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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0604878C / Aegis BMD Test							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	88.041	78.468	95.012	134.468	-	134.468	73.059	82.570	113.856	97.660	Continuing	Continuing
MT09: AEGIS BMD Test	88.041	76.043	90.953	128.776	-	128.776	69.548	78.734	108.359	92.987	Continuing	Continuing
MD40: Program Wide Support	-	2.425	4.059	5.692	-	5.692	3.511	3.836	5.497	4.673	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

FY 2018 increase provides additional flight tests consistent with the Integrated Master Test Plan (IMTP) and increased Aegis BMD Hardware-In-The-Loop (HWIL) lab participation to reduce risk during integration for runs for the record.

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of the Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the SM-3 configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

Proving Missile Defense:

- Working with the Services' Agency level BMDS Operational Test Agency (OTA) Team, with the support of the Director of Operational Test and Evaluation (DOT&E), MDA has developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable.
- As part of the Agency's rigorous test program, System Pre-Flight predictions provide confidence in test execution by predicting element performance and exercising element interfaces. System Post-Flight Reconstruction replicates the BMDS configuration, actual environmental conditions, and target dynamics observed in flight to anchor modeling and simulation (M&S) results.
- The IMTP is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments.

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B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	78.468	95.012	127.720	-	127.720
Current President's Budget	78.468	95.012	134.468	-	134.468
Total Adjustments	0.000	0.000	6.748	-	6.748
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• 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	6.748	-	6.748
Change Summary Explanation					
The increase in FY2018 from PB17 to PB18 is in support of flight test schedule in IMTP.					

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD Test			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MT09: AEGIS BMD Test	88.041	76.043	90.953	128.776	-	128.776	69.548	78.734	108.359	92.987	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Budget Accomplishments are structured for direct traceability to the Integrated Master Test Plan (IMTP) and efficient management of testing execution efforts. Test funding falls under the following accomplishments: Aegis BMD Flight Test Execution, Aegis BMD Ground Test Execution, Aegis BMD Test Resources and Engineering & Analysis.

A. Mission Description and Budget Item Justification

The FY 2018 Aegis BMD Test Program will concentrate on critical IMTP flight tests that support the Navy and European Phased Adaptive Approach (EPAA). Aegis BMD will concentrate on Aegis BL 9.C2 (BMD 5.x) and Standard Missile SM-3 Block IIA testing in FY 2018.

Proving Missile Defense:

- Working with the Navy Integrated Warfare System (IWS) Services' Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), MDA has developed a test program to improve missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable
- As part of MDA's rigorous test program, System Pre-Flight predictions provide confidence in test execution by predicting element performance and exercising element interfaces. System Post-Flight Reconstruction replicates the Ballistic Missile Defense System configuration and actual environmental conditions and target dynamics observed in flight to anchor Modeling and Simulation (M&S) results
- The IMTP is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2016	FY 2017	FY 2018
Title: Aegis BMD Flight Test Execution	27.320	38.962	59.140
Articles:	-	-	-
Description: Aegis BMD Flight Test Program performs comprehensive testing of Aegis BMD components and their interoperability with the BMDS using accredited Modeling & Simulation (M&S) that provides the evidence required for the MDA and Combatant Commanders to transition the capability to the Operational Capacity Baseline. All flight testing is reflected in the R4 and IMTP.			
Recurring Accomplishments include: -Prepare for and conduct BMDS Flight Test events as reflected in the IMTP and the Exhibit R-4 schedule. -Collect Aegis BMD data for Modeling and Simulation anchoring used in comprehensive flight testing.			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
<p>-Conduct Aegis BMD specific analysis during pre- and post-mission analysis phases to confirm pre-mission predictions of mission success and validate post-test results.</p> <p>-Conduct test milestone reviews to ensure readiness for test execution and accomplishment of test objectives.</p> <p>Below are items unique to an FY:</p> <p>FY 2016 Accomplishments: Support of flight tests scheduled in the IMTP to include Standard Missile 3 (SM-3) Control Test Vehicle (CTV) 01 and CTV 02 - Conducted activities listed in Description section above).</p> <p>FY 2017 Plans: Increase from FY 2016 to FY 2017 is in support of flight tests scheduled in the IMTP to include FTM-24 (BMD 5.0 CU DT/OT) and FTM-29(BMD 5.1 DT/OT). - Conduct activities listed in Description section (above).</p> <p>FY 2018 Plans: Increase from FY 2017 to FY 2018 is in support of flight tests scheduled in the IMTP to include FTO-3 Event 1 (BMD 5.1/SM-3Blk IIA) and FEV-01 (FTM-DST 1) (AEGIS 5.0, Intercept Flight Test) These operational tests support the Navy and the European Phased Adaptive Approach (EPAA) for the defense of Europe. - Conduct activities listed in Description section (above).</p>					
<p>Title: Aegis BMD Ground Test Execution</p> <p align="right">Articles:</p> <p>Description: Aegis BMD Ground Test Program performs comprehensive testing of Aegis BMD Components and their interoperability with the BMDS using accredited M&S that provides the evidence required for the MDA and Combatant Commanders to transition the capability to the Operational Capacity Baseline. More specifically, ground testing is used to collect data for Aegis BMD characterization and assessment, flight test risk reduction, and exploration of scenarios where flight testing is either impracticable or impossible.</p> <p>Recurring Accomplishments include:</p> <p>-Participate in BMD System Ground Tests to include pre-mission analysis, mission execution, and post-mission analysis.</p> <p>-Conduct planning to ensure BMDS Test Site (BTS) capabilities support Aegis BMD testing, exercises, flight tests, and demonstration requirements. This includes upgrades to the ground testing labs to ensure compliance with operational and test baselines.</p> <p>-Continue testing of Navy C4I systems and Aegis BMD baselines to ensure BMDS interoperability.</p>			6.116 -	11.594 -	29.680 -

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / <i>Aegis BMD Test</i>	Project (Number/Name) MT09 / <i>AEGIS BMD Test</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017
<p>-Continue to participate in System Level Ground Testing as an element of the layered BMDS to collect data for Aegis BMD characterization and assessment and exploration of scenarios where flight testing is either impracticable or impossible.</p> <p>-Continue operation support of Hardware-In-the-Loop (HWIL) Modeling & Simulation for Element ground testing.</p> <p>-Prepare and conduct a Hardware Ground Test of cooled gas Attitude Control System (ACS).</p> <p>FY 2016 Accomplishments: New accomplishment developed to align within new MT09 restructure for traceability to the IMTP: - Funding previously captured in Project MT09, BMDS Level Testing and Project MT09, Aegis Ballistic Missile Defense (BMD) Testing. - Conducted activities listed in Description section (above).</p> <p>FY 2017 Plans: The increase in funding from FY 2016 to FY 2017 is due to more complex ground tests which lead up to the European Phase Adaptive Approach (EPAA) Phase III declaration as reflected in the R-4 and the IMTP. - Conduct activities listed in Description section (above).</p> <p>FY 2018 Plans: The increase in funding from FY 2017 to FY 2018 is due to increased Aegis BMD HWIL lab participation in early integration to provide risk reduction for Ground Test runs for the record and implementation of Continuous Integration and Continuous Agile Testing Concept of Operations (CONOPS) pathfinders. - Conduct activities listed in Description section (above).</p>			
<p>Title: Aegis BMD Test Resources</p> <p>Articles:</p> <p>Description: This effort provides resources to conduct ground and flight testing to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the warfighter are operationally effective, suitable, and survivable.</p> <p>Recurring Accomplishments include:</p> <ul style="list-style-type: none"> - Provide Core Test and Evaluation support for Aegis BMD test and evaluation missions and laboratories, field activities, range support activities, analysis activities, and shipboard and land-based test site test teams. - Provide Test & Evaluation (T&E) infrastructure support for Aegis BMD Test Missions as reflected in the IMTP to collect truth data for post-event analysis. - Conduct core Element M&S validation and accreditation activities. - Exercise tactical communications during testing to ensure interoperability with the BMDS and Combatant Command (CCMD) systems. 		30.247 -	28.491 -
			26.931 -

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test	Project (Number/Name) MT09 / AEGIS BMD Test		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018
<div>- Continue core test planning for FY 2017 and FY 2018 Aegis BMD test missions to include assessment of target requirements, development of M&S, and preparation of the range to ensure all missions are executable and apply to the technical program objectives.</div> <div>- Develop and execute risk-reduction activities to minimize or mitigate shipboard and missile test and programs risks.</div> <div>- Develop and execute data collection plans and supporting instrumentation requirements.</div> <div>FY 2016 Accomplishments:</div> <div>- Conducted activities listed in Description section (above).</div> <div>- Began test planning for FY 2017 Aegis BMD flight test mission to include preparation of targets, development of M&S, and preparation of the range to ensure all missions are executable and apply to the technical program objectives.</div> <div>- Conducted post-test analysis for all flight testing conducted in FY 2015 for Aegis BMD missions to validate results</div> <div>- Prepared for and conducted BMDS flight events as reflected in the IMTP and the Exhibit R-4 schedule in accordance with Congressional and Presidential guidance.</div> <div>- Participated in BMDS Special Technology experiments and demonstrations to expand the capabilities of the Aegis BMD to use a diverse set of inputs.</div> <div>FY 2017 Plans:</div> <div>The decrease in funding from FY 2016 to FY 2017 is due to realignment and consolidation of core test functions.</div> <div>- Conduct activities listed in Description section (above).</div> <div>FY 2018 Plans:</div> <div>The decrease in funding from FY 2017 to FY 2018 is due to realignment and consolidation of core test functions.</div> <div>- Conduct activities listed in Description section (above).</div>				
<div>Title: Engineering & Analysis</div> <div>Articles:</div> <div>Description: The Engineering and Analysis effort provides essential BMDS ground and flight test event planning, execution, and evaluation activities for each test event:</div> <div>Recurring Accomplishments:</div> <div>- Designing test architecture, defining test objectives and evaluation criteria, defining target requirements, and generating ground and flight test scenarios appropriate to the data collection requirements to assess BMDS performance and anchor Models and Simulations.</div> <div>- Producing the threat data for BMDS ground and flight tests.</div> <div>- Coordinating with BMDS Operational Test Agency (OTA) to address test issues, disposition them, coordinate them, with the OTA and recommend action plans to achieve closure.</div> <div>- Delivering hardware-in-the-loop (HWIL) M&S integration test cases.</div>		12.360 -	11.906 -	13.025 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2016	FY 2017	FY 2018
- Validate test event data collection and conduct post-test analyses supporting the EPAA Phase 3 Technical Capability Declaration.												
Accomplishments/Planned Programs Subtotals										76.043	90.953	128.776
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost	
• 0603892C: <i>AEGIS BMD</i>	804.211	959.066	852.052	-	852.052	805.051	789.217	656.164	695.306	Continuing	Continuing	
• 0604880C: <i>Land Based SM-3 (LBSM3)</i>	29.288	43.293	30.486	-	30.486	31.816	33.024	31.707	30.924	Continuing	Continuing	
• 0604881C: <i>AEGIS SM-3 Block IIA Co-Development</i>	165.456	106.038	9.739	-	9.739	0.000	0.000	0.000	0.000	0	281.233	
Remarks												
D. Acquisition Strategy												
N/A												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD Test					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution	MIPR	Various - DT : HI,VA,CA,MA,NC	0.000	0.000		0.000		11.825	Dec 2017	-		11.825	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09 - CPF	MIPR	COMPACTFLT : HI	0.000	0.000		0.000		1.337	Dec 2017	-		1.337	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09 - Corvid	SS/CPFF	Corvid : NC	0.000	0.000		0.000		1.322	Dec 2017	-		1.322	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09 -JHU/APL	SS/CPFF	JHU/APL : Columbia MD	2.196	2.998		5.062	Dec 2016	9.000	Dec 2017	-		9.000	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09- Corona	MIPR	NSWC Corona : CA	2.215	0.950		1.588	Nov 2016	3.200	Dec 2017	-		3.200	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-DMEA	MIPR	DMEA : McClellan, CA	0.000	0.000		0.819	Oct 2016	0.300		-		0.300	0	1.119	0
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-L3 Communications	C/CPFF	L3 Communications : Waco, TX	0.000	0.000		3.276	Apr 2017	2.100	Dec 2017	-		2.100	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-NAWC/AD	MIPR	NAWC/AD-PHX Air : Pax River, MD	1.058	1.000		2.085	Apr 2017	1.200	Dec 2017	-		1.200	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-NAWC/PM	MIPR	NAWC/PM : Pt. Mugu, CA	0.350	1.800		7.197	Oct 2016	3.505	Dec 2017	-		3.505	Continuing	Continuing	Continuing

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Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD Test					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-NRL	MIPR	Naval Research Lab : Washington, DC	0.000	0.000		0.794	Apr 2017	0.450	Dec 2017	-		0.450	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-NSWC DD	MIPR	NSWC Dahlgren : Dahlgren, VA	0.400	1.131		1.291	Dec 2016	1.360	Dec 2017	-		1.360	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-NSWCCR	MIPR	NSWC Carderock : Potomac, MD	0.000	0.000		0.893	Jan 2017	0.800	Dec 2017	-		0.800	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	3.083	1.852		3.574	Oct 2016	5.420	Dec 2017	-		5.420	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-PMRF	MIPR	PMRF Barking Sands : Kauai, HI	0.990	4.025		6.155	Oct 2016	8.780	Dec 2017	-		8.780	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-SSCPAC	MIPR	SPAWAR : San Diego, CA	1.277	0.000		1.837	Nov 2016	1.250	Dec 2017	-		1.250	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-Various	MIPR	Various : HI, VA, CA, MA, NC, NJ, AZ	11.273	6.024		3.572	Oct 2016	6.736	Dec 2017	-		6.736	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Aegis BMD Flight Test Execution - MT09-Xontech	C/CPFF	Xontech : Colorado Spring, CO	0.000	0.000		0.819	Mar 2017	0.555	Dec 2017	-		0.555	Continuing	Continuing	Continuing
Aegis BMD Flight Test Execution - Flight Test Execution	SS/CPFF	Lockheed Martin : NJ	0.000	1.140		0.000		0.000		-		0.000	0	1.140	0

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Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD Test					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Flight Test Execution - Flight Test Execution - RMS	SS/CPFF	Raytheon : AZ	0.000	6.400		0.000		0.000		-		0.000	0	6.400	0
Aegis BMD Ground Test Execution - ATK	MIPR	ATK : Elkton MD	0.000	0.000		2.005		0.000		-		0.000	0	2.005	0
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - CORONA	MIPR	NSWC Corona : CA	0.800	0.650	Nov 2015	0.750	Nov 2016	1.500	Nov 2017	-		1.500	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - JHU/APL MDA	SS/CPFF	JHU/APL : MDA	0.500	0.000		0.000		3.000	Nov 2017	-		3.000	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - LM	MIPR	Lockheed Martin : Moorestown, NJ	7.624	2.697	Nov 2015	3.652	Oct 2016	8.802	Nov 2017	-		8.802	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - MDA	MIPR	MDA : Arlington, VA	0.000	0.000		0.780	Dec 2016	0.000		-		0.000	0	0.780	0
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	0.400	0.603	Nov 2015	0.750	Nov 2016	1.500	Nov 2017	-		1.500	Continuing	Continuing	Continuing
Aegis BMD Ground Test Execution - Aegis BMD Ground Test Execution - MT09 - SSCPAC	MIPR	SPAWAR : San Diego, CA	5.460	2.166	Nov 2015	3.657	Oct 2016	14.878	Nov 2017	-		14.878	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - APL	SS/CPFF	JHU/APL : Columbia MD	14.567	10.917	Nov 2015	9.091	Oct 2016	10.031	Nov 2017	-		10.031	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD	MIPR	Aegis BMD : VA	0.745	0.000		1.200	Dec 2016	0.000		-		0.000	0	1.945	0

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Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Resources - MT09 - Aegis															
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - CORONA	MIPR	NSWC Corona : CA	2.771	4.675	Nov 2015	2.700	Oct 2016	4.000	Nov 2017	-		4.000	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NAVSEA	MIPR	NAVSEA : VA	0.000	0.000		0.200	Jan 2017	0.000		-		0.000	0	0.200	0
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NAWC/PM	MIPR	NAWC/PM : Pt. Mugu, CA	0.550	0.650	Nov 2015	0.700	Oct 2016	0.830	Nov 2017	-		0.830	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - NSWCDD	MIPR	NSWC Dahlgren : Dahlgren, VA	5.957	3.300	Nov 2015	3.500	Nov 2016	3.500	Nov 2017	-		3.500	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - PHD	MIPR	NSWC PHD : Pt. Hueneme, CA	4.000	5.050	Nov 2015	5.500	Oct 2016	4.000	Nov 2017	-		4.000	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - PMRF	MIPR	PMRF Barking Sands : Kauai, HI	0.430	0.700	Nov 2015	1.000	Jan 2017	1.370	Nov 2017	-		1.370	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - SSCPAC	MIPR	SPAWAR : San Diego, CA	2.265	1.700	Nov 2015	1.600	Oct 2016	1.800	Nov 2017	-		1.800	Continuing	Continuing	Continuing
Aegis BMD Test Resources - Aegis BMD Test Resources - MT09 - Various	MIPR	Various : HI, VA, CA, MA, MD	6.668	3.255	Nov 2015	3.000	Apr 2017	1.400	Nov 2017	-		1.400	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis -	C/CPAF	Northrop Grumman : AL, CO	1.526	1.561	Nov 2015	1.851	Nov 2016	2.160	Nov 2017	-		2.160	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD Test					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Analysis - Engineering Support															
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - FFRDC/UARC	MIPR	Various : AL, CO, VA	6.257	4.266	Nov 2015	3.182	Nov 2016	2.305	Nov 2017	-		2.305	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : AL	1.079	0.702	Nov 2015	0.716	Nov 2016	0.000		-		0.000	0	2.497	0
Engineering & Analysis - Engineering & Analysis - Engineering & Analysis - OGA	MIPR	AMRDEC : AL	3.600	5.831	Nov 2015	6.157	Nov 2016	6.760	Nov 2017	-		6.760	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - NME	C/CPAF	Northrop Grumman-JRDC : CO, AL	0.000	0.000		0.000		0.500	Nov 2017	-		0.500	Continuing	Continuing	Continuing
Engineering & Analysis - Engineering & Analysis - NME Support	MIPR	SPAWAR : CA	0.000	0.000		0.000		1.300	Nov 2017	-		1.300	Continuing	Continuing	Continuing
Subtotal			88.041	76.043		90.953		128.776		-		128.776	-	-	-
Remarks N/A															
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			88.041	76.043		90.953		128.776		-		128.776	-	-	-
Remarks N/A															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency										Date: May 2017															
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test					Project (Number/Name) MT09 / AEGIS BMD Test															
Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●		Complete Activity ◆																	
Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○		Planned Activity ◇																	
					FY 2016		FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022								
AA CTV-02 (FTO-02 E1a CTV) AEGIS AA, Intercept Only Flight Test					▲																				
ASD-15 (Intercept Flight Test)					◆																				
SCD CTV-02 (AEGIS SCD, Intercept Only Flight Test)					▲																				
GM CTV-02 Plus (GM, Intercept Flight Test)						▲																			
SM CTV-01 (AEGIS 3.6.1, Intercept Only Flight Test)						▲																			
GTI-ISR (16) (BMDS Ground Test)							◆																		
GTI-06 Part 2 (BMDS Ground Test)							◆																		
SM CTV-02 (AEGIS 3.6.1, Intercept Only Flight Test)							▲																		
SM CTV-01a (AEGIS 3.6.1, Intercept Only Flight Test)							▲																		
GTD-06 Part 2 (BMDS Ground Test)								◆																	
FTM-27 (AEGIS SBT, Intercept Flight Test)									△																
Warfighter TP 06 (BMDS Ground Test)										◇															
SFTM-01 (AEGIS 5.1, Intercept Flight Test)										△															
GTI-07a (BMDS Ground Test)											◇														
SFTM-02 (AEGIS 5.1, Intercept Flight Test)											△														
FTP-13 (P8-0T4) (LTPO, Intercept Flight Test)											△														
GTD-07a (BMDS Ground Test)												◇													
FTX-24 (AEGIS SBT, Target Only Flight Test)												△													
FTM-27 (Aegis, Intercept Flight Test)												△													
FTM-26 (Aegis Intercept Flight Test)												△													
SM CTV-03 (Aegis 3.6.1, Intercept Only Flight Test)												△													
FEV-01 (FTM-DST 1) (AEGIS 5.0, Intercept Flight Test)												△													
FTM-29 (AEGIS 5.1, Intercept Flight Test)													△												
Warfighter TP 07a (BMDS Ground Test)														◇											

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency										Date: May 2017									
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test					Project (Number/Name) MT09 / AEGIS BMD Test									
Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●		Complete Activity ◆											
Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○		Planned Activity ◇											
					FY 2016		FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		
GTI-07b (E/C) (BMDS Ground Test)									◇										
FTM-33 (AEGIS SBT, Intercept Flight Test)									△										
GTI-07b (N/P) (BMDS Ground Test)									◇	◇									
GTD-07b Part 1 (E/C) (BMDS Ground Test)									◇										
FT0-03 E1 (OTA, Intercept Flight Test)									△										
JFTM-5 E1 (AEGIS 5.1, Intercept Flight Test)									△										
JFTM-5 E2 (AEGIS 5.1, Intercept Flight Test)									△										
GTI-ISR (18) (BMDS Ground Test)										△									
FTM-31 (AEGIS SBT, Intercept Flight Test)										△									
GTD-07b Part 2 (N/P) (BMDS Ground Test)											◇								
FT0-03 E2 (OTA, Intercept Flight Test)										△									
FTM-32 (AEGIS SBT, Intercept Flight Test)											△								
FTX-23 (AEGIS 5.1, Target Only Flight Test)												△							
FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test)												△							
GTI-08 (E/C) (BMDS Ground Test)												◇	◇						
GTD-08 Part 1 (E/C) (BMDS Ground Test)												◇	◇						
Warfighter TP 07b (BMDS Ground Test)													◇						
GTI-08 (N/P) (BMDS Ground Test)														◇					
JFTM-7 E1 (AEGIS 5.1, Intercept Flight Test)														△					
JFTM-7 E2 (AEGIS 5.1, Intercept Flight Test)														△					
FTM-30 (AEGIS 5.1, Intercept Flight Test)															△				
FTM-24 (AEGIS 5.0 Intercept Flight Test)														△					
GTD-08 Part 2 (N/P) (BMDS Ground Test)																◇			
GT-21 Sprint 1 (BMDS Ground Test)																	◇		

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency **Date:** May 2017

Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MT09 / AEGIS BMD 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 2016				FY 2017				FY 2018				FY 2019			
Warfighter TP 08 (BMDS Ground Test)																		◇	
GT-21 Sprint 2 (BMDS Ground Test)																		◇	
GT-21 Sprint 3 (BMDS Ground Test)																		◇	◇
FTM-38 (AEGIS 5.0, Intercept Flight Test)																		△	
GT-21 Sprint 4 (BMDS Ground Test)																		◇	
GTI-ISR (21) (BMDS Ground Test)																		◇	
GT-21 Sprint 5 (BMDS Ground Test)																			◇
GT-21 Sprint 6 (BMDS Ground Test)																		◇	
GT-22 Sprint 1 (BMDS Ground Test)																			◇
GT-22 Sprint 2 (BMDS Ground Test)																			◇
GT-22 Sprint 3 (BMDS Ground Test)																		◇	
FTM-35 (AEGIS 5.1, Intercept Flight Test)																			△
FTM-37 (IOT&E) (AEGIS 5.1, Intercept Flight Test)																			△
GT-22 Sprint 4 (BMDS Ground Test)																			◇
GTD-22 (E/C) (BMDS Ground Test)																			◇

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / <i>Aegis BMD Test</i>	Project (Number/Name) MT09 / <i>AEGIS BMD Test</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AA CTV-02 (FTO-02 E1a CTV) AEGIS AA, Intercept Only Flight Test	1	2016	1	2016
ASD-15 (Intercept Flight Test)	1	2016	1	2016
SCD CTV-02 (AEGIS SCD, Intercept Only Flight Test)	1	2016	1	2016
GM CTV-02 Plus (GM, Intercept Flight Test)	2	2016	2	2016
SM CTV-01 (AEGIS 3.6.1, Intercept Only Flight Test)	2	2016	2	2016
GTI-ISR (16) (BMDS Ground Test)	3	2016	3	2016
GTI-06 Part 2 (BMDS Ground Test)	3	2016	3	2016
SM CTV-02 (AEGIS 3.6.1, Intercept Only Flight Test)	3	2016	3	2016
SM CTV-01a (AEGIS 3.6.1, Intercept Only Flight Test)	3	2016	3	2016
GTD-06 Part 2 (BMDS Ground Test)	4	2016	4	2016
FTM-27 (AEGIS SBT, Intercept Flight Test)	1	2017	1	2017
Warfighter TP 06 (BMDS Ground Test)	2	2017	2	2017
SFTM-01 (AEGIS 5.1, Intercept Flight Test)	2	2017	2	2017
GTI-07a (BMDS Ground Test)	3	2017	3	2017
SFTM-02 (AEGIS 5.1, Intercept Flight Test)	3	2017	3	2017
FTP-13 (P8-0T4) (LTPO, Intercept Flight Test)	3	2017	3	2017
GTD-07a (BMDS Ground Test)	4	2017	4	2017
FTX-24 (AEGIS SBT, Target Only Flight Test)	4	2017	4	2017
FTM-27 (Aegis, Intercept Flight Test)	4	2017	4	2017
FTM-26 (Aegis Intercept Flight Test)	4	2017	4	2017
SM CTV-03 (Aegis 3.6.1, Intercept Only Flight Test)	4	2017	4	2017
FEV-01 (FTM-DST 1) (AEGIS 5.0, Intercept Flight Test)	4	2017	4	2017
FTM-29 (AEGIS 5.1, Intercept Flight Test)	1	2018	1	2018

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency				Date: May 2017	
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0604878C / <i>Aegis BMD Test</i>		Project (Number/Name) MT09 / <i>AEGIS BMD Test</i>	
		Start		End	
Events	Quarter	Year	Quarter	Year	
Warfighter TP 07a (BMDS Ground Test)	2	2018	2	2018	
GTI-07b (E/C) (BMDS Ground Test)	2	2018	2	2018	
FTM-33 (AEGIS SBT, Intercept Flight Test)	3	2018	3	2018	
GTI-07b (N/P) (BMDS Ground Test)	3	2018	4	2018	
GTD-07b Part 1 (E/C) (BMDS Ground Test)	4	2018	4	2018	
FT0-03 E1 (OTA, Intercept Flight Test)	4	2018	4	2018	
JFTM-5 E1 (AEGIS 5.1, Intercept Flight Test)	4	2018	4	2018	
JFTM-5 E2 (AEGIS 5.1, Intercept Flight Test)	4	2018	4	2018	
GTI-ISR (18) (BMDS Ground Test)	1	2019	1	2019	
FTM-31 (AEGIS SBT, Intercept Flight Test)	1	2019	1	2019	
GTD-07b Part 2 (N/P) (BMDS Ground Test)	2	2019	2	2019	
FT0-03 E2 (OTA, Intercept Flight Test)	2	2019	2	2019	
FTM-32 (AEGIS SBT, Intercept Flight Test)	3	2019	3	2019	
FTX-23 (AEGIS 5.1, Target Only Flight Test)	4	2019	4	2019	
FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test)	4	2019	4	2019	
GTI-08 (E/C) (BMDS Ground Test)	4	2019	1	2020	
GTD-08 Part 1 (E/C) (BMDS Ground Test)	4	2019	1	2020	
Warfighter TP 07b (BMDS Ground Test)	1	2020	1	2020	
GTI-08 (N/P) (BMDS Ground Test)	2	2020	2	2020	
JFTM-7 E1 (AEGIS 5.1, Intercept Flight Test)	2	2020	2	2020	
JFTM-7 E2 (AEGIS 5.1, Intercept Flight Test)	2	2020	2	2020	
FTM-30 (AEGIS 5.1, Intercept Flight Test)	4	2020	4	2020	
FTM-24 (AEGIS 5.0 Intercept Flight Test)	3	2020	3	2020	
GTD-08 Part 2 (N/P) (BMDS Ground Test)	1	2021	1	2021	
GT-21 Sprint 1 (BMDS Ground Test)	1	2021	1	2021	
Warfighter TP 08 (BMDS Ground Test)	2	2021	2	2021	

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency			Date: May 2017	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test		Project (Number/Name) MT09 / AEGIS BMD Test	
	Start		End	
Events	Quarter	Year	Quarter	Year
GT-21 Sprint 2 (BMDS Ground Test)	2	2021	2	2021
GT-21 Sprint 3 (BMDS Ground Test)	2	2021	3	2021
FTM-38 (AEGIS 5.0, Intercept Flight Test)	3	2021	3	2021
GT-21 Sprint 4 (BMDS Ground Test)	3	2021	3	2021
GTI-ISR (21) (BMDS Ground Test)	3	2021	3	2021
GT-21 Sprint 5 (BMDS Ground Test)	4	2021	4	2021
GT-21 Sprint 6 (BMDS Ground Test)	4	2021	4	2021
GT-22 Sprint 1 (BMDS Ground Test)	1	2022	1	2022
GT-22 Sprint 2 (BMDS Ground Test)	2	2022	2	2022
GT-22 Sprint 3 (BMDS Ground Test)	2	2022	2	2022
FTM-35 (AEGIS 5.1, Intercept Flight Test)	3	2022	3	2022
FTM-37 (IOT&E) (AEGIS 5.1, Intercept Flight Test)	3	2022	3	2022
GT-22 Sprint 4 (BMDS Ground Test)	3	2022	3	2022
GTD-22 (E/C) (BMDS Ground Test)	4	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency										Date: May 2017		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MD40 / Program Wide Support			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
MD40: Program Wide Support	-	2.425	4.059	5.692	-	5.692	3.511	3.836	5.497	4.673	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2016, Program Wide Support (PWS) was proportionately allocated to Aegis BMD Test. In FY 2017 and FY 2018, PWS reflects a proportional change as a result an increase in Aegis BMD Test.

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 2016	FY 2017	FY 2018
Title: Program Wide Support Description: N/A FY 2016 Accomplishments: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Aegis BMD Test FY 2017 Plans: N/A FY 2018 Plans: N/A		2.425	4.059	5.692
	Articles:	-	-	-
	Accomplishments/Planned Programs Subtotals	2.425	4.059	5.692

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency		Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / <i>Aegis BMD Test</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency												Date: May 2017			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test				Project (Number/Name) MD40 / Program Wide Support					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA	0.000	0.036		0.081	Jul 2017	0.150	Jul 2018	-		0.150	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	0.000	0.000		2.414	Nov 2016	2.784	Nov 2017	-		2.784	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (FFP)	C/FFP	Various : Multi: AL, CA, CO, VA	0.000	2.389		1.563	Jun 2017	2.725	Jun 2018	-		2.725	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPR)	MIPR	Various : Multi: AL, CA, CO, VA	0.000	0.000		0.001	Dec 2016	0.033	Dec 2017	-		0.033	Continuing	Continuing	Continuing
Subtotal			0.000	2.425		4.059		5.692		-		5.692	-	-	-
Remarks N/A															
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	2.425		4.059		5.692		-		5.692	-	-	-
Remarks N/A															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency														Date: May 2017																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency			Date: May 2017
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604878C / Aegis BMD Test	Project (Number/Name) MD40 / Program Wide Support	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2016	4	2022