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

APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603905C BMD Concurrent Test and Operations**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	21,870	0	0	0	0	0	0
0817 Concurrent Test, Training & Ops (CTTO) Block 2006	21,151	0	0	0	0	0	0
0602 Program-Wide Support	719	0	0	0	0	0	0

Note: Starting in FY08, funding for all content in budget project 0817 is included within budget project XX04 in the Test and Targets PE, 0603888C.

A. Mission Description and Budget Item Justification

A.1 System Element Description
The Ballistic Missile Defense System (BMDS) Concurrent Test, Training and Operations (CTTO) capability is critical to the defense of homeland and friendly forces in the face of emerging BMDS threats from unfriendly forces. CTTO provides comprehensive, in-place, geographically dispersed upgrades, testing, training, and sustainment while maintaining operational readiness across the complete Ballistic Missile Defense System (BMDS) 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).

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

A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)
Concurrent Test, Training, and Operations (CTTO) Contribution to the BMDS:
- Enables BMDS sustained operational capability and continued BMDS incremental and spiral development while providing Warfighters the ability to maintain an operational capability, participate in exercises, train, and mission rehearse.
- Provides comprehensive, in-place, geographically dispersed test, evaluation and training of the complete BMDS.
- Eliminates current need to co-locate forces at a central training facility, thus providing both cost savings for the exercise conduct and the added advantage of training operators in an operational state.
- Ensures horizontal and vertical test and evaluation scalability from Element through Global BMDS.

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- Safely injects consistent high fidelity threat and scenario data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations.
- Strategic end-state: BMDS available on-demand for test and evaluation, training, and operations that is transparent to real world operations.

A.3 Major System Element Goals

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

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

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603905C BMD Concurrent Test and Operations**

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008 PB)	23,159	0	0
Current President's Budget (FY 2009 PB)	21,870	0	0
Total Adjustments	-1,289	0	0
Congressional Specific Program Adjustments	0	0	0
Congressional Undistributed Adjustments	0	0	0
Reprogrammings	-937	0	0
SBIR/STTR Transfer	-352	0	0
Adjustments to Budget Years	0	0	0

FY07 decrease of $1.289 million includes SBIR/STTR transfers and MDA reprogrammings.

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603905C BMD Concurrent Test and Operations**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0817 Concurrent Test, Training & Ops (CTTO) Block 2006	21,151	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Starting in FY08, funding for all content in budget project 0817 is included within budget project XX04 in the Test and Targets PE, 0603888C.

A. Mission Description and Budget Item Justification

Addressing the Unified Combatant Commanders high priority requirement to conduct distributed, high fidelity, end-to-end training for missile defense operations and enabling the training portion of CTTO is the Distributed Multi-Echelon Training System (DMETS). DMETS consists of live, virtual and constructive training environments for proficiency training, operator certification, exercises, and Tactics, Techniques and Procedures (TTPs) development, mission rehearsal, review, testing and revision. DMETS will create an exercise like environment for units to gain training task coverage and achieve other learning objectives by presenting standardized, technically accurate threat scenarios and other problems, faults, and situations that elicit the performance of individual and collective tasks. The exercise environment supports training of the BMDS layered defense with critical cross mission interaction. DMETS modernizes the approach to plan, conduct and evaluate training, thus enabling rapid response to the Unified Combatant Commanders training requirements. As MDA continues to develop the BMDS to defend the United States, deployed forces, friends and allies, the spiral development of DMETS will keep pace in meeting the continuing need to effectively train the crews, elements, staffs and commanders who execute the evolving BMDS mission.

The functions of DMETS:
- Increase confidence in the BMDS through rigorous concurrent training.
- Enable BMDS training in the field without degrading protection capability.
- Support the development and evaluation of BMDS Tactics, Techniques, and Procedures.
- Validate and practice Unified Combatant Commanders BMDS Tactics, Techniques and Procedures.
- Provide a means for individuals, elements, and the Unified Combatant Commanders to train, maintain proficiency, collaborate, and exercise from operational environment.
- Aid in AEGIS Ballistic Missile Defense, Terminal High Altitude Air Defense, Ground-based Midcourse Defense, Sensors, and Fire Control standardization evaluation and certification for all BMDS personnel and ensures all crews are highly qualified to perform their mission-specific tasks by conducting exercises and wargames executed from actual equipment and networked configurations.

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603905C BMD Concurrent Test and Operations**

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
DMETS	21,151	0	0
RDT&E Articles (Quantity)	0	0	0

DMETS will specifically address the high priority Unified Combatant Commanders requirement to conduct distributed, high fidelity, and end-to-end training for missile defense operations that incorporates missile warning activity in any or all of the BMDS elements. The system will allow for scalable testing of the BMDS over the operational architecture as well as allow operators to train where they fight using a parallel architecture either physically separated or logically separated from the operational one; training will be scalable as well; from individual BMD assets to regional BMDS capabilities to the full BMDS global community; safely separate training venues from real-world activities; and inject high-fidelity simulations to run realistic scenarios on operational equipment and networks.

FY07 Accomplishments:
- Created 58 Unified Combatant Command approved training scenarios and provided 497 training sessions for 9 Unified Combatant Command organizations - a 350% increase from 2006.
- Expanded Integrated Training Audience - Integrated AEGIS school house training, AN/TPY-2 training at U.S. Pacific Command - 94th Army Air and Missile Defense Command, and added full function C, Control, Battle Management and Communications (C2BMC) integrated training at: U.S. Pacific Command Air Operations Center, and Headquarters, U.S. Strategic Command.
- Expanded Training Availability to 50 hours per week.
- Supported high visibility training sessions to Secretary of Defense and Commanders, U.S. Strategic Command and Pacific Command.
- Expanded training to support weekend training.
- Deployed Run Time Infrastructure function that decreased time between configurations by 75%.
- Deployed Second C2BMC server that provides increased training availability and training on next BMDS version.
- Established Initial DMETS Local Area Network at the Missile Defense Operations and Integration Center to improve operability and reliability.

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603905C BMD Concurrent Test and Operations**

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

Project: 0817 Concurrent Test, Training & Ops (CTTO) Block 2006

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603905C BMD Concurrent Test and Operations**

D. Acquisition Strategy

DMETS systems design and acquisition will follow the MDA's capability-based acquisition strategy that emphasizes assessment, phased-development, testing and evolutionary acquisition through the definition of distinct phases and two-year capability blocks. The design and development of the DMETS 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 DMETS Project Office, determined DMETS 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 Element contracts. As part of the CTTO flag/general officer steering group, the DMETS task force will be comprised of government representative from the MDA Elements and Joint Functional Component Command for Integrated Missile Defense; defense industry partners; and Systems Engineering and Technical Assistance defense contractor(s). The intent is to develop a fully capable DMETS that provides comprehensive, in-place, geographically dispersed test, training and evaluation of the complete BMDS. The BMDS CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.

Project: 0817 Concurrent Test, Training & Ops (CTTO) Block 2006

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603905C BMD Concurrent Test and Operations**

COST ($ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	719	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Efforts within this project continue in FY 2008 under project ZX40

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	719	0	0
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

Project: 0602 Program-Wide Support

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C. Other Program Funding Summary

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PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

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