Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency											Date: February 2016	
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 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	27.225	90.266	-	90.266	149.901	205.787	198.136	201.431	Continuing	Continuing
MD98: *Directed Energy Prototype Development*	-	0.000	0.000	23.744	-	23.744	46.938	80.900	66.052	60.418	Continuing	Continuing
MD99: *Discrimination Sensor Prototype Development*	-	0.000	20.467	57.382	-	57.382	69.903	109.286	115.812	127.654	Continuing	Continuing
MT99: *Technology Maturation Initiatives Test*	-	0.000	2.357	4.408	-	4.408	25.539	4.963	5.918	2.554	0	45.739
MC98: *Cyber Operations*	-	0.000	0.166	0.168	-	0.168	0.258	0.176	0.179	0.182	Continuing	Continuing
MD40: *Program Wide Support*	-	0.000	4.235	4.564	-	4.564	7.263	10.462	10.175	10.623	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

The FY 2017 increase reflects funding for directed energy prototype preliminary design completion and long lead material buys and discrimination sensor prototype build completion and aircraft integration.

A. Mission Description and Budget Item Justification

Technology Maturation Initiatives further develops technology that is matured beyond the laboratory. Technology Maturation Initiatives builds on the Reaper and Multi Spectral Targeting System-C sensor, missile tracking technology successfully developed under the Discrimination Sensor Technology program element 0603177C, improving accuracy, adding range, and conducting operationally representative airborne sensor tests. This program element also incorporates industry technology breakthroughs to develop and demonstrate low to mid power lasers on a high altitude airborne platform. Together, these advanced components and tests address complex tracking, discrimination, and boost phase kill challenges for the Ballistic Missile Defense System (BMDS) in support of the Strategic Command's Prioritized Capabilities List and address evolving threats to the homeland from the Pacific theatre.

The MDA will develop two prototype airborne platforms, a laser demonstrator to address finding, tracking and engaging boosting missiles at the standoff ranges required for missile defense and an advanced sensor demonstrator for precision tracking and discrimination of lethal objects. The advanced sensor platform utilizes the operationally proven MQ-9 Reaper to provide a viable quick reaction capability once the technology is demonstrated. The MDA will choose a laser platform from industry concepts to address different requirements; high energy laser capable, larger aperture capacity and high altitude operation.

MD98, Directed Energy Prototype Development, develops, integrates and tests laser and beam control systems on a high altitude airborne platform. This airborne 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 MDA's directed energy plan incrementally demonstrates and improves the constituent components required to execute a directed energy kill chain;

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency	Date: February 2016
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*

acquisition, tracking and lethality. Under the Directed Energy Prototype Development project, the Agency will select from industry concepts to integrate and test a low to mid power laser, nominally 10 to 150 kilowatts, on a high altitude airborne platform. 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 BMDS architecture.

The Directed Energy prototype addresses the following BMDS priorities:
- Precisely tracking boosting missiles from launch detection through destruction
- Cost effectively killing threat missiles in boost phase before they deploy multiple re-entry vehicles or countermeasures

MD99, Discrimination Sensor Prototype Development, incrementally develops, integrates, and tests next-generation sensors and detectors on the operationally proven MQ-9 to demonstrate airborne Launch-on-Remote, Engage-on-Remote, discrimination and handover improvements for missile defense. These advanced sensors improve the probability of engagement success for stressing threats, expand the BMD battle space and increase the ability to negate larger raid sizes.

The Discrimination Sensor prototype significantly enhances the following BMDS priorities:

- Providing track information with sufficient quality for successful launch-on-remote/engage-on-remote intercepts
- End-to-end correlation of sensor track and discrimination data
- Discriminating lethal objects from countermeasures
- Timely and accurate kill assessment

MT99, Technology Maturation Initiatives Test, captures the cost to test the prototype systems developed under the Directed Energy Prototype Development and Discrimination Sensor Prototype Development projects under realistic conditions in conjunction with on-going BMDS testing and through dedicated live fire tests to inform continued prototype testing, full development and limited fielding decisions.

MC98, Cyber Operations, sustains the MDA DoD 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 MDA functions and activities across the entire BMDS.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency	Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	96.300	109.674	-	109.674
Current President's Budget	0.000	27.225	90.266	-	90.266
Total Adjustments	0.000	-69.075	-19.408	-	-19.408
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-69.075			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment	0.000	0.000	-19.408	-	-19.408

Change Summary Explanation

The FY 2017 funding adjustment reflects transfers of test related costs to the BMD Test program element (0603914C), and BMD Targets program element (0603915C).

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD98: *Directed Energy Prototype Development*	-	0.000	0.000	23.744	-	23.744	46.938	80.900	66.052	60.418	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

MD98, Directed Energy Prototype Development, 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 missile defense laser demonstrator combines tracking technology developed under the Discrimination Sensor Technology program element with laser technology developed under the Weapons Technology program element and industry concepts for a cost-effective demonstrator. The demonstrator integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into a high altitude airborne platform for missile defense laser applications. The MDA will test the laser platform under realistic conditions in conjunction with on-going BMDS tests.

Depending on the specific industry concept selected, the demonstrator will consist of a 100 watt-class low power surrogate high energy laser, a kw-class tracking laser, and a 10 kilowatt to 150 kilowatt mission laser. A key risk area to cost effective boost phase kill is acquisition, tracking and beam stability at long stand-off ranges. The demonstrator will incrementally verify acquisition and tracking, surrogate high energy laser pointing and stability accuracy, then mission laser effectiveness at extended ranges. This approach informs a missile defense 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 higher power directed energy weapon capable of destroying a boosting missile before it can deploy countermeasures.

In FY 2017, MDA will begin the design of a missile defense laser demonstrator based on the technology proposed in five Industry defined concepts competitively awarded in FY 2015 under the Weapons Technology program element, 0603178C. The FY 2017 $23.919 million request funds dual contractors completing systems engineering, component trade studies and aircraft modification designs required for a missile defense laser demonstrator through a Preliminary Design Review in FY 2017. The MDA will then make a selection between these two contractors and complete a Critical Design Review in FY 2018 and BMDS flight tests in FY 2021.

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 program element, underpins multiple missile defense laser demonstrator Industry concepts. This missile defense 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 2015	FY 2016	FY 2017
Title: Directed Energy Prototype Development	0.000	0.000	23.744

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2015	FY 2016	FY 2017
Articles:	-	-	-
Description: N/A ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Plans:*** Award dual contracts through a preliminary design review to conduct the systems engineering and preliminary design necessary to define a missile defense laser demonstrator that integrates the lasers, detectors, beam control system, processors, power supplies and thermal management systems into an airborne platform for missile defense. - Analyze and evaluate industry concepts for integrating and testing a multi-kilowatt class laser into an airborne platform for missile defense applications -- Determine the best laser/aircraft combination to cost effectively address the directed energy missile defense mission space -- Award two contracts through a preliminary design review -- Select the best industry concept between the two contracts and award a four year contract to build and test a missile defense laser demonstrator - Perform the directed energy requirements flow down and engineering analysis for a missile defense laser demonstrator - Define a preliminary directed energy concept of operations for laser equipped high altitude airborne platform participation in Ballistic Missile Defense System tests			
Accomplishments/Planned Programs Subtotals	0.000	0.000	23.744

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	9.999	12.139	17.880	-	17.880	12.599	12.897	13.004	13.221	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	35.223	28.200	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603178C: *Weapons Technology*	61.396	51.153	71.843	-	71.843	69.004	53.745	66.400	67.487	Continuing	Continuing
• 0603180C: *Advanced Research*	18.476	17.364	23.433	-	23.433	19.870	20.529	21.131	21.494	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for MD98, Directed Energy Prototype Development, consists of contracts to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurement(s) to develop and demonstrate a missile defense laser demonstrator system in realistic test environments the MDA will leverage Agency, partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Missile Defense Laser Demonstrator-Preliminary Design A	C/TBD	Contract A (TBD) : TBD	0.000	0.000		0.000		10.527		-		10.527	Continuing	Continuing	Continuing
Directed Energy Prototype Development - Missile Defense Laser Demonstrator-Preliminary Design B	C/TBD	Contract B (TBD) : TBD	0.000	0.000		0.000		10.527		-		10.527	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		21.054		-		21.054	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 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	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Directed Energy Prototype Development - Missile Defense Laser Demonstrator - Performance Analysis	MIPR	MIT LL, Aviation and Missile Research Development and Engineering Center (AMRDEC) : MA, AL	0.000	0.000		0.000		1.200		-		1.200	Continuing	Continuing	Continuing
Directed Energy Prototype Development - Missile Defense Laser Demonstrator – Advisory and Assistance Services	C/CPFF	Various : NM, AL	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD98 / *Directed Energy Prototype Development*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Energy Prototype Development - Missile Defense Laser Demonstrator – Engineering and Technical Services	MIPR	Defense Technical Information Center, Aerospace : VA, CA	0.000	0.000		0.000		1.490	Oct 2016	-		1.490	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.690		-		2.690	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		23.744		-		23.744	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

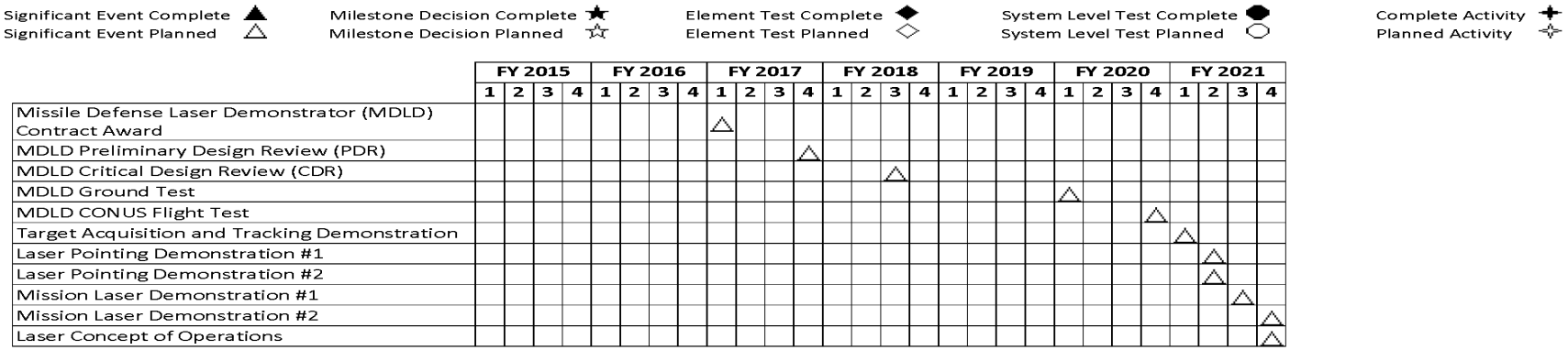

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD98 / *Directed Energy Prototype Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Missile Defense Laser Demonstrator (MDLD) Contract Award	1	2017	1	2017
MDLD Preliminary Design Review (PDR)	4	2017	4	2017
MDLD Critical Design Review (CDR)	3	2018	3	2018
MDLD Ground Test	1	2020	1	2020
MDLD CONUS Flight Test	4	2020	4	2020
Target Acquisition and Tracking Demonstration	1	2021	1	2021
Laser Pointing Demonstration #1	2	2021	2	2021
Laser Pointing Demonstration #2	2	2021	2	2021
Mission Laser Demonstration #1	3	2021	3	2021
Mission Laser Demonstration #2	4	2021	4	2021
Laser Concept of Operations	4	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD99: *Discrimination Sensor Prototype Development*	-	0.000	20.467	57.382	-	57.382	69.903	109.286	115.812	127.654	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

MD99, Discrimination Sensor Prototype Development, builds on the technology developed and demonstrated in the Discrimination Sensor Technology program element 0603177C. This project funds development of an advanced sensor airborne system, using the operationally proven MQ-9 Reaper. Areas of concentration include advanced detectors, infrared sensors, and precision tracking and discrimination algorithms. Discrimination Sensor Prototype Development pursues a cost-effective incremental upgrade philosophy that demonstrates precision track at extended ranges, simple scene discrimination and then complex scene discrimination. The MQ-9 Reaper equipped with an advanced sensor provides the MDA a viable quick reaction capability to augment BMDS radar.

This project develops and tests a 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. Discrimination Sensor Prototype Development enhances the BMDS capability to discriminate lethal objects in a threat cluster, and track and hand over the threat object with Aegis Launch-on-Remote and Engage-on-Remote precision. Aegis Launch-on-Remote is the capability that allows Aegis BMD to launch an interceptor before its own radar acquires the threat. Aegis BMD Launch-on-Remote involves Command, Control, Battle Management and Communications 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. Engage-on-Remote engagement allows the use of off board sensor information to launch and guide the Standard Missile - 3 Block IIA missile to final intercept. The increased kinematic envelope of the Standard Missile - 3 Block IIA, when combined with Engage-on-Remote will expand the battlespace and increase the number of threats engaged over previous baselines.

This project funds development of a next-generation ruggedized airborne processor and the corollary ground and airborne subsystems required for BMDS test. This advanced sensor will 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 will include advanced sensor integration into a high altitude airborne platform and testing in operationally relevant environments Both a preliminary design review and a critical design review are scheduled for FY 2017, followed by a flight laboratory test and system ground test in FY 2018 and flight testing in FY 2019-FY 2021.

The MDA will also partner with the Services to develop concepts for the cost effective integration of the sensor technology successfully demonstrated under the Discrimination Sensor Technology program element into limited fielding upgrade kits. The concept information will inform a MDA Product Development Decision for

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

further development and/or limited fielding decisions. These kits could be installed on MQ-9 aircraft deployed in theater to add missile defense capabilities on short notice.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Discrimination Sensor Prototype Development	0.000	20.467	57.382
Articles:	-	-	-

Description: This project develops an advanced sensor prototype for participation in 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 2015 Accomplishments:
N/A

FY 2016 Plans:
- Initiate design and development of an advanced sensor for Multi-Spectral Targeting System (MTS)-C / MQ-9 Reaper integration that supports improved Ballistic Missile Defense System (BMDS) discrimination capability
-- Begin the preliminary design of an advanced sensor
-- Conduct integration and component test of advanced sensor subsystems
-- Perform laboratory testing to verify subsystem performance
-- Analyze laboratory test data to verify advanced sensor precision track and discrimination capability

- Conduct compact advanced sensor ground tests against targets of opportunity to verify tracking and algorithm performance for BMDS discrimination

FY 2017 Plans:
In FY 2017, an increase of $39.376 million funds MD99, Discrimination Sensor Prototype build, ground test, aircraft integration, and flight qualification.

- Continue development and test of an advanced sensor equipped Multi-Spectral Targeting System - C (MTS-C) and MQ-9 Reaper prototype system
-- Conduct a preliminary design review for the advanced sensor system
-- Conduct a critical design review for the advanced sensor system
-- Initiate development of the flight qualified payload system
-- Upgrade the MTS-C to improve pointing and test in the laboratory
-- Develop a new chin mount for the MQ-9 Reaper that increases MTS-C mount rigidity while minimizing weight and drag

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2015	FY 2016	FY 2017
- Complete development and ground test of a compact, fully packaged, flight qualifiable advanced sensor for future integration into a high altitude platform			
Accomplishments/Planned Programs Subtotals	0.000	20.467	57.382

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	9.999	12.139	17.880	-	17.880	12.599	12.897	13.004	13.221	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	35.223	28.200	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603178C: *Weapons Technology*	61.396	51.153	71.843	-	71.843	69.004	53.745	66.400	67.487	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	13.061	9.876	3.626	-	3.626	0.000	0.000	0.000	0.000	0	26.563
• 0603180C: *Advanced Research*	18.476	17.364	23.433	-	23.433	19.870	20.529	21.131	21.494	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	260.347	228.392	230.077	-	230.077	144.893	141.815	171.644	158.421	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	395.927	404.780	401.594	-	401.594	404.993	409.481	427.603	434.868	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	420.516	429.853	439.617	-	439.617	413.198	432.763	454.601	462.065	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for MD99, Discrimination Sensor Prototype Development consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurements and agreements with Federally Funded Research and Development Centers to develop and demonstrate an advanced sensor prototype system in realistic test environments. The MDA will leverage Agency, partner subject matter experts and use government model based assessments to inform Better Buying Power philosophy acquisition decisions.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor Dev Support	MIPR	Aerospace, MIT/LL : CA, MA	0.000	0.000		0.000		0.936		-		0.936	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Development	C/CPFF	General Atomics : CA	0.000	0.000		6.545	Dec 2015	30.954		-		30.954	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	0.000		0.000		5.800		-		5.800	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Performance Analysis Aegis Engage-on-Remote (EOR) Concept Assessment	MIPR	MIT LL : MA	0.000	0.000		0.500	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor Prototype Development	MIPR	MIT LL, Aerospace : MA, CA	0.000	0.000		7.400	Dec 2015	2.300		-		2.300	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - EOIR Test	C/CPFF	General Atomics : CA	0.000	0.000		1.043		6.041		-		6.041	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		15.488		46.031		-		46.031	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Discrimination Sensor Prototype Development - Advanced Sensor - Advisory and Assistance Services	C/CPFF	Various : NM, AL	0.000	0.000		0.000		3.103		-		3.103	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Advanced Sensor – Engineering and Technical Services	MIPR	Aviation and Missile Research, Development, and Engineering Center (AMRDEC), Aerospace : AL, CA	0.000	0.000		1.624	Dec 2015	1.371		-		1.371	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Agency Operations – Civilian Salaries and Travel	Allot	MDA Multi : AL, NM	0.000	0.000		0.814		4.608		-		4.608	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Agency Operations – Facility Support	MIPR	377th ABW : NM	0.000	0.000		0.093	Dec 2015	0.111		-		0.111	Continuing	Continuing	Continuing
Discrimination Sensor Prototype Development - Information Management and Technology	C/CPAF	Northrop Grumman : CO	0.000	0.000		2.448		2.158		-		2.158	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		4.979		11.351		-		11.351	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		20.467		57.382		-		57.382	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MD99 / *Discrimination Sensor Prototype Development*	

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD99 / *Discrimination Sensor Prototype Development*

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 ✧

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Advanced Sensor Prototype Contract Award							△																					
Advanced Sensor Preliminary Design Review									△																			
Electro Optical Infrared (EO/IR) Launch-on-Remote Track Ex											△																	
FEV-01 (FTM-DST 1) (AEGIS 5.0, Intercept Flight Test)												△																
Advanced Sensor Critical Design Review											△																	
Advanced Sensor Flight Laboratory Test													△															
Advanced Sensor System Ground Test															△													
Advanced Sensor CONUS Flight Test																		△										
Advanced Sensor Launch-on-Remote Test																			△									
Advanced Sensor Live Fire Track Ex for FEV-02																				⬭								
FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test)																				△								
Advanced Sensor Discrimination																						△						
Advanced Sensor Engage-on-Remote																							△					
Advanced Sensor Kill Assessment Demo																											△	
Compact, Advanced Sensor Tracking Ground Test								△																				
Next-Generation Advanced Sensor Contract Award																		△										
Next-Generation Advanced Sensor PDR																				△								
Next-Generation Advanced Sensor CDR																								△				

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
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	3	2016	3	2016
Advanced Sensor Preliminary Design Review	1	2017	1	2017
Electro Optical Infrared (EO/IR) Launch-on-Remote Track Ex	3	2017	3	2017
FEV-01 (FTM-DST 1) (AEGIS 5.0, Intercept Flight Test)	4	2017	4	2017
Advanced Sensor Critical Design Review	3	2017	3	2017
Advanced Sensor Flight Laboratory Test	1	2018	1	2018
Advanced Sensor System Ground Test	3	2018	3	2018
Advanced Sensor CONUS Flight Test	2	2019	2	2019
Advanced Sensor Launch-on-Remote Test	3	2019	3	2019
Advanced Sensor Live Fire Track Ex for FEV-02	4	2019	4	2019
FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test)	4	2019	4	2019
Advanced Sensor Discrimination	2	2020	2	2020
Advanced Sensor Engage-on-Remote	3	2020	3	2020
Advanced Sensor Kill Assessment Demo	3	2021	3	2021
Compact, Advanced Sensor Tracking Ground Test	4	2016	4	2016
Next-Generation Advanced Sensor Contract Award	2	2019	2	2019
Next-Generation Advanced Sensor PDR	4	2019	4	2019
Next-Generation Advanced Sensor CDR	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MT99: *Technology Maturation Initiatives Test*	-	0.000	2.357	4.408	-	4.408	25.539	4.963	5.918	2.554	0	45.739
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The MT99, Technology Maturation Initiatives (TMI) Test project funds the management and execution of TMI prototype system participation in BMDS level tests, Hardware-in-the-Loop testing, and performance analysis costs for flight test data. This includes test asset shipment to test ranges, labor, travel, range support and Command Control Battle Management and Communications test support specific to Technology Maturation Initiatives. In FY 2017, all costs to procure targets, BMDS level testing costs and costs related to the use of Aegis ships during these tests are budgeted for in Program Elements 0603915C, Ballistic Missile Defense Targets, 0603914C, and Ballistic Missile Defense Test, and 0604878C.

In FY 2017, the Technology Maturation Initiatives Test project funds the Advanced Technology specific costs for a dedicated Aegis launch-on-remote airborne sensor test.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Technology Maturation Initiatives Test	0.000	2.357	4.408
Articles:	-	-	-
Description: N/A			
FY 2015 Accomplishments: The $2.051 million increase from FY 2016 to FY 2017 reflects the difference of cost between an associated operation test in FY 2016 and a dedicated live fire test in FY 2017.			
FY 2016 Plans: - Conduct system level hardware-in-the-loop testing in conjunction with Enterprise Sensor Laboratory and Experimental Laboratory for a BMDS level test - Shipping, labor, travel, and range support for a BMDS level test			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2015	FY 2016	FY 2017
- Conduct system level hardware-in-the-loop testing in conjunction with Enterprise Sensor Laboratory and Experimental Laboratory for the Aegis live fire test, Flight Experiment Advanced Technology -01 (FEV-01) - Shipping, labor, travel, and range support for FEV-01			
Accomplishments/Planned Programs Subtotals	0.000	2.357	4.408

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	9.999	12.139	17.880	-	17.880	12.599	12.897	13.004	13.221	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	35.223	28.200	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603178C: *Weapons Technology*	61.396	51.153	71.843	-	71.843	69.004	53.745	66.400	67.487	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	13.061	9.876	3.626	-	3.626	0.000	0.000	0.000	0.000	0	26.563
• 0603180C: *Advanced Research*	18.476	17.364	23.433	-	23.433	19.870	20.529	21.131	21.494	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	260.347	228.392	230.077	-	230.077	144.893	141.815	171.644	158.421	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	395.927	404.780	401.594	-	401.594	404.993	409.481	427.603	434.868	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MDA Integrated Master Test Plan establishes and documents the test requirements for the BMDS with the specific focus on collecting the data needed for the Verification, Validation, and Accreditation of the BMDS models and simulations. This paradigm uses critical factor analysis to drive test design, planning, and execution for accrediting models & simulations, which is used to validate and assess system performance. With this test approach, MDA will establish confidence that the models & simulations 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 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Maturation Initiatives Test - Command Control Battle Management and Communications	Various	Northrop Grumman, Lockheed Martin, Space and Naval Warfare Center, National Air and Space Intelligence Center, Naval Surface Warfare Center Dahlgren Division : CO, CA, OH, VA	0.000	0.000		1.306	Jan 2016	3.264		-		3.264	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Pacific Missile Range Facility Test Prep	MIPR	Pacific Missile Range Facility : HI	0.000	0.000		0.122	Mar 2016	0.124		-		0.124	Continuing	Continuing	Continuing
Technology Maturation Initiatives Test - Transportation Costs for Reapers	MIPR	US Air Force : CA	0.000	0.000		0.929	Mar 2016	1.020		-		1.020	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.357		4.408		-		4.408	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / *Technology Maturation Initiatives*	Project (Number/Name) MT99 / *Technology Maturation Initiatives Test*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		2.357		4.408		-		4.408	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MT99 / *Technology Maturation Initiatives Test*

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 ✧

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Hardware in the Loop (HWIL), Shipping, Travel and Range Support for Pacific Dragon						✧	✧																					
HWIL, Shipping, Travel and Range Support for Flight Experiment Advanced Technology (FEV) - 01									✧	✧	✧	✧																
HWIL, Shipping, Travel and Range Support for Flight Test Standard Missile 3 (FTM)-32																		✧	✧									
HWIL, Shipping, Travel and Range Support for FEV-02																	✧	✧	✧	✧								
HWIL, Shipping, Travel and Range Support for Flight Test Ground-Based Interceptor (FTG) -18																					✧	✧						
HWIL, Shipping, Travel and Range Support for FTM - 30																							✧	✧				
HWIL, Shipping, Travel and Range Support for FTM - 38																										✧	✧	
HWIL, Shipping, Travel and Range Support for Flight Test Operational (FTO) - 04																										✧	✧	
HWIL, Shipping, Travel and Range Support for Flight Test THAAD (FTT) - 21																											✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
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**
Hardware in the Loop (HWIL), Shipping, Travel and Range Support for Pacific Dragon	2	2016	3	2016
HWIL, Shipping, Travel and Range Support for Flight Experiment Advanced Technology (FEV) - 01	1	2017	4	2017
HWIL, Shipping, Travel and Range Support for Flight Test Standard Missile 3 (FTM)-32	2	2019	3	2019
HWIL, Shipping, Travel and Range Support for FEV-02	1	2019	4	2019
HWIL, Shipping, Travel and Range Support for Flight Test Ground-Based Interceptor (FTG) -18	1	2020	2	2020
HWIL, Shipping, Travel and Range Support for FTM - 30	3	2020	4	2020
HWIL, Shipping, Travel and Range Support for FTM - 38	2	2021	3	2021
HWIL, Shipping, Travel and Range Support for Flight Test Operational (FTO) - 04	2	2021	3	2021
HWIL, Shipping, Travel and Range Support for Flight Test THAAD (FTT) - 21	3	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MC98: *Cyber Operations*	-	0.000	0.166	0.168	-	0.168	0.258	0.176	0.179	0.182	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing recertification every three years.

A. Mission Description and Budget Item Justification

MC98, Cyber Operations, sustains the MDA DoD Information Assurance Certification and Accreditation Program and Controls Validation Testing activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager Plans of Action and Milestones for the MDA Discrimination Sensor Technology mission systems. It maintains the Certification and Accreditation data repository, capturing the DoD Information Assurance Certification and Accreditation Program documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority) accreditation decisions) and Plans of Action and Milestones on all MDA information systems.

This project monitors and tracks Cybersecurity mitigations detailed in Information Technology security Plans of Action and Milestones. Activities include preparation of Certification and Accreditation documentation and accreditation recommendations to the MDA Senior Information Assurance Officer /Certification Authority and Designated Approving Authority. Independent Verification and Validation 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Network / System Certification and Accreditation (C and A)	0.000	0.166	0.168
Articles:	-	-	-
Description: N/A			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: The increase in FY 2018 reflects the need for Information Assurance Controls Validation Testing (CVT) recertification every three years. - Conduct cyber security and information assurance engineering and architecture planning for Technology Maturation Initiatives information technology systems			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2015	FY 2016	FY 2017
- 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			
FY 2017 Plans: - 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 certification and accreditation packages - Conduct Controls Validation Testing for Technology Maturation Initiatives mission systems and provide Plans 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	0.000	0.166	0.168

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	9.999	12.139	17.880	-	17.880	12.599	12.897	13.004	13.221	Continuing	Continuing
• 0603177C: *Discrimination Sensor Technology*	35.223	28.200	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603178C: *Weapons Technology*	61.396	51.153	71.843	-	71.843	69.004	53.745	66.400	67.487	Continuing	Continuing
• 0603179C: *Advanced C4ISR*	13.061	9.876	3.626	-	3.626	0.000	0.000	0.000	0.000	0	26.563
• 0603180C: *Advanced Research*	18.476	17.364	23.433	-	23.433	19.870	20.529	21.131	21.494	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy for MC98, Cyber operations consists of using MDA civilian employees and the existing competitively awarded contractor support services.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 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	0.000		0.166	Oct 2015	0.168	Oct 2016	-		0.168	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.166		0.168		-		0.168	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.166		0.168		-		0.168	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

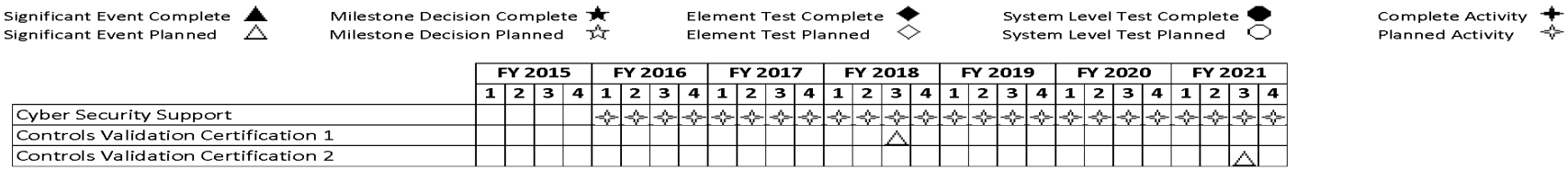

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MC98 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Security Support	1	2016	4	2021
Controls Validation Certification 1	3	2018	3	2018
Controls Validation Certification 2	3	2021	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	0.000	4.235	4.564	-	4.564	7.263	10.462	10.175	10.623	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support (PWS) was proportionately allocated to the Technology Maturation Initiatives Program Element. In FY 2017, PWS reflects a proportional change as a result of an increase in Technology Maturation Initiatives.

A. Mission Description and Budget Item Justification

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians, and Contract Support Services. 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, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Program Wide Support	0.000	4.235	4.564
Articles:	-	-	-
Description: N/A			
FY 2015 Accomplishments: - 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			
FY 2017 Plans: - See paragraph A: Mission Description and Budget Item Justification.			
Accomplishments/Planned Programs Subtotals	0.000	4.235	4.564

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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 2017 Missile Defense Agency		Date: February 2016
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 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA	0.000	0.000		0.000		0.091	Jul 2017	-		0.091	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	0.000		4.235		4.473	Aug 2017	-		4.473	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		4.235		4.564		-		4.564	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		4.235		4.564		-		4.564	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

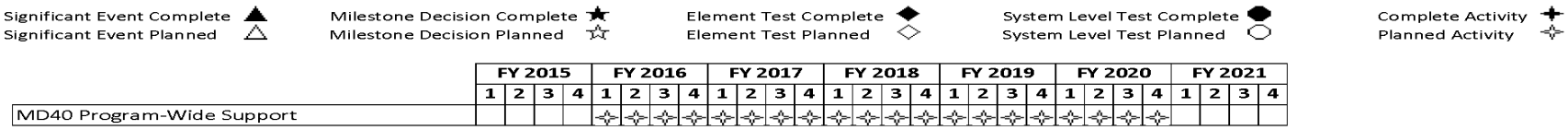

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604115C / *Technology Maturation Initiatives*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

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

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