/Spares										
Inventory/Spares	C/CPAF	Lockheed Martin/ Denver, CO	588	19,706	1Q	28,400	4Q	0	N/A	48,694
Inventory/Spares	C/CPAF	Coleman Aerospace/ Orlando, FL	0	0	N/A	24,369	4Q	0	N/A	24,369
Inventory/Spares	MIPR	Naval Air Warfare Center Port Hueneme / White Sands, NM	1,775	4,708	4Q	2,492	4Q	0	N/A	8,975

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Inventory/Spares	C/CPAF	Alliant Techsystems/ Magna, UT	3,294	2,399	4Q	0	N/A	0	N/A	5,693
Inventory/Spares	C/FFRDC	Sandia National Labs/ Albuquerque, NM	4,969	6,073	4Q	0	N/A	0	N/A	11,042
Inventory/Spares	MIPR	National Security Agency/ Albuquerque, NM	69	797	4Q	808	4Q	0	N/A	1,674
Inventory/Spares	MIPR	US Army Aviation and Missile Command/ Redstone Arsenal, AL	0	630	4Q	222	4Q	0	N/A	852
Inventory/Spares	MIPR	Edwards Air Force Base/ Albuquerque, NM	138	0	N/A	0	N/A	0	N/A	138
Inventory/Spares	MIPR	Ogden Air Logistics Center/ Anniston, AL	71	0	N/A	0	N/A	0	N/A	71
Inventory/Spares	MIPR	Hill Air Force Base/ Hill AFB, UT	14	0	N/A	0	N/A	0	N/A	14
Inventory/Spares	Various	Various/ Various	0	130	4Q	2,911	4Q	0	4Q	3,041

Project: YX05 Targets and Countermeasures Core  
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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis							Date May 2009			
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
Inventory/Spares	MIPR	Aerospace/ Albuquerque, NM	2,101	0	N/A	0	N/A	0	N/A	2,101
Inventory/Spares	MIPR	Gray/ Huntsville, AL	0	76	4Q	83	2/4Q	0	N/A	159
Inventory/Spares	MIPR	Interstate Battery System/ Albuquerque, NM	15	20	4Q	22	N/A	0	N/A	57
Intermediate Range Ballistic Missile (IRBM) Missions										
IRBM Missions	MIPR	Sandia National Labs/ Albuquerque, NM	0	0	N/A	13,724	N/A	0	N/A	13,724
IRBM Missions	CPAF	Lockheed Martin/ Denver, Co	0	0	N/A	46,197	N/A	0	N/A	46,197
IRBM Missions	CPAF	Northrop Grumman / Albuquerque, NM	0	0	N/A	908	N/A	0	N/A	908
IRBM Missions	MIPR	Coleman Aerospace/ Orlando, FL	0	0	N/A	32,422	N/A	0	N/A	32,422
IRBM Missions		Defense Finance & Accounting Service/ Indianapolis, IN	0	0	N/A	5,674	N/A	0	N/A	5,674

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
IRBM Missions	MIPR	Pacific Missile Range Facility/ White Sands, NM	0	0	N/A	2,947	N/A	0	N/A	2,947
IRBM Missions	MIPR	Redstone Arsenal Garrison/ Barking Sands, HI	0	0	N/A	57	N/A	0	N/A	57
IRBM Missions	FFP	Teledyne Solutions/ Huntsville, AL	0	0	N/A	1,552	N/A	0	N/A	1,552
IRBM Missions	MIPR	MDIOC/ Schriever AF Base, CO	0	0	N/A	359	N/A	0	N/A	359
IRBM Missions	MIPR	NSWC-CD/ Crane, In	0	0	N/A	113	N/A	0	N/A	113
IRBM Missions	MIPR	Aerospace Corporation/ Los Angeles, CA	0	0	N/A	343	N/A	0	N/A	343
IRBM Missions	MIPR	NAWC-WD/ China Lake, CA	0	0	N/A	106	N/A	0	N/A	106
IRBM Missions	MIPR	Alaska Aerospace/ Kodiak Island, AK	0	0	N/A	2,180	N/A	0	N/A	2,180
IRBM Missions	MIPR	Defense Information Systems Agency (DISA)/ Scott AFB, IL	0	0	N/A	436	N/A	0	N/A	436

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
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 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
IRBM Missions	MIPR	Missile Defense Data Center (MDDC)/ Albuquerque, NM	0	0	N/A	15	N/A	0	N/A	15
IRBM Missions	MIPR	Regan Test Site (RTS)/ Kwajalein, Marshall Islands	0	0	N/A	607	N/A	0	N/A	607
IRBM Missions	MIPR	AMC USAF/ Scott AFB, IL	0	0	N/A	2,007	N/A	0	N/A	2,007
IRBM Missions	MIPR	McCormick Selph Inc. (MSI)/ Hollister, CA	0	0	N/A	317	N/A	0	N/A	317
Short Range Ballistic Missile (SRBM) Missions										
SRBM Missions	MIPR	Sandia National Labs/ Albuquerque, NM	0	0	4Q	17,070	N/A	0	N/A	17,070
SRBM Missions	C/CPAF	Lockheed Martin/ Denver, Co	0	0	4Q	11,061	N/A	0	N/A	11,061
SRBM Missions	C/CPAF	Northrop Grumman / Albuquerque, NM	0	0	3Q	1,177	N/A	0	N/A	1,177
SRBM Missions	C/CPAF	Coleman Aerospace/ Orlando, FL	0	0	4Q	552	N/A	0	N/A	552

Project: YX05 Targets and Countermeasures Core  
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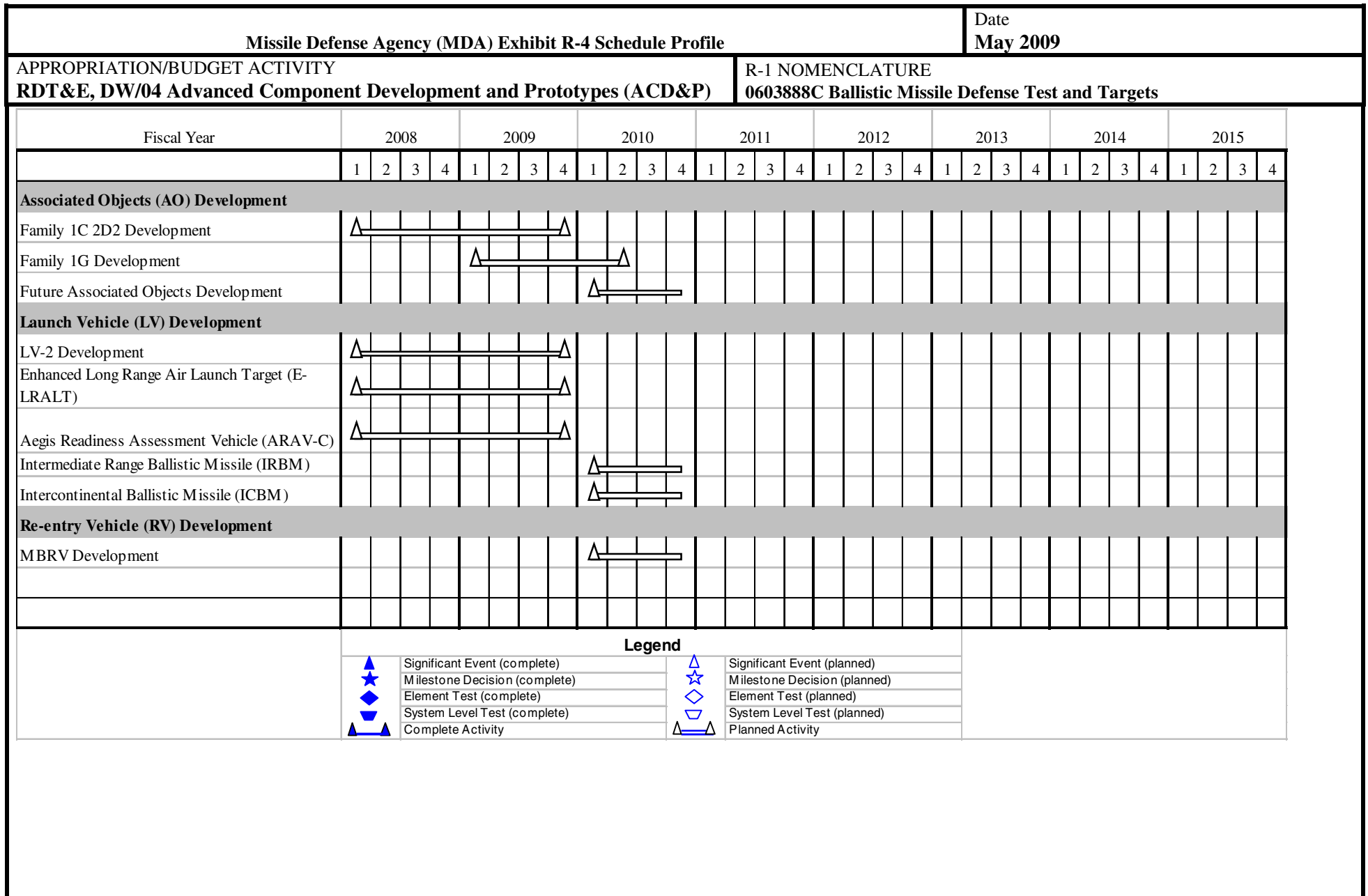
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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis								Date May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603888C Ballistic Missile Defense Test and Targets					
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost
SRBM Missions		DFAS/ Indianapolis, IN	0	0	4Q	3,952	N/A	0	N/A	3,952
SRBM Missions	MIPR	NSWC-PHD/ White Sands, NM	0	0	4Q	11,319	N/A	0	N/A	11,319
SRBM Missions	MIPR	PMRF/ Barking Sands, HI	0	0	4Q	4,172	N/A	0	N/A	4,172
SRBM Missions	FFP	Teledyne Solutions/ Huntsville, AL	0	0	4Q	468	N/A	0	N/A	468
SRBM Missions	MIPR	MDIOC/ Schriever AF Base, CO	0	0	4Q	51	N/A	0	N/A	51
SRBM Missions	Various	Various/ Various	0	0	4Q	656	N/A	0	N/A	656
SRBM Missions	MIPR	Orbital Science/ Chandler, AZ	0	0	4Q	16,535	N/A	0	N/A	16,535
SRBM Missions	FFP	Alliant Tech/ Magna, UT	0	0	4Q	3,671	N/A	0	N/A	3,671
SRBM Missions	MIPR	NAWC-WD/ China Lake, Ca	0	0	4Q	132	N/A	0	N/A	132
SRBM Missions	MIPR	NAWC-Pax/ Pax River, MD	0	0	4Q	4,955	N/A	0	N/A	4,955
SRBM Missions	MIPR	AMC USAF/ Scott AFB, IL.	0	0	3/4Q	1,954	N/A	0	N/A	1,954
Subtotal Product Development			180,135	244,474		503,696		0		928,305
Remarks										

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<b>Missile Defense Agency (MDA) Exhibit R-3 RDT&amp;E Project Cost Analysis</b>								Date <b>May 2009</b>																								
<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 NOMENCLATURE</b>																											
<b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603888C Ballistic Missile Defense Test and Targets</b>																											
<b>II. Support Costs Cost ( \$ in Thousands )</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 15%;">Cost Categories:</th> <th style="width: 10%;">Contract Method &amp; Type</th> <th style="width: 15%;">Performing Activity &amp; Location</th> <th style="width: 10%;">Total PYs Cost</th> <th style="width: 10%;">FY 2009 Cost</th> <th style="width: 10%;">FY 2009 Award/ Oblg Date</th> <th style="width: 10%;">FY 2010 Cost</th> <th style="width: 10%;">FY 2010 Award/ Oblg Date</th> <th style="width: 10%;">FY 2011 Cost</th> <th style="width: 10%;">FY 2011 Award/ Oblg Date</th> <th style="width: 10%;">Total Cost</th> </tr> <tr> <td>Subtotal Support Costs</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost	Subtotal Support Costs										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost																						
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<b>Remarks</b>																																
<b>III. Test and Evaluation Cost ( \$ in Thousands )</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 15%;">Cost Categories:</th> <th style="width: 10%;">Contract Method &amp; Type</th> <th style="width: 15%;">Performing Activity &amp; Location</th> <th style="width: 10%;">Total PYs Cost</th> <th style="width: 10%;">FY 2009 Cost</th> <th style="width: 10%;">FY 2009 Award/ Oblg Date</th> <th style="width: 10%;">FY 2010 Cost</th> <th style="width: 10%;">FY 2010 Award/ Oblg Date</th> <th style="width: 10%;">FY 2011 Cost</th> <th style="width: 10%;">FY 2011 Award/ Oblg Date</th> <th style="width: 10%;">Total Cost</th> </tr> <tr> <td>Subtotal Test and Evaluation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost	Subtotal Test and Evaluation										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost																						
Subtotal Test and Evaluation																																
<b>Remarks</b>																																
<b>IV. Management Services Cost ( \$ in Thousands )</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 15%;">Cost Categories:</th> <th style="width: 10%;">Contract Method &amp; Type</th> <th style="width: 15%;">Performing Activity &amp; Location</th> <th style="width: 10%;">Total PYs Cost</th> <th style="width: 10%;">FY 2009 Cost</th> <th style="width: 10%;">FY 2009 Award/ Oblg Date</th> <th style="width: 10%;">FY 2010 Cost</th> <th style="width: 10%;">FY 2010 Award/ Oblg Date</th> <th style="width: 10%;">FY 2011 Cost</th> <th style="width: 10%;">FY 2011 Award/ Oblg Date</th> <th style="width: 10%;">Total Cost</th> </tr> <tr> <td>Subtotal Management Services</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost	Subtotal Management Services										
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award/ Oblg Date	FY 2010 Cost	FY 2010 Award/ Oblg Date	FY 2011 Cost	FY 2011 Award/ Oblg Date	Total Cost																						
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Project Total Cost			180,135	244,474		503,696		0		928,305																						
<b>Remarks</b>																																

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail					Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Associated Objects (AO) Development								
Family 1C 2D2 Development	1Q-4Q	1Q-4Q						
Family 1G Development		1Q-4Q	1Q-2Q					
Future Associated Objects Development			1Q-4Q					
Launch Vehicle (LV) Development								
LV-2 Development	1Q-4Q	1Q-4Q						
Enhanced Long Range Air Launch Target (E-LRALT)	1Q-4Q	1Q-4Q						
Aegis Readiness Assessment Vehicle (ARAV-C)	1Q-4Q	1Q-4Q						
Intermediate Range Ballistic Missile (IRBM)			1Q-4Q					
Intercontinental Ballistic Missile (ICBM)			1Q-4Q					
Re-entry Vehicle (RV) Development								
MBRV Development			1Q-4Q					

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<b>Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail</b>						Date <b>May 2009</b>																	
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDT&amp;E, DW/04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>R-1 NOMENCLATURE</b> <b>0603888C Ballistic Missile Defense Test and Targets</b>																			
COST (\$ in Thousands)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015															
ZX40 Program-Wide Support	9,476	19,181	22,741																				
RDT&E Articles Qty	0	0	0																				
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included 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 fluctuations on a limited number of foreign contracts.</p> <p><b><u>B. Accomplishments/Planned Program</u></b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 2008</td> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">FY 2010</td> <td style="text-align: center;">FY 2011</td> </tr> <tr> <td>Civilian Salaries and Support</td> <td style="text-align: center;">9,476</td> <td style="text-align: center;">19,181</td> <td style="text-align: center;">22,741</td> <td></td> </tr> <tr> <td>RDT&amp;E Articles (Quantity)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </table> <p>See Section A: Mission Description and Budget Item Justification</p>										FY 2008	FY 2009	FY 2010	FY 2011	Civilian Salaries and Support	9,476	19,181	22,741		RDT&E Articles (Quantity)	0	0	0	
	FY 2008	FY 2009	FY 2010	FY 2011																			
Civilian Salaries and Support	9,476	19,181	22,741																				
RDT&E Articles (Quantity)	0	0	0																				



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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date May 2009			
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 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total Cost
PE 0603175C Ballistic Missile Defense Technology	106,437	119,308	109,760						
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,034,478	956,686	719,465						
PE 0603882C Ballistic Missile Defense Midcourse Defense Segme	2,198,664	1,507,481	982,922						
PE 0603883C Ballistic Missile Defense Boost Defense Segment	503,475	400,751	186,697						
PE 0603884C Ballistic Missile Defense Sensors	574,231	777,693	636,856						
PE 0603886C Ballistic Missile Defense System Interceptors	330,874	385,493	0						
PE 0603890C Ballistic Missile Defense Enabling Programs	416,937	402,778	369,145						
PE 0603891C Special Programs - MDA	193,157	175,712	301,566						
PE 0603892C Ballistic Missile Defense Aegis	1,126,337	1,113,655	1,690,758						
PE 0603893C Space Tracking & Surveillance System	226,499	208,923	180,000						
PE 0603894C Multiple Kill Vehicle	223,084	283,481	0						
PE 0603895C BMD System Space Program	16,237	24,686	12,549						
PE 0603896C BMD C2BMC	439,997	288,287	340,014						
PE 0603897C BMD Hercules	51,387	55,764	48,186						
PE 0603898C BMD Joint Warfighter Support	45,400	69,743	60,921						
PE 0603904C Missile Defense Integration & Operations Center (MDIOC)	77,102	106,040	86,949						
PE 0603906C Regarding Trench	1,945	2,968	6,164						
PE 0603907C Sea Based X-Band Radar (SBX)	155,244	146,895	174,576						
PE 0603908C BMD Europ Intercep Site	0	362,007	0						
PE 0603909C BMD Europ Midcourse Radar	0	73,261	0						
PE 0603911C BMD European Capability	0	0	50,504						
PE 0603912C BMD European Comm Support	0	27,008	0						
PE 0603913C Israeli Cooperative	0	0	119,634						
PE 0605502C Small Business Innovative Research BMDO	137,409	0	0						
Note: The Ballistic Missile Defense System (BMDS) is an integrated, interoperable, global defense system. The programs which comprise the BMDS are interdependent.									

Project: ZX40 Program-Wide Support

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MDA Exhibit R-2A (PE 0603888C)

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail		Date May 2009
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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