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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency										Date: May 2017		
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 0604873C I Long Range Discrimination Radar (LRDR)							
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	49.606	132.278	173.162	357.659	-	357.659	135.187	52.218	50.843	119.803	Continuing	Continuing
MC96: Cyber Operations	-	5.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0	5.600
MD96: Long Range Discrim Radar (LRDR)	49.606	115.619	161.353	341.638	-	341.638	128.689	49.792	48.388	114.071	Continuing	Continuing
MD40: Program Wide Support	-	11.059	11.809	16.021	-	16.021	6.498	2.426	2.455	5.732	Continuing	Continuing
Program MDAP/MAIS Code: 362												
Note N/A												
A. Mission Description and Budget Item Justification The mission of the Long Range Discrimination Radar (LRDR) program office is to define, develop, acquire, field, and sustain the LRDR as an element of the BMDS supporting robust homeland defense (RHD). Initial fielding of the LRDR Configuration 1 is planned for 2020 with an Operational Capability Declaration projected in the 2022 time frame. The LRDR provides persistent long-range midcourse discrimination, precision tracking and hit assessment to support the RHD Capability against long-range missile threats in the Pacific theater. The LRDR is comprised of a LRDR Equipment Shelter (LES), housing two radar array faces, a Mission Control Facility (MCF) which supports radar operations, and supporting facilities and infrastructure. The Secretary of the Air Force approved Clear Air Force Station, Alaska as the LRDR site. The Air Force Space Command (AFSPC) has been designated as the Lead MAJCOM.  The LRDR operates in S-band frequencies, features scalable and open systems architecture to mitigate evolving threats, and is integrated into the BMDS through the C2BMC system. This Program Element includes BMDS threat discrimination improvements, which will enhance BMDS effectiveness against the evolving threat. The end result will be a BMDS architecture more capable of discriminating and destroying re-entry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, which will conserve homeland defense interceptor inventory. LRDR also supports additional mission areas including Space Situational Awareness.  FY 2017 Amended Budget Request Justification: \$+11.150M is required to address emergency warfighting readiness requirements to ensure readiness of the BMDS. \$+11.150M Project MD96-LRDR/Long Range Discrimination Radar to purchase and install Front End Electronics (FEE) on the LRDR Primary Array to improve MDA's ability to adapt and mitigate threat growth with additional sensitivity without radar down time. Also improves system performance by reducing field installation cost (increased flexibility/supportability). Funds also provide removal of Polychlorinated Biphenyl-contaminated paint on structural steel encountered in Ballistic Missile Early Warning System (BMEWS) buildings (receive antennas not affected) in preparation for construction of LRDR.												

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> FY 2018 Missile Defense Agency	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
Previous President's Budget	137.564	162.012	310.347	-	310.347
Current President's Budget	132.278	173.162	357.659	-	357.659
Total Adjustments	-5.286	11.150	47.312	-	47.312
• Congressional General Reductions	-0.788	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	-1.500	0.000			
• SBIR/STTR Transfer	-2.998	0.000			
• Other Adjustment	0.000	11.150	47.312	-	47.312

**Change Summary Explanation**

The increase in FY2018 from PB17 to PB18 reflects a realignment of the baselined LRDR schedule and contract spend plan for long lead time material (LLTM) for design critical components.

FY 2017 Amended Budget Request Justification: \$+11.150M is required to address emergency warfighting readiness requirements to ensure readiness of the BMDS.

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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 0604873C / Long Range Discrimination Radar (LRDR)				Project (Number/Name) MC96 / Cyber Operations			
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
MC96: Cyber Operations	-	5.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0	5.600
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
Funding allocated in FY16 to comply with the emerging cybersecurity requirements directed by the Secretary of Defense (SECDEF) Cybersecurity Discipline Implementation Plan.												
A. Mission Description and Budget Item Justification												
To comply with the Secretary of Defense (SECDEF) Cybersecurity Discipline Implementation Plan, MDA funded cybersecurity efforts towards executing the four Lines of Effort. MDA made significant progress in FY16 toward the following efforts within the Protecting Networks and Information cyber taxonomy.												
1. Strong Authentication necessary to degrade the adversaries' ability to maneuver on DoD information Networks. MDA continues to implement strong authentication to reduce anonymity and improve the security posture of MDA networks.												
2. Device hardening required to reduce internal and external attack vectors into DoD information networks. MDA made progress toward reducing vulnerabilities and weaknesses in hardware and software that could comprise MDA networks.												
3. Reduce the attack surface required to decrease external attack vectors into DoD information networks. MDA reviewed, reported and removed Internet-facing assets that no longer have a mission requirement from the MDA networks.												
4. Alignment to cybersecurity / computer network defense service providers. MDA is making progress toward moving to a more agile and defendable cybersecurity strategy posture. Additionally, MDA is aligning networks under the MDA Computer Network Defense Service Provider (CNDSP).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2016	FY 2017	FY 2018	
Title: Protecting Networks and Information									5.600	0.000	0.000	
									Articles: -	-	-	
Description: This budget project initiates compliance with the Secretary of Defense (SECDEF) Cybersecurity Discipline Implementation Plan.												
FY 2016 Accomplishments: SEE ABOVE												
FY 2017 Plans:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MC96 / <i>Cyber Operations</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
N/A			
<b>FY 2018 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>		5.600	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			
<b>E. Performance Metrics</b> N/A			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Missile Defense Agency</b>												<b>Date:</b> May 2017			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0604873C / Long Range Discrimination Radar (LRDR)				<b>Project (Number/Name)</b> MC96 / Cyber Operations					

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Protecting Networks and Information - Protecting Networks and Information	C/CPAF	Northrop Grumman : AL, CO, VA	0.000	5.600	Jun 2016	0.000		0.000		-		0.000		0	5.600	5.600
<b>Subtotal</b>			0.000	5.600		0.000		0.000		-		0.000		0.000	5.600	5.600

  

<b>Remarks</b> N/A																
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	<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	5.600		0.000		0.000		-		0.000	0.000	5.600	-

  

<b>Remarks</b> 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 0604873C / Long Range Discrimination Radar (LRDR)										Project (Number/Name) MC96 / Cyber Operations									
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		FY 2020		FY 2021		FY 2022							
Protecting Networks and Information												◆	◆																

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MC96 / <i>Cyber Operations</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Protecting Networks and Information	3	2016	4	2016

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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 0604873C / Long Range Discrimination Radar (LRDR)				Project (Number/Name) MD96 / Long Range Discrim Radar (LRDR)			
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
MD96: Long Range Discrim Radar (LRDR)	49.606	115.619	161.353	341.638	-	341.638	128.689	49.792	48.388	114.071	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

This project provides for the development and initial fielding of a LRDR by 2020 to provide an improved persistent midcourse BMDS discrimination capability in the Pacific sensor architecture. The LRDR will also increase the defensive capacity of the Ground-Based Midcourse Defense (GMD) interceptor inventory and address evolving threats. MDA's request includes funding for the design and development of the LRDR, delivery of spares for initial fielding, system engineering, software development, software Independent Verification and Validation, hardware manufacturing, qualification testing, developmental testing support and Modeling and Simulation (M&S) efforts. M&S includes development of LRDR digital simulations and their integration into the BMDS, M&S architecture, and Verification, Validation, and Accreditation of LRDR models. The inherent capabilities of the LRDR will be leveraged to support auxiliary missions, including augmentation of United States Air Force (USAF) Space Surveillance and Space Situational Awareness capabilities.

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

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Long Range Discrimination Radar (LRDR)	115.619	161.353	341.638
<b>Articles:</b>	-	-	-
<p><b>Description:</b> The LRDR program includes requirement development activities associated with systems engineering, software development, discrimination improvements, design reviews, testing, and Models and Simulation (M&amp;S) efforts for radar development. Efforts include LRDR site activation and preparation of site infrastructure for construction activities. The program will develop and integrate Command, Control, Battle Management, and Communications (C2BMC) systems for LRDR functionality. The program will develop and deliver radar software Build 1 and establish the Independent Verification and Validation (IV&amp;V) lab for testing of operational software. The program includes purchase, manufacture, and test of long lead components. Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2016 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>-Completed the LRDR program System Requirements Review (SRR)</li> <li>-Completed the LRDR contract Integrated Baseline Review (IBR)</li> <li>-Initiated preparations for system-level Preliminary Design Review (PDR)</li> <li>-Initiated support for the CAPE's Independent Cost Estimate (ICE)</li> <li>-Initiated purchase of prototype hardware and long-lead items</li> </ul>			



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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MD96 / <i>Long Range Discrim Radar (LRDR)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2016</b>	<b>FY 2017</b>
<ul style="list-style-type: none"> <li>-Completed the MILCON 65% Facilities Design Review</li> <li>-Completed MILCON 95% Facilities Design Review</li> <li>-Completed environmental, geotechnical, and other studies for environmental compliance and to inform military construction (MILCON) design effort</li> </ul> <p><b>FY 2017 Plans:</b></p> <ul style="list-style-type: none"> <li>-Initiate LRDR program transition from the design phase to the production and integration phase. Critical Design Reviews (CDRs) will be conducted and parts will be ordered based on the approved designs.</li> <li>-Conduct system-level PDR</li> <li>-Conduct system-level CDR at the component, subsystem and system level</li> <li>-Initiate preparations for system-level Final Design Review (FDR)</li> <li>-Conduct the Developmental Baseline Review (DBR) after PDR and completion of the ICE, in accordance with acquisition standards and program schedule that was briefed to OSD, AT&amp;L</li> <li>-Initiate establishment and implementation of initial physical and electronic security services</li> <li>-Initiate the purchase and installation of Front End Electronics (FEE) on the LRDR Primary Array to improve MDA's ability to adapt and mitigate threat growth with additional sensitivity without radar down time</li> <li>-Initiate environmental remediation of Ballistic Missile Early Warning System (BMEWS) at Clear Air Force Station, Alaska</li> </ul> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"> <li>-Complete design and purchase hardware:</li> <li>    --Conduct system Final Design Review (FDR) and initiate purchasing of design critical components for the Sub-Array Suites (SAS), Radar Processing Group (RPG), and Mission Processing Group (MPG)</li> <li>    --Purchase and receive radar material to include: Transmit Receive (T/R) modules, Wide Band Limiter (WBLR) modules, T/R Low Power Module Circuit Card Assemblies (CCAs), T/R High Power Module CCAs, Power Line Replaceable Units (LRUs), Digital Receiver / Exciter (DREX) LRUs, DREX Radio Frequency (RF) CCAs, DREX Processor CCAs, Column Processors, Long Lead Column Processor CCAs, Subarray Suite Assembly materials, and Synthesizer Cabinets</li> <li>-Initiate qualification and sub-system testing:</li> <li>    --Initiate Environmental Qualification testing, Electro-Magnetic Interference (EMI) testing and SAS calibration testing on the LRDR Integration Site (LIS)</li> <li>    --Complete Highly Accelerated Life Test (HALT) of radar array power systems</li> <li>-Initiate manufacturing and assembly on Array #1 and #2 and begin Factory Acceptance Testing on Array #1:</li> <li>    --Conduct manufacturing review for Sub-Array Suites (SAS) and Front End Electronics (FEE)</li> <li>    --Assemble components to include: DREX LRUs, T/R LRUs, Power Supply LRUs, Panel Structure, Radiating Tiles, Circulator CCAs, and Beamformer LRUs</li> <li>-Initiate final SAS and FEE assembly</li> </ul>			

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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 0604873C / Long Range Discrimination Radar (LRDR)				Project (Number/Name) MD96 / Long Range Discrim Radar (LRDR)				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2016	FY 2017	FY 2018
--Deliver Technical Data Package --Deliver 100% Design Drawings for Construction --Complete development and delivery of software Build 1 and transition to software maintenance: --Conduct SW Test Readiness Review (TRR), complete and deliver software Build 1, integrate Build 1 into government IV&V lab and test the operational software build --Deliver Final cyber security mitigation software and final version of diagnostic / evaluation software --Deliver Active Electronic Steered Area (AESAs) Radio Frequency (RF) model --Continue operations support for the LRDR Program Office												
Accomplishments/Planned Programs Subtotals										115.619	161.353	341.638
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	
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,260.480	862.080	828.097	-	828.097	630.842	651.047	567.451	551.701	Continuing	Continuing	
• 0603884C: Ballistic Missile Defense Sensors	233.020	230.077	247.345	-	247.345	247.643	362.850	401.267	497.503	Continuing	Continuing	
• 0603884C: SENSORS MILCON	0.000	166.670	0.000	-	0.000	150.000	0.000	212.000	0.000	0	528.670	
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	425.996	456.267	430.115	-	430.115	461.275	501.956	496.411	514.139	Continuing	Continuing	
• 0603904C: Missile Defense Integration and Operations Center (MDIOC)	46.191	54.750	53.265	-	53.265	54.505	57.588	58.574	59.738	Continuing	Continuing	
• 0603907C: Sea Based X-Band Radar (SBX)	81.265	93.287	130.695	-	130.695	114.545	126.250	97.666	97.659	Continuing	Continuing	
• 0604879C: Ballistic Missile Defense Sensor Test	83.597	83.250	84.239	-	84.239	65.886	76.218	68.231	56.579	Continuing	Continuing	
• 31299903: MILCON PLANNING and DESIGN	15.000	0.000	0.000	-	0.000	15.184	36.140	16.248	8.009	0	90.581	

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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 0604873C / Long Range Discrimination Radar (LRDR)	Project (Number/Name) MD96 / Long Range Discrim Radar (LRDR)	

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<b>Remarks</b>											

**D. Acquisition Strategy**

The LRDR acquisition strategy was approved on 7 January 2015 which incorporates robust acquisition practices to ensure delivery of a best value solution that meets mission performance requirements and reduces lifecycle costs. A fixed-price incentive contract was awarded to Lockheed Martin Corporation of Moorestown, New Jersey on October 21, 2015 to manage, develop, build and integrate, test, and field the LRDR prime mission equipment. The prime contract included other fixed-price and cost-reimbursable line items and options in order to properly balance acquisition costs and risks. Performance and cost incentives were included to motivate contractor performance. The radar prime contractor will deliver a full technical data package, which will enable the government to effectively and affordably sustain the system. MDA will synchronize the radar development contract efforts with a simultaneous MILCON effort which will be executed through the US Army Corps of Engineers. The LRDR is expected to complete development and initial fielding in 2020 for BMDS integration and testing.

**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 0604873C / Long Range Discrimination Radar (LRDR)				Project (Number/Name) MD96 / Long Range Discrim Radar (LRDR)					
Product Development (\$ 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
Long Range Discrimination Radar (LRDR) - Communications Integration	C/TBD	GTRI, LM, JHU : GA, CO, MD	0.000	10.350	Feb 2016	4.000	May 2017	10.000	May 2018	-		10.000	Continuing	Continuing	Continuing
Long Range Discrimination Radar (LRDR) - IV&V	MIPR	AMRDEC : Huntsville, AL	0.000	2.438	Jan 2016	3.700	Nov 2016	3.100	Nov 2017	-		3.100	Continuing	Continuing	Continuing
Long Range Discrimination Radar (LRDR) - Prime Contractor	C/FPIF	Lockheed Martin : Moorestown, NJ	35.500	73.812	Feb 2016	139.653	Nov 2016	309.981	Nov 2017	-		309.981	Continuing	Continuing	Continuing
Long Range Discrimination Radar (LRDR) - Site Activation & Studies	C/TBD	MDA : AL	14.106	29.019	Jun 2016	14.000	Feb 2017	18.557	Feb 2018	-		18.557	Continuing	Continuing	Continuing
Subtotal			49.606	115.619		161.353		341.638		-		341.638	-	-	-
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			49.606	115.619		161.353		341.638		-		341.638	-	-	-
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										R-1 Program Element (Number/Name)										Project (Number/Name)										
0400 / 4										PE 0604873C / Long Range Discrimination Radar (LRDR)										MD96 / Long Range Discrim Radar (LRDR)										
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								
Long Range Discrimination Radar Capability										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
System Requirements Review (SRR)										▲																				
Technical Baseline Review (TBR)											★																			
Preliminary Design Review (PDR)													△																	
Developmental Baseline Review (DBR)														☆																
Critical Design Review (CDR)															△															
Build 1 Software Delivery																△														
FTX-27 (SN, Target Only Flight Test)																			△											
Initial Fielding																							△							
GTI-08 (N/P)(BMDS Ground Test)																				◇	◇									
Technical Capability Declaration (TCD)																							△							
GTD-08 (N/P) (BMDS Ground Test)																							◇							
FTX-26 (SN, Target Only Flight Test)																									△					

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MD96 / <i>Long Range Discrim Radar (LRDR)</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Long Range Discrimination Radar Capability	1	2016	4	2022
System Requirements Review (SRR)	2	2016	2	2016
Technical Baseline Review (TBR)	3	2016	3	2016
Preliminary Design Review (PDR)	2	2017	2	2017
Developmental Baseline Review (DBR)	3	2017	3	2017
Critical Design Review (CDR)	4	2017	4	2017
Build 1 Software Delivery	3	2018	3	2018
FTX-27 (SN, Target Only Flight Test)	4	2019	4	2019
Initial Fielding	1	2021	1	2021
GTI-08 (N/P)(BMDS Ground Test)	2	2020	3	2020
Technical Capability Declaration (TCD)	1	2021	1	2021
GTD-08 (N/P) (BMDS Ground Test)	1	2021	1	2021
FTX-26 (SN, Target Only Flight Test)	3	2021	3	2021

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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 0604873C / Long Range Discrimination Radar (LRDR)				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	-	11.059	11.809	16.021	-	16.021	6.498	2.426	2.455	5.732	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2016, Program Wide Support (PWS) was proportionately allocated to Long Range Discrimination Radar (LRDR). In FY 2017 and FY 2018, PWS reflects a proportional change as a result of an increase to LRDR.

**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)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> Program Wide Support	11.059	11.809	16.021
<b>Articles:</b>	-	-	-
<b>Description:</b> N/A			
<b>FY 2016 Accomplishments:</b> - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to LRDR.			
<b>FY 2017 Plans:</b> N/A			
<b>FY 2018 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	11.059	11.809	16.021

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Missile Defense Agency		<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>D. Acquisition Strategy</b> N/A  <b>E. Performance Metrics</b> 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 0604873C / Long Range Discrimination Radar (LRDR)				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 Facilities and Maintenance SRM (MIPR)	MIPR	Various : Multi: AL, VA, Aust, Japan	0.000	5.709		6.050	Nov 2016	9.153	Nov 2017	-		9.153	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	0.000	0.224		0.236	Jul 2017	0.320	Jul 2018	-		0.320	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA	0.000	5.126		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	0.000		5.523	Jul 2017	6.548	Jul 2018	-		6.548	Continuing	Continuing	Continuing
Subtotal			0.000	11.059		11.809		16.021		-		16.021	-	-	-
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	11.059		11.809		16.021		-		16.021	-	-	-
Remarks N/A															

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PE 0604873C: *Long Range Discrimination Radar (LRDR)*  
Missile Defense Agency

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Missile Defense Agency			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604873C / <i>Long Range Discrimination Radar (LRDR)</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>	

Schedule Details

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