Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	96.300	-	96.300	109.674	117.106	208.531	198.363	Continuing	Continuing
MD98: *Directed Energy Prototype Development*	-	-	-	19.870	-	19.870	23.919	52.470	82.723	77.671	Continuing	Continuing
MD99: *Discrimination Sensor Prototype Development*	-	-	-	43.810	-	43.810	61.153	26.933	114.379	109.767	Continuing	Continuing
MT99: *Technology Maturation Initiatives Test*	-	-	-	28.219	-	28.219	19.248	31.447	0.144	-	-	79.058
MC98: *Cyber Operations*	-	-	-	0.166	-	0.166	0.169	0.259	0.176	0.179	Continuing	Continuing
MD40: *Program Wide Support*	-	-	-	4.235	-	4.235	5.185	5.997	11.109	10.746	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

The Technology Maturation Initiatives program element is new in FY 2016. The FY 2016 increase of $96.300 million reflects:
- An increase of $56.802 million for advanced component development & prototype efforts in discrimination and directed energy to address an emerging threat
- A transfer of $35.263 million in funding and content which has progressed past the advanced research level for an advanced component and development prototype program from the following:
--$31.078 million from the Discrimination Sensor Technology program element, 0603177C
--$4.185 million from Weapons Technology program element, 0603178C
- A transfer of $4.235 million from multiple Missile Defense Agency (MDA) program elements to MD40 Program Wide Support

A. Mission Description and Budget Item Justification

Technology Maturation Initiatives builds off of the technology successfully tested under the Weapons Technology Program Element (0603178C) and Discrimination Sensor Technology Program Element (0603177C). This program element combines individual technology breakthroughs and develops and demonstrates prototype advanced components and systems to address complex discrimination and tracking challenges for the Ballistic Missile Defense System (BMDS) in support of the Strategic Command's Prioritized Capabilities List, and addresses evolving threats to the homeland from the Pacific theatre.

The MDA will develop two prototype platforms, one near-term sensor platform and one mid-term directed energy platform for precision track.

The Discrimination Sensor Prototype Development project incrementally develops, integrates and tests next-generation sensors and detectors on Unmanned Aerial Vehicles (UAVs) to demonstrate airborne Launch-on-Remote, Engage-on-Remote, discrimination and handover improvements for missile defense. These advanced

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*

sensors improve the probability of engagement success for stressing threats, expand the Ballistic Missile Defense battle space and increase the ability to negate larger raid sizes. The Discrimination Sensor prototype significantly enhances the following BMDS priorities:

- Discriminating lethal objects from countermeasures
- End-to-end correlation of sensor track and discrimination data
- Timely and accurate kill assessment
- Precisely tracking boosting missiles from launch detection through destruction
- Providing track information to the shooter with sufficient quality to enable launch-on-remote/engage-on-remote

The Directed Energy Prototype Development project develops, integrates and tests low power laser systems on an UAV. This low power laser prototype test platform addresses a broad spectrum of directed energy mission applications while developing a missile defense concept of operations doctrine for incorporating lasers into the BMDS. The Agency will begin design of an UAV-borne laser flight demonstrator selected from the five Industry concepts competitively awarded in FY 2015 under the Weapons Technology program element. The Agency is addressing the next step in laser power and aperture size by integrating and testing a low power laser, nominally 10 kilowatts, on an UAV to fully explore the directed energy multi-mission platform construct and develop a sound directed energy concept of operations.

The Technology Maturation Initiatives Test project captures the cost to test the prototype systems developed under the Directed Energy Prototype Development project and the Discrimination Sensor Prototype Development project under realistic conditions in conjunction with on-going Ballistic Missile Defense System (BMDS) testing and through dedicated live fire tests to inform continued prototype testing, full development and limited fielding decisions.

The Cyber Operations project sustains the Missile Defense Agency Department of Defense Information Assurance Certification and Accreditation Program and Controls Validation Testing activities for Technology Maturation Initiatives.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604115C *I Technology Maturation Initiatives*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	96.300	-	96.300
Total Adjustments	-	-	96.300	-	96.300
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment	-	-	96.300	-	96.300

Change Summary Explanation

The FY 2016 increase of $96.300 million reflects:

- An increase of $56.802 million for advanced component development & prototype efforts in discrimination and directed energy to address an emerging threat
- A transfer of $35.263 million in funding and content which has progressed past the advanced research level for an advanced component and development prototype program from the following:
--$31.078 million from the Discrimination Sensor Technology program element, 0603177C
--$4.185 million from Weapons Technology program element, 0603178C
- A transfer of $4.235 million from multiple Missile Defense Agency (MDA) program elements to MD40 Program Wide Support

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD98 / *Directed Energy Prototype Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD98: *Directed Energy Prototype Development*	-	-	-	19.870	-	19.870	23.919	52.470	82.723	77.671	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $4.185 million transferred from the Weapons Technology Program Element (PE), 0603178C and $15.685 million was added for advanced component development & prototype efforts in directed energy to address an emerging threat. The increase will fund contract award(s) and complete trade studies for a low power laser demonstrator for missile defense. The low power directed energy concepts developed in the Weapons Technology PE and by Industry are technically mature enough to develop a prototype system.

A. Mission Description and Budget Item Justification

The Directed Energy Prototype Development project develops, integrates and tests the technologies required to demonstrate the complete acquisition, tracking and lethality engagement sequence of a high energy laser system for boost-phase missile defense. The low power laser demonstrator combines tracking technology developed under the Discriminating Sensor Technology Program Element (PE) with laser technology developed under the Weapons Technology program element with industry concepts for a cost-effective demonstrator. The low power laser demonstrator integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into a high altitude, long endurance unmanned aerial vehicle (UAV) for boost phase ballistic missile defense applications. The MDA will test the low power laser platform under realistic conditions in conjunction with on-going Ballistic Missile Defense System (BMDS) tests. The MDA will use a low power surrogate high energy laser (HEL) to verify pointing and stability accuracy and develop a laser concept of operations under realistic BMDS scenarios. The Directed Energy Prototype Development project provides the necessary technology, test data, and operations familiarity to successfully transition to a high power directed energy weapon capable of destroying a boosting missile before it can deploy countermeasures.

In FY 2016, the Agency is funding the design of an UAV-borne low power laser demonstrator selected from the five Industry defined concepts competitively awarded in FY 2015 under the Weapons Technology PE (0603178C). The $19.870 million request funds systems engineering, component trade studies and aircraft modifications required for a low power laser demonstrator Preliminary Design Review in FY 2016, leading to a Critical Design Review in FY 2017 and eventually a BMDS flight test in FY 2020.

The technology, individually and jointly developed and tested by the MDA, the Air Force and the Defense Advanced Research Projects Agency under the Weapons Technology PE, underpins multiple low power laser demonstrator Industry concepts. This low power laser demonstrator provides additional collaborative development and test opportunities to investigate laser beam pointing, stability and jitter effects under various altitude and flight conditions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Directed Energy Prototype Development	-	-	19.870
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Description: N/A ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** In FY 2016, $4.185 million transferred from the Weapons Technology Program Element (PE), 0603178C and $15.685 million was added for advanced component development & prototype efforts in directed energy to address an emerging threat. The increase will fund contract award(s) and complete trade studies for a low power laser demonstrator for missile defense. The low power directed energy concepts developed in the Weapons Technology PE and by Industry are technically mature enough to develop a prototype system. Conduct the systems engineering and preliminary design necessary to define a low power laser demonstrator that integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into a high altitude, long endurance Unmanned Aerial Vehicle (UAV) for missile defense. - Analyze and evaluate Industry concepts for integrating and testing a multi-kilowatt class laser into an UAV for missile defense applications -- Determine the best laser/aircraft combination to cost effectively address the directed energy missile defense mission space -- Select the best Industry concept and award a four year contract to build and test a low power laser demonstrator - Perform the directed energy requirements flow down and engineering analysis for a low power laser demonstrator - Define a preliminary directed energy concept of operations for laser equipped UAV participation in Ballistic Missile Defense System tests - Conduct Preliminary Design Review (PDR) for the low power laser demonstrator			
Accomplishments/Planned Programs Subtotals	-	-	19.870

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Directed Energy Prototype Development consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) to develop and demonstrate a low power laser demonstrator system in realistic test environments. The Missile Defense Agency will leverage Agency and partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. Directed Energy Prototype Development shapes future BMDS acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the prototype systems to the Ballistic Missile Defense System architecture.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Low Power Laser Demonstrator	C/TBD	TBD : TBD	0.000	-		-		17.770		-		17.770	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		17.770		-		17.770	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Agency Operations – Civilian Salaries and Travel	Allot	MDA Multi : AL, NM	0.000	-		-		1.020	Oct 2015	-		1.020	Continuing	Continuing	Continuing
Directed Energy Prototype Development - Low Power Laser Demonstrator – Advisory and Assistance Services	C/CPFF	Various : NM, AL	0.000	-		-		1.080	Oct 2015	-		1.080	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		2.100		-		2.100	-	-	-

Remarks

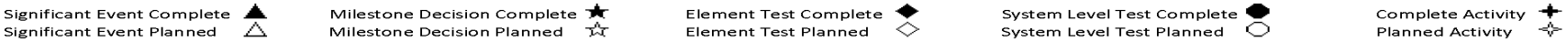
N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		19.870		-		19.870	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*



	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Low Power Laser Demonstrator (LPLD) Contract Award										△																		
LPLD Preliminary Design Review (PDR)												△																
LPLD Critical Design Review (CDR)															△													
LPLD Integration Complete																				△								
LPLD Hardware in the Loop Test Complete																								△				
LPLD CONUS Flight Test																									⬭			
LPLD Capability Demonstrations - 1																											◇	
LPLD Capability Demonstrations - 2																												◇

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Low Power Laser Demonstrator (LPLD) Contract Award	2	2016	2	2016
LPLD Preliminary Design Review (PDR)	4	2016	4	2016
LPLD Critical Design Review (CDR)	3	2017	3	2017
LPLD Integration Complete	4	2018	4	2018
LPLD Hardware in the Loop Test Complete	4	2019	4	2019
LPLD CONUS Flight Test	1	2020	1	2020
LPLD Capability Demonstrations - 1	3	2020	3	2020
LPLD Capability Demonstrations - 2	4	2020	4	2020

Note

LPLD -- Low Power Laser Demonstrator

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD99 / *Discrimination Sensor Prototype Development*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD99: *Discrimination Sensor Prototype Development*	-	-	-	43.810	-	43.810	61.153	26.933	114.379	109.767	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $2.859 million was transferred from program element (PE) 0603177C, Discrimination Sensor Technology, and $40.951 million was added for prototype development of discrimination sensors. The technology developed in the Discrimination Sensors Technology PE is technically mature enough to develop prototype systems. This activity was previously planned in the Discrimination Sensor Technology PE (0603177C).

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) Discrimination Sensor Prototype Development (DSPD) project builds off of the technology developed and demonstrated in the Discrimination Sensor Technology (DST) PE (0603177C). Areas of concentration include advanced detectors, infrared sensors, and algorithms for ground, sea, air and space systems. The DSPD project pursues a cost-effective incremental upgrade philosophy that demonstrates precision track at extended ranges, simple scene discrimination and then complex scene discrimination. This project develops a compact high-precision advanced sensor to improve identifying, acquiring, tracking and discriminating incoming Ballistic Missile threats, specifically addressing U.S. Strategic Command's Prioritized Capabilities List requirements. DSPD enhances the Ballistic Missile Defense System (BMDS) capability to discriminate lethal objects in a threat cluster, and track and handover the threat object with engage on remote precision. In FY 2016, the DST PE (0603177C) funds the demonstration of Aegis Launch-on-Remote (LoR) real time stereo tracking with Multi-Spectral Targeting System Cs (MTS-Cs). Aegis LoR is the capability that allows Aegis Ballistic Missile Defense (BMD) to launch an interceptor before its own radar acquires the threat. Aegis BMD LoR involves Command, Control, Battle Management and Communications (C2BMC) providing information about the paths (called tracks) of ballistic missile threats, to Aegis BMD from forward based radars. It expands the space where the system can intercept the threat and the defended area. The DSPD project uses the results from the DST test and takes the next step to prove Aegis Engage-on-Remote (EoR) capability. EoR engagement allows the use of active and passive off board sensor information to launch and guide the Standard Missile - 3 (SM-3) Block IIA missile to final intercept. The increased kinematic envelope of the SM-3 Block IIA when combined with EoR will expand the battlespace and increase the number of threats engaged over previous baselines.

The MDA collaborates with the Office of the Assistant Secretary of Defense for Research and Engineering, the United States Navy and the United States Air Force in a systems engineering based strategy to develop, test and evaluate DSPD.

In FY 2016, the MDA will begin development of a next-generation ruggedized airborne processor and a next-generation advanced sensor. These next-generation prototypes operate at the strategic ranges required to augment BMDS radar, improve the BMDS discrimination capability and provide precision track of large raids. These advanced sensor systems have the capacity to track multiple targets simultaneously, substantially reducing the number of sensor assets required for large raids. This project funds the development and integration of both a mid-range advanced sensor and a long range advanced sensor that functions at operationally representative ranges. The advanced sensors will be integrated onto Unmanned Aerial Vehicles (UAVs) and tested in an operationally relevant environment. These incremental demonstrations are planned in 4Q FY 2016 for the mid-range advanced sensor and 1Q FY 2018 for the long-range advanced sensor.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

The MDA will also partner with the National Laboratories, Industry and the Services to develop concepts for the cost effective integration of the sensor technology successfully demonstrated under the DST PE into limited fielding upgrade kits. The concept information will inform further development and/or limited fielding decisions for the MDA.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Discrimination Sensor Prototype Development	-	-	43.810
Articles:	-	-	-

Description: The Discrimination Sensor Prototype Development project incrementally develops and tests two airborne advanced sensor prototypes. The initial advanced sensor prototype will characterize performance and the second prototype is an upgraded advanced sensor for participation in Ballistic Missile Defense System (BMDS) tests under operationally relevant conditions and at operationally relevant ranges. The sensors upgrade the proven Multi-Spectral Targeting System (MTS) / MQ-9 Reaper combination demonstrated under the Discrimination Sensor Technology Program Element to perform tracking and discrimination of lethal objects.

FY 2014 Accomplishments:
N/A

FY 2015 Plans:
N/A

FY 2016 Plans:
In FY 2016, $2.859 million was transferred from program element (PE) 0603177C, Discrimination Sensor Technology, and $40.951 million was added for prototype development of discrimination sensors. The technology developed in the Discrimination Sensors Technology PE is technically mature enough to develop prototype systems. This activity was previously planned in the Discrimination Sensor Technology PE (0603177C).

- Develop and test an initial advanced sensor, MTS-C and MQ-9 Reaper prototype system:
-- Complete integration and component test of an advanced sensor
-- Perform system integration laboratory testing to verify subsystem performance
-- Conduct ground demonstrations against resident space objects and target of opportunity to verify system performance
-- Conduct CONUS system checkout flights of an advanced sensor to validate tracking performance in preparation for a series of BMDS tests in FY 2017
-- Analyze BMDS test data to verify advanced sensor precision track and discrimination capability
-- Demonstrate Discrimination Sensor Prototype Development system compatibility with the BMDS architecture

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Use the lessons learned and test data from the initial advanced sensor prototype development to design an upgraded advanced sensor for MTS-C / MQ-9 Reaper integration that supports improved BMDS discrimination capability: -- Design and fabricate a next-generation airborne processor to allow multiple sensor data streams to be downlinked to the Ballistic Missile Defense Enterprise Sensors Laboratory simultaneously to precisely track multiple objects and enhance discrimination - Develop concepts with Industry and the Services for the development of precision tracking limited fielding upgrade kits to incorporate airborne tracking assets into the BMDS - Develop concepts with Industry for a next-generation sensor with significantly reduced size and significantly increased efficiency for future integration into high altitude, long endurance unmanned aerial vehicle and space assets			
Accomplishments/Planned Programs Subtotals	-	-	43.810

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

D. Acquisition Strategy

The acquisition strategy for Discrimination Sensor Prototype Development consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) and agreements with Federally Funded Research and Development Centers to develop and demonstrate an advanced sensors prototype systems in realistic test environments. The Missile Defense Agency will leverage Agency and partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions. Discrimination Sensor Prototype Development shapes future BMDS acquisition decisions by advancing and documenting the technology readiness levels of emerging and developing technology, while simultaneously assessing the performance and contributions of the prototype systems to the Ballistic Missile Defense System architecture.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor Dev Support	MIPR	Aerospace : CA	0.000	-		-		1.684	Nov 2015	-		1.684	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Development	C/CPFF	General Atomics : CA	0.000	-		-		36.206	Nov 2015	-		36.206	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR Concept Assessment Contracts	C/Various	Modern Technology Solutions Inc., Johns Hopkins University/ Applied Physics Lab, Torch : VA, MD, AL	0.000	-		-		1.225	Nov 2015	-		1.225	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR HWIL Contracts	C/Various	Modern Technology Solutions Inc., Johns Hopkins University/ Applied Physics Lab, Torch : VA, MD, AL	0.000	-		-		0.655	Nov 2015	-		0.655	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis EOR Hardware in the Loop (HWIL)	MIPR	MIT LL, Aviation and Missile Research, Development, and Engineering Center (AMRDEC) : MA, AL	0.000	-		-		2.780	Nov 2015	-		2.780	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis Engage-on-Remote (EOR) Concept Assessment	MIPR	MIT LL/AMRDEC : MA, AL	0.000	-		-		0.580	Nov 2015	-		0.580	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		43.130		-		43.130	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD99 / *Discrimination Sensor Prototype Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor – Engineering and Technical Services	MIPR	Defense Technical Information Center : VA	0.000	-		-		0.680	Nov 2015	-		0.680	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.680		-		0.680	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		43.810		-		43.810	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

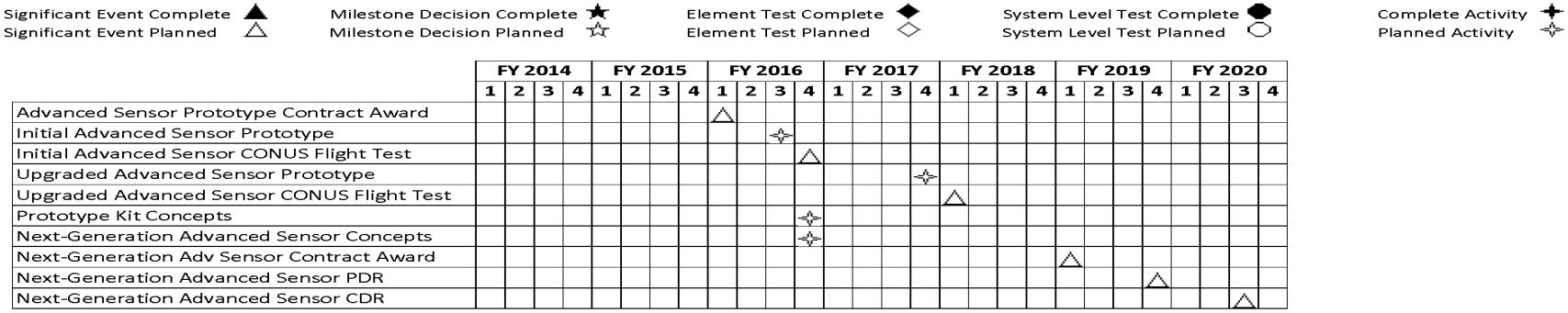


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Sensor Prototype Contract Award	1	2016	1	2016
Initial Advanced Sensor Prototype	3	2016	3	2016
Initial Advanced Sensor CONUS Flight Test	4	2016	4	2016
Upgraded Advanced Sensor Prototype	4	2017	4	2017
Upgraded Advanced Sensor CONUS Flight Test	1	2018	1	2018
Prototype Kit Concepts	4	2016	4	2016
Next-Generation Advanced Sensor Concepts	4	2016	4	2016
Next-Generation Adv Sensor Contract Award	1	2019	1	2019
Next-Generation Advanced Sensor PDR	4	2019	4	2019
Next-Generation Advanced Sensor CDR	3	2020	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MT99 / *Technology Maturation Initiatives Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT99: *Technology Maturation Initiatives Test*	-	-	-	28.219	-	28.219	19.248	31.447	0.144	-	-	79.058
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, $28.219 million was transferred from Program Element (PE) 0603177C, Discrimination Sensor Technology (DST) for prototype testing. The technology developed in the DST PE is technically mature enough to develop and test prototype systems. This activity was previously planned in the DST PE (0603177C).

A. Mission Description and Budget Item Justification

The Technology Maturation Initiatives Test project funds the management and execution of Technology Maturation Initiatives prototype system participation in Ballistic Missile Defense System (BMDS) level tests as an associated operation and through dedicated live fire tests.

The Technology Maturation Initiatives Test project funds all costs associated with Technology Maturation Initiatives dedicated live fire tests, costs to participate in other Ballistic Missile Defense level tests as an associated operation, Hardware-in-the-Loop testing, and performance analysis costs for live and post processing of flight test data. This includes unmanned aerial vehicle flight and maintenance costs, and ground control station operations and support equipment costs. It also funds shipping of the test assets to test ranges, labor, travel, range support and Command Control Battle Management and Communications (C2BMC) test support specific to Technology Maturation Initiatives.

In FY 2016, the Technology Maturation Initiatives Test project funds a Terrier-Terrier-Oriole-Extended (TTO-E) target for a dedicated Aegis launch-on-remote airborne sensor test in FY 2017. This target is budgeted for in this PE to consolidate test costs for the Technology Maturation Initiatives project.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Technology Maturation Initiatives Test	-	-	28.219
Articles:	-	-	-
Description: The Technology Maturation Initiatives Test project funds the management and execution of both Technology Maturation Initiatives prototype test participation in association with on-going Ballistic Missile Defense System (BMDS) tests and dedicated Technology Maturation Initiatives prototype BMDS level live fire test events.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
N/A ***FY 2016 Plans:*** In FY 2016, $28.219 million was transferred from Program Element (PE) 0603177C, Discrimination Sensor Technology (DST) for prototype testing. The technology developed in the DST PE is technically mature enough to develop and test prototype systems. This activity was previously planned in the DST PE (0603177C). - Conduct system level Hardware-in-the-Loop (HWIL) testing in conjunction with Enterprise Sensor Laboratory (ESL) and Experimental Laboratory (X-Lab) for the Standard Missile -3 Flight Test Standard Missile-01 Event 2 (SFTM-01 E2) test -- Conduct an airborne sensor tracking exercise in conjunction with SFTM-01 E2 in preparation for a Flight Test Standard Missile Discrimination Sensor Technology -1 (FTM DST-1) live fire engagement in 1Q FY 2017 -- Convert 2-Dimensional Object Sighting Message (OSM) track feeds from the MTS-Cs into one 3-Dimensional track to demonstrate Link-16 capability with Aegis ships and Launch-on-Remote performance - Fund a Terrier-Terrier-Oriole-Extended (TTO-E) target for the airborne sensor Aegis live fire test (FTM DST-1)			
Accomplishments/Planned Programs Subtotals	-	-	28.219

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	368.965	401.971	409.088	-	409.088	423.092	417.831	420.104	433.604	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

D. Acquisition Strategy

The MDA Integrated Master Test Plan (IMTP) establishes and documents the test requirements for the Ballistic Missile Defense System (BMDS) with the specific focus on collecting the data needed for the Verification, Validation, and Accreditation (VV&A) of the BMDS Models and Simulations (M&S). This paradigm uses critical factor analysis to drive test design, planning, and execution for accrediting M&S, which is used to validate and assess system performance. With this test approach, MDA will establish confidence that the M&S used to evaluate the BMDS represent real world behavior, thereby enabling simulation-based performance assessment to verify system functionality.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MT99 / *Technology Maturation Initiatives Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Command Control Battle Management and Communications	Various	Northrop Grumman, Lockheed Martin, Space and Naval Warfare Center : CO, CA	0.000	-		-		4.074	Mar 2016	-		4.074	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep L-3	C/CPFF	L-3, Aeromet : OK	0.000	-		-		0.918	Jan 2016	-		0.918	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep MIPRs	MIPR	NAVAIR/Naval Air Warfare Center, Pt. Mugu, Aviation and Missile Research, Development, and Engineering Center, Arnold Engineering Development Complex : CA, AL, TN	0.000	-		-		0.991	Nov 2015	-		0.991	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep, Pacific Missile Range Facility	MIPR	Pacific Missile Range Facility : HI	0.000	-		-		2.113	Jun 2016	-		2.113	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Live Fire Test Prep, Various	C/Various	ASRC Federal, Johns Hopkins University/Applied Physics Lab, Corvid : MD, AL	0.000	-		-		1.243	Nov 2015	-		1.243	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation	C/CPFF	General Atomics : CA	0.000	-		-		2.975	Nov 2015	-		2.975	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Initiatives Test - SFTM-01 E2, General Atomics															
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Target Purchase and Test Prep	MIPR	Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD) : CA	0.000	-		-		14.738	Nov 2015	-		14.738	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Technology Maturation Initiatives Test - Transportation Costs for Reapers	MIPR	US Air Force : CA	0.000	-		-		1.167	Mar 2016	-		1.167	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		28.219		-		28.219	-	-	-

Remarks

SFTM-01 E2 - Standard Missile -3 Flight Test Standard Missile-01 Event 2

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		28.219		-		28.219	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

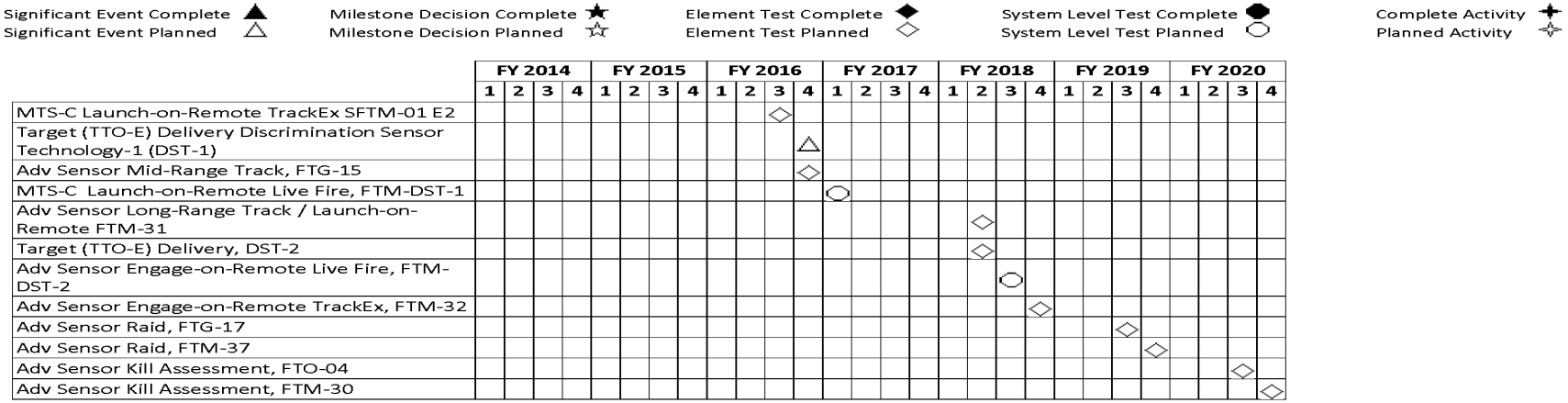


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MTS-C Launch-on-Remote TrackEx SFTM-01 E2	3	2016	3	2016
Target (TTO-E) Delivery Discrimination Sensor Technology-1 (DST-1)	4	2016	4	2016
Adv Sensor Mid-Range Track, FTG-15	4	2016	4	2016
MTS-C Launch-on-Remote Live Fire, FTM-DST-1	1	2017	1	2017
Adv Sensor Long-Range Track / Launch-on-Remote FTM-31	2	2018	2	2018
Target (TTO-E) Delivery, DST-2	2	2018	2	2018
Adv Sensor Engage-on-Remote Live Fire, FTM-DST-2	3	2018	3	2018
Adv Sensor Engage-on-Remote TrackEx, FTM-32	4	2018	4	2018
Adv Sensor Raid, FTG-17	3	2019	3	2019
Adv Sensor Raid, FTM-37	4	2019	4	2019
Adv Sensor Kill Assessment, FTO-04	3	2020	3	2020
Adv Sensor Kill Assessment, FTM-30	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MC98 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC98: *Cyber Operations*	-	-	-	0.166	-	0.166	0.169	0.259	0.176	0.179	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, this project transferred from the Weapons Technology program element, 0603178C. The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years.

A. Mission Description and Budget Item Justification

The funding in this project sustains the Missile Defense Agency (MDA) Department of Defense (DoD) Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for the MDA Discrimination Sensor Technology mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.

This project monitors and tracks Cybersecurity mitigations detailed in Information Technology security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the project are necessary to comply with the Federal Information Security Management Act (FISMA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C and A)	-	-	0.166
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: N/A			
FY 2016 Plans: In FY 2016, this project transferred from the Weapons Technology program element, 0603178C. The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
- Conduct cyber security and information assurance engineering and architecture planning for Technology Maturation Initiatives information technology systems - Plan and test the information assurance controls for Ballistic Missile Defense System Technology Maturation Initiatives systems - Develop Technology Maturation Initiatives DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages - Conduct Controls Validation Testing (CVT) for Technology Maturation Initiatives mission systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies - Conduct annual information assurance reviews on the Technology Maturation Initiatives enclaves to assess compliance in implementing and maintaining Information Assurance controls			
Accomplishments/Planned Programs Subtotals	-	-	0.166

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	6.919	8.470	12.139	-	12.139	13.227	12.932	13.249	13.219	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	29.642	36.610	28.200	-	28.200	-	-	-	-	Continuing	Continuing
• 0603178C: *Weapons Technology*	45.268	54.068	45.389	-	45.389	48.912	70.115	54.595	66.797	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	35.421	13.284	9.876	-	9.876	3.723	-	-	-	-	62.304
• 0603180C: *Advanced Research*	23.025	16.584	17.364	-	17.364	18.919	20.380	21.069	21.457	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for Cyber operations consists of using Missile Defense Agency (MDA) civilian employees and the existing competitively awarded Missile Defense Agency Engineering and Support Services (MiDAESS) contract.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MC98 / *Cyber Operations*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C and A) - Agency Operations – Civilian Salaries and Travel	Allot	Missile Defense Agency : NM	0.000	-		-		0.166	Oct 2015	-		0.166	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.166		-		0.166	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		0.166		-		0.166	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

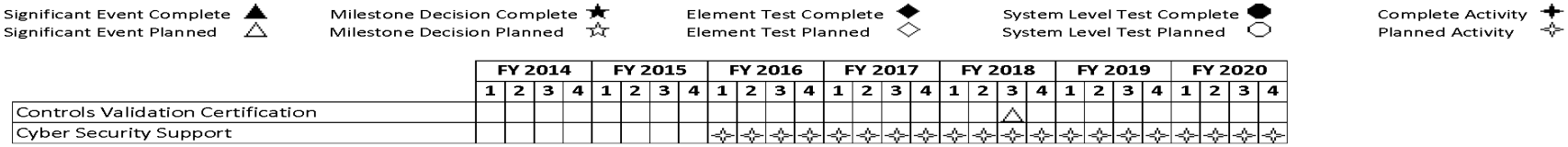


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Controls Validation Certification	3	2018	3	2018
Cyber Security Support	1	2016	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	-	-	4.235	-	4.235	5.185	5.997	11.109	10.746	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support was proportionately allocated to the Technology Maturation Initiatives Program Element.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation and, provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	-	-	4.235
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide support was redistributed across RDT&E Program Elements with a proportional allocation to the Technology Maturation Initiatives Program Element. - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	4.235

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	-		-		4.235		-		4.235	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		4.235		-		4.235	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		4.235		-		4.235	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

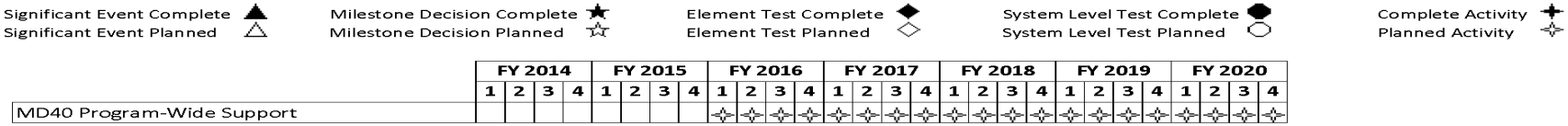


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020