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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency	Date: May 2017
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>
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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	1,141.624	197.617	209.072	230.162	-	230.162	194.328	253.778	264.377	267.254	Continuing	Continuing
MD07: <i>THAAD</i>	1,068.268	186.100	192.699	215.569	-	215.569	176.302	230.270	239.792	244.604	Continuing	Continuing
MC07: <i>Cyber Operations</i>	1.188	0.572	5.605	3.325	-	3.325	7.563	10.595	10.686	8.698	Continuing	Continuing
MD06: <i>Patriot Advanced Capability-3 (PAC-3)</i>	6.486	1.066	1.130	1.162	-	1.162	1.171	1.245	1.264	1.290	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	65.682	9.879	9.638	10.106	-	10.106	9.292	11.668	12.635	12.662	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

The increase from FY 2017 to FY 2018 provides increased THAAD Software Build 4.0 development.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Terminal Defense Segment provides vital forward-deployable capabilities to support Regional defensive BMD operations. The Terminal High Altitude Area Defense (THAAD) system provides Combatant Commanders a globally-transportable, rapidly-deployable capability to intercept and destroy short-range, medium-range, and limited intermediate-range ballistic missile threats inside or outside the atmosphere during terminal phase of flight. Continued development and integration will provide enhanced debris mitigation capability, improved interoperability with other BMDS elements, and training devices to support the THAAD Institutional Training Base.

This Program Element also investigates concepts and performs systems engineering to address hypersonic threats.

FY 2017 Amended Budget Request Justification: \$+2.238M is required to address emergency warfighting readiness requirements to ensure readiness of the BMDS. \$+2.238M Project MC07-Cyber Operations/BMDS Cyber Operations to implement improvements for General Service systems to strengthen Cybersecurity posture while concurrently streamlining the IT operating environment.

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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 0603881C / Ballistic Missile Defense Terminal Defense Segment			
B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	212.230	206.834	231.105	-	231.105
Current President's Budget	197.617	209.072	230.162	-	230.162
Total Adjustments	-14.613	2.238	-0.943	-	-0.943
• 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	-9.999	0.000			
• SBIR/STTR Transfer	-4.614	0.000			
• Other Adjustment	0.000	2.238	-0.943	-	-0.943
Change Summary Explanation					
FY 2017 Amended Budget Request Justification: \$+2.238M 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 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD07 / THAAD			
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
MD07: THAAD	1,068.268	186.100	192.699	215.569	-	215.569	176.302	230.270	239.792	244.604	Continuing	Continuing
Quantity of RDT&E Articles	50	-	-	-	-	-	-	-	-	-		

Note

The increase from FY 2017 to FY 2018 provides increased THAAD Software Build 4.0 development efforts.

A. Mission Description and Budget Item Justification

The THAAD II Development Program consists of multiple, independent software builds (e.g. Build 2.0, Build 3.0, build 4.0, and build 5.0) to expand the capability of the previously delivered THAAD 1.0 system. THAAD software build 3.0 is scheduled to be completed in 3Q FY 2018 and tested in 2Q FY 2019 during Flight Test Operational-03 Event 2 (FTO-03 E2). THAAD software build 4.0 is scheduled to be completed in 2Q FY 2020 and tested in 3Q FY 2020 during Flight Test THAAD-19 (FTT-19). THAAD software build 5.0 is scheduled to be completed in 2Q FY 2021 and tested in 4Q FY 2021 during Flight Test THAAD-21 (FTT-21).

New capabilities provided from the different software builds of the THAAD II Development Program include upgrades such as:

- 1) improved THAAD Weapons System performance in the presence of a high debris environment,
- 2) expanded defended area footprints via remote operation of THAAD Launchers,
- 3) enhancements to share defended assets between BMD tactical level weapon systems,
- 4) software upgrades to maintain capability against evolving threats,
- 5) upgrades to process C2BMC messages to obtain direction for target engagement,
- 6) Weapon System Information Assurance mandatory updates,
- 7) Warfighter requested enhancements,
- 8) improved capability to engage SRBM, MRBM and limited IRBM threats capable of creating complex scenes,
- 9) upgrades to maintain interfaces with other BMDS elements, and
- 10) providing the ability to initiate an engagement and launch THAAD interceptors using sensor data provided by BMDS sources outside the THAAD Battery.

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

	FY 2016	FY 2017	FY 2018
Title: Terminal High Altitude Area Defense (THAAD) Development	124.769	124.616	163.006
Articles:	-	-	-
Description: Development of the THAAD II program as a series of independent, parallel software builds (e.g. Build 2.0, Build 3.0, build 4.0, and build 5.0) to deliver enhanced system capabilities and expand defense of allies and deployed forces from short-to-medium-range threats.			

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD07 / <i>THAAD</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017
<p>Additionally, in FY 2016 MDA conducted studies to identify needed improvements to the regional BMDS capabilities. As a result of the study, content related to emerging threats that present challenging complex scenes were deemed mature enough to pursue mitigation solutions. This content was moved from THAAD Follow-on and included in the baselined THAAD II Development Program as "Electronic Protection/Objective Debris Mitigation" part of software build 4.0, and has subsequently moved to the accomplishment "THAAD Development".</p> <p>Recurring efforts to support software development include:</p> <ul style="list-style-type: none"> - Support Models and Simulations (M&S) related activities in element and BMDS test events in the approved Integrated master Test Plan (IMTP) such as; requirements, design, development, and verification/validation and accreditation, - Design, develop, test, and field the releases of THAAD system software to ensure continued performance and operation of fielded batteries, - Provide software updates in support of performance upgrades, - Support laboratory assets and equipment to enable future development, and to isolate, identify, and remedy root causes of equipment and software deficiencies identified by the warfighter, - Perform requirements development, engineering analysis, and performance verification for THAAD development and BMDS integration to ensure THAAD compliance with the Ballistic Missile Defense (BMD) System Specification, BMD System Description Document, and Master Integration Plan, - Participate in MDA and Army studies to determine the architecture and integration of the THAAD Weapon system into the Integrated Air and Missile Defense (IAMD) Battle Command System (IBCS), and - Provide and coordinate analysis, studies and papers to support the resolution of issues and concerns with the integration of the THAAD weapon system into the future Army IBCS architecture. <p>FY 2016 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of Phase II debris mitigation functionality and integration into the weapon system to improve interoperability with other BMDS elements. - Began mitigating the effects of Track ID Proliferation through the implementation of BMDS changes approved in MIL-STD-6016 Interface Change Proposals (ICPs) in coordination with Aegis BMD, Command and Control, Battle Management, and Communications (C2BMC) and MDA Engineering. - Continued system performance and requirement studies to assess capability development plans. - Performed Information Assurance Vulnerability Assessments (IAVA) to mitigate potential system vulnerabilities and to ensure continued performance and operation of fielded batteries. - Updated THAAD software and hardware to ensure compliance with Department of Defense (DoD) Weapon System Information Assurance Programs and guidance. 			

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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 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MD07 / THAAD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018
<ul style="list-style-type: none">- Initiated the incremental transition of software support from the Prime Contractor to AMRDEC to reduce total system life cycle costs.- Initiated systems engineering and software development for THAAD and AN/TPY-2 Radar Electronic Protection / Objective Debris Mitigation capability including requirements development, modeling and simulation updates, and algorithm design and prototyping. The development will provide an improved capability to engage SRBM, MRBM and IRBM threats capable of creating complex scenes.- Continued development of packaged threat products to enable deployed and fielded batteries to upload new data on threat missiles as they evolve without updating the entire tactical software package. This will allow the THAAD weapon system to be updated on threats missiles more frequently.- Continued updating performance characteristics of threat missiles to be included in the packaged threat products update. Updated threat characteristics are based on intelligence data and will optimize THAAD weapon system performance against enhanced threats.- Initiated the development and coordination of the THAAD Portable Planner in Step 1 of the IBCS architecture to enable integration of the THAAD battery capability into the IBCS battle planning process. <p>FY 2017 Plans:</p> <ul style="list-style-type: none">- The decrease in cost between FY 2016 and FY 2017 is primarily due to a reduction in RDT&E funding for system software support. Beginning in FY 2017, THAAD requested funding in O&M to provide deployment support for previously fielded software, reducing the RDT&E request. Funding for deployed software support was previously included in MD07: THAAD, R-2a THAAD Development, and R-3 Cost Category Item Lockheed Martin and is now found in MDA's O&M request under THAAD. Additional reductions are due to the movement of cyber security and information assurance vulnerability assessment from MD07 THAAD Development to MC07 Network/System Certification and Accreditation (C&A), the completion of intelligence data assessment updates, and lower costs associated with the testbeds being acquired in FY 2017 compared to FY 2016. The following bullets describe the planned accomplishments for FY 2017:- Continue development of Phase II debris mitigation functionality and integrate into the weapon system to improve interoperability with other BMDS elements.- Initiate development of real-time enhancements to Regional Peer-to-Peer Engagement Coordination via automated exchange coordination messages between BMD tactical level weapon systems that share defended assets and are capable of engaging a common threat. Assess enhancing Shoot-Assess-Shoot opportunities when THAAD is the second shooter. These changes will enhance THAAD's communications and interoperability with the other BMDS weapons and with the C2BMC.- Continue development of a new capability in the THAAD weapon system to launch the interceptor based on information from an external BMDS sensor prior to the threat being acquired by the battery's radar. Add the Link 16 J7.7 Association message to the THAAD Link 16 implementation. This addition facilitates launch on engagements for THAAD and other BMD Weapon Systems, allowing them to extend their defensive coverage beyond what is possible with their organic sensors.				

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD07 / <i>THAAD</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017
<ul style="list-style-type: none"> - Continue the acquisition of testbeds required to support multiple fielded battery configurations, development and integration of component software into system level software builds, and flight test pre-post- test analysis. Without this acquisition the current, limited testbeds must continue to be shared, thus impacting support to deployed batteries, development deliveries, and flight tests. - Complete development of packaged threat products to enable deployed and fielded batteries to upload new data on threat missiles as they evolve without updating the entire tactical software package. This will allow the THAAD weapon system to be updated on threats missiles more frequently. - Complete initial update of performance characteristics of threat missiles to be included in the packaged threat products update. Updated threat characteristics are based on intelligence data and will optimize THAAD weapon system performance against enhanced threats. - Continue development to mitigate the effects of Track ID Proliferation through the implementation of BMDS changes approved in MIL- STD-6016 Interface Change Proposals (ICPs) in coordination with Aegis BMD, C2BMC and MDA Engineering. - Continue the development and coordination of the THAAD Portable Planner into Step 1 of the IBCS architecture to enable integration of the THAAD battery capability into the IBCS battle planning process. <p>FY 2018 Plans:</p> <ul style="list-style-type: none"> - The increase in cost between FY 2017 and FY 2018 is primarily due to the initiation of software development efforts to allow THAAD to engage a target tracked by a different BMDS sensor via C2BMC, as well as newly defined requirements Electronic Protection / Objective Debris Mitigation previously included in THAAD Follow-on to provide an improved capability to engage SRBM, MRBM and limited IRBM threats capable of creating complex scenes. - Complete development of Phase II debris mitigation functionality and integration into the weapon system to improve interoperability with other BMDS elements - Continue development for THAAD Electronic Protection/Objective Debris Mitigation and implementation of flexible-threat packages and defense planning in order to provide an improved capability to engage SRBM, MRBM and limited IRBM threats capable of creating complex scenes. - Continue analysis of potential enhancements to Regional Peer-to-Peer Engagement Coordination between BMD tactical level weapon systems that share defended assets and are capable of engaging a common threat to conserve missile inventory and maximize engagements. - Continue development of expanded defended area footprints via remote operation of THAAD Launchers. This effort adds additional communication pathways between launchers and TFCC to allow launchers to be emplaced and operated beyond the limit of current fiber optic cables carried by the battery. - Continue acquisition and upgrades to test beds to support software development, cyber security efforts, and changes to hardware configuration. - Continue the incremental transition of software support from the Prime Contractor to organic support in order to reduce total system life cycle costs. 			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018
<div>- Continue mitigation of Track ID Proliferation to improve situational awareness when the warfighter is presented target information from multiple BMDS sensors.</div> <div>- Complete the development and coordination of the THAAD Portable Planner into Step 1 of the IBCS architecture to enable integration of the THAAD battery capability into the IBCS battle planning process in order to expand interoperability with air and missile defense systems.</div> <div>- Initiate Block Development Process to identify THAAD evolution and synchronize requirements that address threat evolution, obsolescence needs, Army training needs, reliability and sustainment issues. Perform redesign mitigation for obsolescence which could impact THAAD's future capability evolution.</div> <div>- Conduct studies to assist in identification of concepts and solutions to interceptors, sensors, and command and control to close potential THAAD capability gaps in order to provide enhanced defense against emerging regional threats.</div> <div>- Continue development of improved tactical network architecture in order to increase availability, robustness, and security of the system to counter cybersecurity threats.</div> <div>- Initiate developmental efforts to replace current GPS antennas with anti-jam and regional clock capabilities. This effort is a Department of Defense mandate to ensure the integrity and availability of positioning, navigation, and timing data for the THAAD weapon system.</div>				
<div>Title: Program Operations</div> <div>Articles:</div> <div>Description: Program Operations provides strategic planning, program integration, contracting, acquisition, engineering, financial management, internal reviews and audits, and program assessments for the THAAD Program Office.</div> <div>Recurring activities include:</div> <div>-Provide technical and business management support activities to provide the Program Director with critical program status and decision quality data,</div> <div>-Ensure THAAD program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process,</div> <div>-Conduct internal Baseline Execution Reviews to measure program progress against the six Missile Defense Agency approved baselines</div> <div>-Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs, and</div> <div>-Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter.</div>		45.836 -	44.552 -	45.704 -

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Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MD07 / THAAD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: - See description.					
FY 2017 Plans: - See description.					
FY 2018 Plans: - See description.					
Title: THAAD Program Support			8.595	2.276	2.576
Articles:			-	-	-
Description: This activity provides support for efforts such as communications and interoperability upgrades to operate on joint, service, or allied communications networks. This activity provides support for safety and mission assurance requirements, and support of independent government offices as part of the Materiel Release process.					
Recurring efforts include: - Interoperability development and maintenance to ensure the weapon system is authorized to operate on joint, service, or allied communications networks, and - Safety confirmation and verification testing, preparation and approvals of System Safety Risk Assessments, issuance of hazard classifications and safety releases, insensitive munitions approvals and waivers, and independent oversight and support in the areas of reliability, availability, and maintainability (RAM) and quality assurance.					
FY 2016 Accomplishments: - Set up an Institutional Conduct of Fire Trainer (ICOFT) testbed to stabilize fielded ICOFT software, resolve Software Change Requests and related findings, develop a standardized grading methodology across all ICOFT laboratories, and update ICOFT courseware impacted by the Interactive Electronic Technical Manual (IETM).					
FY 2017 Plans: - The decrease in cost between FY 2016 and FY 2017 is due the completion of ICOFT testbed upgrades in FY 2016. - See description.					
FY 2018 Plans: - See description.					
Title: Project Redwood- Details at a Higher Classification			6.900	4.212	4.283
Articles:			-	-	-

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD07 / <i>THAAD</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017
<p>Description: This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress.</p> <p>FY 2016 Accomplishments: - See description.</p> <p>FY 2017 Plans: - See description.</p> <p>FY 2018 Plans: - See description.</p>			
<p>Title: THAAD Follow-On</p> <p align="right">Articles:</p> <p>Description: MDA Engineering is assessing BMDS options, including THAAD Follow-On for solutions to counter emerging threats. Further studies are being conducted to assist in the identification of innovative concepts and solutions to existing BMDS systems (i.e., Aegis, THAAD, and PATRIOT). These studies will explore recommended options to interceptors, sensors, and command and control concepts as well as approaches that might be incorporated into a future BMDS architecture and influence future acquisition decisions, including THAAD Follow-On.</p> <p>FY 2016 Accomplishments: - In FY 2016 MDA conducted studies to identify needed improvements to the regional BMDS capabilities. As a result of the study, content related to emerging threats that present challenging, complex scenes were deemed mature enough to pursue mitigation solutions. This content was moved from THAAD Follow-on and included in the baselined THAAD II Development Program as "Electronic Protection / Objective Debris Mitigation" part of software build 4.0, and has subsequently moved to the accomplishment category THAAD Development.</p> <p>FY 2017 Plans: - The increase in cost from FY 2016 and FY 2017 is due to a \$4 million dollar investment in development of models and simulations for the THAAD Follow-On development used to predict performance and design trades. - Continue Weapon System trade studies to draft key system requirements, functional allocations, and interface definitions to address emerging threats - Continue performance analyses of system and ground component design concepts to characterize capabilities, limitations, risk and areas for improvement/correction. - Continue trade studies to assess configuration and performance requirements of interceptor components.</p>		0.000 -	17.043 -
		0.000 -	0.000 -

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				Project (Number/Name) MD07 / <i>THAAD</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2016	FY 2017	FY 2018	
- Continue master test plan analysis to identify range requirements and flight test instrumentation requirements, document potential flight and ground test program requirements and objectives, assess courses of action, and coordinate with stakeholders. - Initiate THAAD Follow-On Development to include advanced capabilities against emerging threats, complex scenes and countermeasures. FY 2018 Plans: N/A											
Accomplishments/Planned Programs Subtotals								186.100	192.699	215.569	
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
• 0208866C: MD07: <i>THAAD O&M</i>	52.308	72.099	78.761	-	78.761	87.478	92.082	91.832	93.716	Continuing	Continuing
• 0208866C: MD07: <i>THAAD Procurement</i>	447.971	369.608	451.592	-	451.592	440.883	405.015	420.829	429.463	978.463	3,943.824
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	20.980	63.444	36.239	-	36.239	68.865	15.667	49.706	51.451	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The THAAD program awards Indefinite Delivery Indefinite Quantity (IDIQ) Task Orders on the Advanced Capability Development (ACD) contract for THAAD 2.0 development. The ACD contract is comprised of over 40 separate task orders with varying contract types such as firm fixed price, fixed price incentive firm, cost plus incentive fee, and cost plus fixed fee. The discrete task orders allow management and tracking of Development work.											
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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				Project (Number/Name) MD07 / <i>THAAD</i>					
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
Terminal High Altitude Area Defense (THAAD) Development - Advanced Capability Development	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	568.646	69.315	Nov 2015	82.368	Oct 2016	125.621	Nov 2017	-		125.621	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - IT Program Support	C/CPAF	Northrup Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	2.306	Nov 2015	1.889	Oct 2016	2.952	Nov 2017	-		2.952	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Lockheed Martin	SS/CPFF	LMSSC : Sunnyvale, CA/Huntsville, AL	0.000	0.000		12.995	Oct 2016	0.000		-		0.000	0	12.995	0
Terminal High Altitude Area Defense (THAAD) Development - MDA Program Support	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	94.841	6.002	Oct 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Models & Simulations	MIPR	US Army Research, Development, Engineering Command (RDECOM) : Huntsville, AL	147.529	25.626	Dec 2015	25.000	Oct 2016	23.527	Dec 2017	-		23.527	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Radar Engineering	SS/CPAF	Raytheon : Massachusetts	0.000	9.862	Jun 2016	0.000		0.000		-		0.000	0	9.862	0
Terminal High Altitude Area Defense (THAAD) Development - Requirements and Design	C/CPAF	Boeing : AL	5.879	4.540	Nov 2015	1.153	Dec 2016	2.817	Dec 2017	-		2.817	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Software Support (GOVT)	MIPR	US Army Research, Development, Engineering Command	0.000	2.097		0.000		6.313	Nov 2017	-		6.313	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 0603881C / Ballistic Missile Defense Terminal Defense Segment					Project (Number/Name) MD07 / THAAD				
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
		(RDECOM) : Huntsville, AL													
Terminal High Altitude Area Defense (THAAD) Development - Verification and Assessment	C/CPFF	Parsons : AL / CO	5.000	5.021	Nov 2015	1.211	Dec 2016	1.776	Dec 2017	-		1.776	Continuing	Continuing	Continuing
THAAD Follow-On - THAAD Follow-On Risk Reduction	SS/CPIF	Lockheed Martin : CA, TX, AL	0.000	0.000		17.043	Oct 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			821.895	124.769		141.659		163.006		-		163.006	-	-	-
Remarks															
- Award dates are shown as October as they are the continuation of task orders or MIPRs from previous FYs.															
- Decrease in FY 2017 R-3 Cost Category Item "Lockheed Martin" is due to the movement of funding for the support of software previously fielded to O&M funding and the movement of cyber security and information assurance vulnerability assessment into budget project MC07.															
- Increase in FY 2018 R-3 Cost Category Item "Advanced Capability Development" is primarily due to combining efforts previously shown separately as R-3 Cost Category Item "Lockheed Martin" to represent total planned funding for the ACD contract, as well as increases in development efforts for THAAD Software Build 4.0. The ACD contract is comprised of over 40 separate task orders with varying contract types such as firm fixed price, fixed price incentive firm, cost plus incentive fee, and cost plus fixed fee. - The addition of R-3 Cost Category Item "Software Support (GOVT)" in FY 2018 is the incremental transition of software support from the Prime Contractor to AMRDEC to reduce total system life cycle costs - Increase in FY 2017 R-3 Cost Category Item "Advanced Capability Development" is primarily related to initiation of software developments efforts in FY 2017, such as Regional Peer to Peer Engagement Coordination. Additional increase is due to the acquisition of testbeds to support multiple THAAD battery configurations.															
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 Operations - Program Operations	Various	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	143.687	45.836	Oct 2015	44.552	Oct 2016	45.704	Oct 2017	-		45.704	Continuing	Continuing	Continuing
THAAD Program Support - Mission Support	MIPR	ATEC / SMDC / AMRDEC / MDA :	10.625	7.995	Nov 2015	2.276	Oct 2016	2.576	Nov 2017	-		2.576	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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>					Project (Number/Name) MD07 / <i>THAAD</i>			

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
		WSMR, NM / Huntsville, AL													
THAAD Program Support - Prime Contractor Support	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	0.000	0.600		0.000		0.000		-		0.000	0	0.600	0
THAAD Program Support - Prior year no longer funded in the FYDP	Various	Various : Various	25.874	0.000		0.000		0.000		-		0.000	0	25.874	0
Project Redwood- Details at a Higher Classification - Special Programs	SS/FP	N/A : N/A	66.187	6.900	Oct 2015	4.212	Oct 2016	4.283	Oct 2017	-		4.283	Continuing	Continuing	Continuing
Subtotal			246.373	61.331		51.040		52.563		-		52.563	-	-	-

Remarks
- Award dates are shown as October as they are the continuation of task orders or MIPRs from previous FYs.

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
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

Management Services (\$ 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
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				Project (Number/Name) MD07 / <i>THAAD</i>				
	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	1,068.268	186.100	192.699	215.569	-	215.569	-	-	-		

Remarks

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

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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 0603881C / Ballistic Missile Defense Terminal Defense Segment										Project (Number/Name) MD07 / THAAD														
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						
THAAD Follow-On Risk Reduction Studies					◆	◆	◆																						
Launch on Link 16 Preliminary Design Review									△																				
Regional Peer to Peer Engagement Preliminary Design Review									△																				
THAAD Software Build 4.0 Engineering Requirements Review (ERR)										△																			
THAAD Software Build 4.0 Preliminary Design Review (PDR)											△																		
THAAD Software Build 4.0 Engineering Design Review (EDR)												△																	
THAAD Software Build 3.0 Delivery												△																	
THAAD Software Build 5.0 Engineering Requirements Review (ERR)													△																
THAAD Software Build 5.0 Preliminary Design Review (PDR)														△															
THAAD Software Build 5.0 Engineering Design Review (EDR)															△														
THAAD Software Build 4.0 Delivery																	△												
THAAD Software Build 5.0 Delivery																				△									

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD07 / <i>THAAD</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
THAAD Follow-On Risk Reduction Studies	1	2016	3	2016
Launch on Link 16 Preliminary Design Review	2	2017	2	2017
Regional Peer to Peer Engagement Preliminary Design Review	2	2017	2	2017
THAAD Software Build 4.0 Engineering Requirements Review (ERR)	3	2017	3	2017
THAAD Software Build 4.0 Preliminary Design Review (PDR)	1	2018	1	2018
THAAD Software Build 4.0 Engineering Design Review (EDR)	3	2018	3	2018
THAAD Software Build 3.0 Delivery	3	2018	3	2018
THAAD Software Build 5.0 Engineering Requirements Review (ERR)	4	2018	4	2018
THAAD Software Build 5.0 Preliminary Design Review (PDR)	2	2019	2	2019
THAAD Software Build 5.0 Engineering Design Review (EDR)	4	2019	4	2019
THAAD Software Build 4.0 Delivery	2	2020	2	2020
THAAD Software Build 5.0 Delivery	2	2021	2	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 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MC07 / 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
MC07: Cyber Operations	1.188	0.572	5.605	3.325	-	3.325	7.563	10.595	10.686	8.698	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note N/A												
A. Mission Description and Budget Item Justification Cyber Operations sustain MDA Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities; analysis of validation results, risk assessments; reviews of proposed Program Manager/Information Assurance Manager Plans of Action and Milestones for MDA THAAD mission systems; and supports THAAD certification to operate in the BMDS.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2016	FY 2017	FY 2018	
Title: Network / System Certification and Accreditation (C&A) Articles: Description: Funding in this project sustains MDA RMF and CVT activities, analysis of validation results, risk assessments, monitoring and tracking of Cybersecurity mitigations, and all other activities necessary to comply with the Federal Information Security Management Act (FISMA). Recurring efforts include: - Conducting cyber security / information assurance engineering and architecture planning for THAAD information technology systems - Developing and testing cyber security/information assurance control measures for BMDS THAAD systems - Developing THAAD RMF for DoD IT certification and accreditation packages - Supporting CVT of THAAD mission, test, and training systems - Developing Plan of Action and Milestones (POA&Ms) to resource and remediate information assurance deficiencies - Conducting annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining IA controls FY 2016 Accomplishments: - Initiated transition of THAAD systems to RMF for DoD IT in accordance with new DoD cybersecurity direction. - See description for other activities FY 2017 Plans:									0.572	5.605	3.325	
									-	-	-	

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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 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MC07 / Cyber Operations				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2016	FY 2017	FY 2018
<div>- The increase in cost between FY 2016 and FY 2017 is primarily due to movement of \$2.7 million of cyber security and information assurance vulnerability assessment from MD07: THAAD, R-2a THAAD Development to MC07: Cyber Operations, Network/System Certification and Accreditation (C&A) to better depict cyber security funding. The FY 2017 Request for Additional Appropriation added \$2.2 million required to strengthen Cybersecurity posture to ensure emergency warfighting readiness BMDS requirements, and is captured in the Windows 10 Implementation Cost Category.</div> <div>- Perform IAVA to mitigate potential system vulnerabilities and to ensure continued performance and operation of fielded batteries</div> <div>- Update THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs and guidance</div> <div>- Complete transition of THAAD systems to RMF for DoD IT IAW new DoD cybersecurity direction</div> <div>- Initiate implementation of Microsoft Windows 10 Operating Systems' migration for mission support systems in order to comply with Secretary of Defense's mandated transition timeline to strengthen Cybersecurity posture.</div> <div>- See description for other activities</div> <div>FY 2018 Plans:</div> <div>- Decrease from FY 2017 to FY 2018 is due to completion of Windows 10 implementation activities</div> <div>- Continue performing IAVA to mitigate potential system vulnerabilities</div> <div>- Continue updating THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs</div> <div>- See description for other activities</div>												
Accomplishments/Planned Programs Subtotals										0.572	5.605	3.325
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	
• 0208866C: MD07: THAAD O&M	52.308	72.099	78.761	-	78.761	87.478	92.082	91.832	93.716	0	568.276	
• 0208866C: MD07: THAAD Procurement	447.971	369.608	451.592	-	451.592	440.883	405.015	420.829	429.463	978.463	3,943.824	
• 0604876C: Ballistic Missile Defense Terminal Defense Segment Test	20.980	63.444	36.239	-	36.239	68.865	15.667	49.706	51.451	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
N/A												

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MC07 / <i>Cyber Operations</i>

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 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MC07 / Cyber Operations					
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
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : Various MDA Locations	1.188	0.572	Oct 2015	0.664	Oct 2016	0.678	Oct 2017	-		0.678	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Security Engineering	SS/CPFF	LMSSC : Sunnyvale, CA/Huntsville, AL	0.000	0.000		2.703	Oct 2016	2.647	Jan 2018	-		2.647	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Windows 10 Implementation - OGA Labs	MIPR	AMRDEC : Huntsville, AL	0.000	0.000		0.627	May 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Windows 10 Implementation - Prime Contractor	SS/CPFF	LMSSC : Various	0.000	0.000		1.611	May 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			1.188	0.572		5.605		3.325		-		3.325	-	-	-
Remarks															
The increase in cost between FY 2016 and FY 2017 in the R3 category Security Engineering is due to movement of cyber security and information assurance vulnerability assessment into budget project MC07 from the budget project MD07, R3 category Lockheed Martin beginning in FY 2017. Award dates are shown as October as they are the continuation of task orders or MIPRs from previous FYs. The FY 2017 Request for Additional Appropriation added \$2.238 million required to strengthen Cybersecurity posture to ensure emergency warfighting readiness BMDS requirements, and is captured in the Windows 10 Implementation Cost Category Items above.															
			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			1.188	0.572		5.605		3.325		-		3.325	-	-	-
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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>										Project (Number/Name) MC07 / <i>Cyber Operations</i>									
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		
MC07 Completed Cyber Operations					◆◆◆◆◆																			
MC07 Planned Cyber Operations											◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MC07 / <i>Cyber Operations</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC07 Completed Cyber Operations	1	2016	1	2017
MC07 Planned Cyber Operations	2	2017	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 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD06 / Patriot Advanced Capability-3 (PAC-3)			
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
MD06: Patriot Advanced Capability-3 (PAC-3)	6.486	1.066	1.130	1.162	-	1.162	1.171	1.245	1.264	1.290	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

A. Mission Description and Budget Item Justification

PAC-3 is an operational, land-based weapon built upon the proven U.S. Army Phased Array Tracking Radar Intercept on Target (PATRIOT) air and missile defense infrastructure. The Army is responsible for production and further development of the PAC-3 System; MDA remains responsible for any BMDS interoperability and integration efforts. Lower Tier Project Office (LTPO) will utilize MDA funds to further the integration of PATRIOT with the BMDS.

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

	FY 2016	FY 2017	FY 2018
Title: General Support	1.066	1.130	1.162
Articles:	-	-	-
Description: MDA funds PATRIOT participation in BMDS interoperability integration efforts. Activities support the day-to-day tasking that is leveraged upon LTPO by MDA based on the Transfer and Transition Plan Annex L.			
FY 2016 Accomplishments: See description.			
FY 2017 Plans: See description.			
FY 2018 Plans: See description.			
Accomplishments/Planned Programs Subtotals	1.066	1.130	1.162

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
• 0208866C: MD07: <i>THAAD O&M</i>	52.308	72.099	78.761	-	78.761	87.478	92.082	91.832	93.716	0	568.276

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				Project (Number/Name) MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
• 0208866C: MD07: <i>THAAD Procurement</i>	447.971	369.608	451.592	-	451.592	440.883	405.015	420.829	429.463	978.463	3,943.824
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	20.980	63.444	36.239	-	36.239	68.865	15.667	49.706	51.451	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The planned acquisition strategy for PATRIOT (Phased Array Tracking Radar Intercept on Target) support awards Task Orders on multiple contract vehicles and memorandum of Agreements with other government agencies. The program is considering opportunities for potential competitive awards.											
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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>					Project (Number/Name) MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>					

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
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

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
General Support - General Support	C/FFP	Intuitive Research and Technology / Wyle CAS / SAIC : Huntsville, AL	6.486	1.066	Nov 2015	1.130	Nov 2016	1.162	Nov 2017	-		1.162	Continuing	Continuing	Continuing
Subtotal			6.486	1.066		1.130		1.162		-		1.162	-	-	-

Remarks
N/A

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
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

Management Services (\$ 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
Subtotal			-	-		-		-		-		-	-	-	-

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>					Project (Number/Name) MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>				

Management Services (\$ 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
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	6.486	1.066		1.130		1.162		-		1.162	-	-	-

Remarks Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.													
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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>					Project (Number/Name) MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>									
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		
MD06 Completed Patriot Advanced Capability-3 (PAC-3)					◆	◆	◆	◆	◆										
MD06 Planned Patriot Advanced Capability-3 (PAC-3)										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD06 Completed Patriot Advanced Capability-3 (PAC-3)	1	2016	1	2017
MD06 Planned Patriot Advanced Capability-3 (PAC-3)	2	2018	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 0603881C / Ballistic Missile Defense Terminal Defense Segment				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	65.682	9.879	9.638	10.106	-	10.106	9.292	11.668	12.635	12.662	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016 and FY 2017, Program Wide Support reflects proportional changes as a result of decreases in Ballistic Missile Defense Terminal Defense Segment. FY 2018 reflects proportional changes as a result of increases in Ballistic Missile Defense Terminal Defense Segment.

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts and Military Interdepartmental Purchase Requests on the R-3.

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 include: 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	9.879	9.638	10.106
Articles:	-	-	-
Description: N/A			
FY 2016 Accomplishments: N/A			
FY 2017 Plans: N/A			
FY 2018 Plans: N/A			
Accomplishments/Planned Programs Subtotals	9.879	9.638	10.106

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>						Project (Number/Name) MD40 / <i>Program-Wide Support</i>			
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 (MIPR)	MIPR	Various : VA	3.500	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	5.167	1.440		0.195	Jul 2017	0.202	Jul 2018	-		0.202	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CA, CO, VA	2.795	0.000		0.720	Jul 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	14.049	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support International and Materiel and Readiness	MIPR	Various : Multi: AL, VA, Aust, Japan	1.645	0.284	Oct 2015	0.605	Jul 2017	0.921	Jul 2018	-		0.921	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	37.756	8.001	Jan 2016	7.619	Jan 2017	8.983	Jan 2018	-		8.983	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi: AL, VA	0.770	0.154	Aug 2016	0.499	Aug 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			65.682	9.879		9.638		10.106		-		10.106	-	-	-
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			65.682	9.879		9.638		10.106		-		10.106	-	-	-
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 0603881C / <i>Ballistic Missile Defense</i> <i>Terminal Defense Segment</i>								Project (Number/Name) MD40 / <i>Program-Wide Support</i>							
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			
MD40 Program-Wide Support								◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	

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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 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	Project (Number/Name) MD40 / <i>Program-Wide Support</i>	

Schedule Details

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