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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	207.916	161.267	292.811	129.957	-	129.957	120.392	124.652	48.055	49.029	Continuing	Continuing
MD33: <i>MD Space Exp Center (MDSEC)</i>	86.277	29.617	30.066	34.512	-	34.512	40.139	42.823	40.715	41.888	Continuing	Continuing
MD42: <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>	108.139	130.000	256.222	89.220	-	89.220	74.328	75.827	3.755	3.470	Continuing	Continuing
MC33: <i>MD Space Exp Center (MDSEC)</i>	10.839	0.376	1.358	1.506	-	1.506	1.688	1.741	1.780	1.817	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	2.661	1.274	5.165	4.719	-	4.719	4.237	4.261	1.805	1.854	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from FY 2022 to FY 2023 reflects completion of Launch Vehicle procurement and satellite (bus and payload) development.

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

Spacebased Kill Assessment (SKA): The SKA project will deliver hit and kill assessment from space. Missile Defense Agency (MDA) Missile Defense System (MDS) intercept testing experience provided a solid understanding of kill assessment physics to enable exploration of this critical capability. SKA incorporates Government Accountability Office (GAO) recommendations to examine the operational feasibility of disaggregating large satellites and to provide data for the business case for shared versus dedicated satellite control, including the ground antenna networks. The favorable cost and schedule performance on SKA is also consistent with the GAO's assessment of commercially hosted payload programs. The SKA experiment utilizes a network of small Infrared sensors integrated onto commercial host satellites that while on orbit observe missile defense intercepts and deliver hit and kill assessment declarations to the MDS. After successful participation in MDS Flight Tests in FY 2019, the MDA began transition of SKA to an operational element of the MDS.

Hypersonic and Ballistic Tracking Space Sensor (HBTSS): HBTSS will demonstrate a schedule-focused, cost-constrained capability to detect and track hypersonic threats and boosting conventional ballistic missiles. The key characteristic of HBTSS that sets it apart from other Overhead Persistent Infrared (OPIR) sensors is the requirement to provide fire-control quality tracking data. This information will be handed off to the MDS hypersonic weapons systems to allow long range engagement of the threat and the enhanced tracking accuracy through missile burn out will provide the warfighter increased missile defense weapons systems engagement capability and higher accuracy impact predictions. The requirement for fire-control data necessitates that HBTSS be a highly sensitive, low-latency, high quality of service system. MDA is collaborating with the U.S. Space Force, under the leadership of the Chief of Space Operations, and the Space Development Agency to demonstrate HBTSS as a potential element within the larger Unified OPIR Enterprise Architecture.

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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 1206895C / <i>Ballistic Missile Defense System Space Programs</i>
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Space Applications for Missile Defense (SAMD): SAMD consolidates MDA resources (including those efforts previously planned in PE 1206893C) to provide strategic planning, program integration, contracting, acquisition, engineering, financial management, and program assessments for development and acquisition of space applications.

This PE also funds Cybersecurity efforts necessary to support BMDS Space Programs.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	162.068	292.811	0.000	-	0.000
Current President's Budget	161.267	292.811	129.957	-	129.957
Total Adjustments	-0.801	0.000	129.957	-	129.957
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.801	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	129.957	-	129.957

**Change Summary Explanation**

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>				<b>Project (Number/Name)</b> MD33 / <i>MD Space Exp Center (MDSEC)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD33: <i>MD Space Exp Center (MDSEC)</i>	86.277	29.617	30.066	34.512	-	34.512	40.139	42.823	40.715	41.888	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase in FY 2023 provides for stand-up of Space Applications for Missile Defense in support of the Space Sensors enterprise.

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

The Spacebased Kill Assessment (SKA) system is composed of two segments: a space segment and a ground segment.

The space segment is composed of a network of small infrared sensors (sensors, processor cards and cabling), each mated to a different satellite. The total number of sensors and their network placement are specifically tailored for the hit and kill assessment missions. The space segment includes key design features to improve its resiliency.

The ground segment monitors the health and status of the on-orbit sensors, commands the sensors to perform the hit and kill assessment mission, and analyzes the data to make a hit/kill assessment determination for the Missile Defense System (MDS). The ground segment also includes the equipment necessary for communications security and information assurance. The Missile Defense Space Center provides the critical infrastructure for SKA data, routing SKA data between the commercial payload integrator and the multi-mission Missile Defense Space Enterprise Architecture (MDSEA). The operational command and control center for SKA, the Payload Operations Center, will support MDS Post Intercept Assessment (PIA) capabilities.

Beginning in FY 2023, Budget Project MD33 will also fund Space Applications for Missile Defense (SAMD). SAMD is a consolidation of functional elements of Missile Defense Agency (MDA) Contractor Support Services (CSS), Federally Funded Research and Development Center (FFRDC)/University Affiliated Research Center (UARC), and Civilian manpower into a single entity that provides acquisition, financial, and technical support across the MDA Space Sensors enterprise. This represents a continuation of efforts previously funded in PE 1206893C.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Spacebased Kill Assessment	29.617	30.066	26.502
<b>Articles:</b>	-	-	-
<b>Description:</b> The Spacebased Kill Assessment (SKA) project is designed to deliver hit and kill assessment for Homeland Defense.			
It includes:			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD33 / <i>MD Space Exp Center (MDSEC)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- SKA sensor-host satellite integration and testing</li> <li>- On-orbit operations by experimenting and participating in MDS ground and flight tests</li> <li>- Integration of SKA into the MDS operational baseline</li> <li>- Integration of SKA messages into PIA module for delivery to the Warfighter</li> <li>- Development of hit and kill assessment algorithms required to add SKA to the operational MDS</li> <li>- Supporting engineering trade studies and concept evaluations for current and future space-based sensors</li> </ul> <p>Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows:</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete development of the operational hit assessment software code</li> <li>- Continue developing kill assessment and ground test hit assessment algorithms and threat models</li> <li>- Continue to finalize integration of the SKA messages into the MDS operational interface in support of adding SKA capability to the operational all-domain MDS</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continues integration of SKA into the MDS Operational Capability Baseline through the Increment 6B.2 campaign</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease from FY 2022 to FY 2023 reflects completion of integration efforts in support of Increment 6B.2 campaign</p>				
<p><b>Title:</b> Space Applications for Missile Defense</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> SAMD provides strategic planning, program integration, contracting, acquisition, engineering, financial management, and program assessments for development and acquisition of space applications</p> <p>Recurring activities include:</p> <ul style="list-style-type: none"> <li>- Build, develop and acquire Space Applications to support the 10 Steps to Ballistic Missile Intercept</li> <li>- Integration of space data with the MDS to enhance system capabilities</li> <li>- Coordination with U.S. Space Force on development of Missile Defense space-based capabilities</li> <li>- Provide technical and business management support activities to provide critical program status and decision quality data</li> <li>- Participate in the Space Engineering Review Board</li> <li>- Integration of Space capabilities with the MDS</li> <li>- Integration of space assets within MDA's Integrated Master Test Plan</li> <li>- Develop and evaluate future Space Application concepts</li> </ul>		0.000	0.000	8.010
		-	-	-

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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD33 / <i>MD Space Exp Center (MDSEC)</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> N/A			
<b>FY 2023 Plans:</b> SEE ABOVE			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase from FY 2022 to FY 2023 provides for continued funding of functional elements of MDA Space Sensors CSS, FFRDC/ UARC, and civilian manpower into single entity supporting development of Space Applications for missile defense previously funded in PE 1206893C.			
<b>Accomplishments/Planned Programs Subtotals</b>	29.617	30.066	34.512

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	1,195.853	724.028	667.524	-	667.524	870.817	802.617	781.973	765.733	Continuing	Continuing
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	259.605	254.962	231.134	-	231.134	250.028	274.705	276.254	257.575	Continuing	Continuing
• 0603892C: <i>AEGIS BMD</i>	861.809	639.549	600.072	-	600.072	658.798	574.014	570.018	580.496	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	639.027	564.946	589.374	-	589.374	575.883	588.824	612.853	605.801	Continuing	Continuing
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	54.026	52.403	49.367	-	49.367	51.744	56.502	57.833	59.006	Continuing	Continuing
• 0603914C: <i>Ballistic Missile Defense Test</i>	364.994	389.156	367.824	-	367.824	363.963	421.261	476.991	490.176	Continuing	Continuing
• 0603915C: <i>Ballistic Missile Defense Targets</i>	534.348	560.478	559.513	-	559.513	555.341	623.995	628.146	632.072	Continuing	Continuing
• 1206893C: <i>Space Tracking and Surveillance System</i>	33.356	15.176	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	48.532

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

**D. Acquisition Strategy**

SKA leverages experience that the Johns Hopkins University Applied Physics Laboratory (JHU/APL) has with its extensive history of performing kill assessment activities and conducting experiments associated with the Aegis BMD program. JHU/APL is the developer of the SKA experiment and its primary subcontractor was responsible for payload integration and hosting accommodations using a firm fixed price contract to contain costs. The SKA experiment uses a commercial satellite program as the platform host for a DOD payload, taking full advantage of a multi-billion dollar space and ground system that already exists.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 1206895C / Ballistic Missile Defense System Space Programs						MD33 / MD Space Exp Center (MDSEC)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Spacebased Kill Assessment - Development and Experimentation	C/CPFF	JHU/APL : MD	38.234	9.129	Nov 2020	11.145	Nov 2021	12.202	Nov 2022	-		12.202	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Experimental Ops Team	C/CPFF	JHU/APL : MD	2.138	1.072	Nov 2020	0.000		0.000		-		0.000	0.000	3.210	3.210
Spacebased Kill Assessment - Incremental Capability Operations	C/CPFF	Various : CO	0.000	0.000		8.279	Nov 2021	7.894	Nov 2022	-		7.894	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Integrate SKA into MDS Comms Network	C/CPIF	Jacobs Engineering : CO	0.259	0.000		0.000		0.000		-		0.000	0.000	0.259	0.259
Spacebased Kill Assessment - MDSC Support	C/CPAF	Northrop Grumman : CO	0.598	0.000		0.000		0.000		-		0.000	0.000	0.598	0.598
Spacebased Kill Assessment - Software Assurance	MIPR	DEVCOM : AL	0.000	0.000		0.788	Dec 2021	0.811	Dec 2022	-		0.811	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Transition To Ops (Mission Systems)	C/Various	Various : MDA CO, AL	7.606	8.815	Nov 2020	0.000		0.000		-		0.000	0.000	16.421	12.638
Spacebased Kill Assessment - Transition to Ops (Developer)	C/CPFF	JHU/APL : Laurel, MD	4.917	7.674	Nov 2020	7.135	Nov 2021	1.891	Nov 2022	-		1.891	Continuing	Continuing	Continuing
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - Ground Segment	C/CPIF	Jacobs : Schriever AFB	3.798	0.000		0.000		0.000		-		0.000	0.000	3.798	3.798
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - Space Prototype Concept Activity	MIPR	SMC SpEC OTA : Various	7.207	0.000		0.000		0.000		-		0.000	0.000	7.207	7.207
<b>Subtotal</b>			64.757	26.690		27.347		22.798		-		22.798	Continuing	Continuing	N/A

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Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
0400 / 4				PE 1206895C / Ballistic Missile Defense System Space Programs					MD33 / MD Space Exp Center (MDSEC)						
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
<b>Remarks</b>															
N/A															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Spacebased Kill Assessment - Contract Support Services (CSS)	C/Variou	Various : CO, VA	1.518	1.304	Nov 2020	1.500	Nov 2021	1.455	Nov 2022	-		1.455	Continuing	Continuing	Continuing
Spacebased Kill Assessment - FFRDC/UARC	Variou	Various : CO, AL, MD, VA, CA	2.441	1.001	Nov 2020	0.867	Nov 2021	0.988	Nov 2022	-		0.988	Continuing	Continuing	Continuing
Spacebased Kill Assessment - IT User Services	C/CPIF	JACOBS TECHNOLOGY INC. : Various	0.100	0.053	Nov 2020	0.054	Dec 2021	0.697	Nov 2022	-		0.697	Continuing	Continuing	Continuing
Spacebased Kill Assessment - MDA Civilian	Allot	MDA : VA	0.671	0.220	Oct 2020	0.156	Oct 2021	0.161	Oct 2022	-		0.161	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Program Mission Support	C/Variou	Various : CO, AL, MD, VA	0.295	0.349	Oct 2020	0.142	Nov 2021	0.403	Nov 2022	-		0.403	Continuing	Continuing	Continuing
Space Applications for Missile Defense - CSS - Engineering Support	C/TBD	TBD : Various	0.000	0.000		0.000		2.991	Nov 2022	-		2.991	Continuing	Continuing	Continuing
Space Applications for Missile Defense - Contractor Support Services (CSS)	C/Variou	Various : Various	0.000	0.000		0.000		0.842	Nov 2022	-		0.842	Continuing	Continuing	Continuing
Space Applications for Missile Defense - MDA Civilian	Allot	MDA : Various	0.000	0.000		0.000		3.710	Oct 2022	-		3.710	Continuing	Continuing	Continuing
Space Sensor Layer (SSL) - Space Sensor Layer	C/CPFF	Various : CO, AL	4.805	0.000		0.000		0.000		-		0.000	0.000	4.805	4.805

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(SSL) - Contract Support Services (CSS)															
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - FFRDC	MIPR	Various : CA, CO, NM, VA	6.766	0.000		0.000		0.000		-		0.000	0.000	6.766	6.766
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - MDA Civilian	Allot	MDA : CO, AL	0.744	0.000		0.000		0.000		-		0.000	0.000	0.744	0.744
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - Program Mission Support	C/Various	Various : CO, AL, VA	0.978	0.000		0.000		0.000		-		0.000	0.000	0.978	0.978
Space Sensor Layer (SSL) - Space Sensor Layer (SSL) - UARC	C/CPFF	Various : UT, MD	3.202	0.000		0.000		0.000		-		0.000	0.000	3.202	3.202
Space Applications for Missile Defense - UARC	C/CPIF	SDL (Space Dynamics Lab) : UT	0.000	0.000		0.000		0.467	Nov 2022	-		0.467	Continuing	Continuing	Continuing
<b>Subtotal</b>			21.520	2.927		2.719		11.714		-		11.714	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	86.277	29.617	30.066	34.512	-	34.512	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD33 / <i>MD Space Exp Center (MDSEC)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FTM-44 (AEGIS 5.1, DT Intercept Flight Test)	1	2021	1	2021
SKA/PIA Experimentation - 1Q2021-4Q2021	1	2021	4	2021
MDS Integration Planned	1	2021	4	2023
SKA/PIA Experimentation - 1Q2022-4Q2022	1	2022	4	2022
FTT-21 (TH, DT Intercept Flight Test)	2	2022	2	2022
FTX-26 (OT) (SN, OT Target Only Flight Test)	4	2022	4	2022
SKA/PIA Operations/Experimentation - 1Q FY 2023 - 4Q FY 2023	1	2023	4	2023
GTI-08b (N/I)	4	2023	4	2023
FTG-12 (GM, DT/OT Intercept Flight Test)	4	2023	4	2023
GTI-08b Sprint 1 (N/I) (MDS Ground Test)	1	2024	1	2024
SKA/PIA Operations/Experimentation - 1Q FY 2024 - 4Q FY 2024	1	2024	4	2024
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)	2	2024	2	2024
GTD-08b (N/I)	2	2024	2	2024
FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)	3	2024	3	2024
GTI-13 Sprint 1 (N/I) (MDS Ground Test)	1	2025	1	2025
SKA/PIA Operations/Experimentation - 1Q FY 2025 - 4Q FY 2025	1	2025	4	2025
GTI-13 Sprint 2 (N/I) (MDS Ground Test)	3	2025	3	2025
FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)	4	2025	4	2025
GTD-13 (N/I) (MDS Ground Test)	4	2025	4	2025
SKA/PIA Operations/Experimentation - 1Q FY 2026 - 4Q FY 2026	1	2026	4	2026
GTI-14 Sprint 1 (N/I)	4	2026	4	2026
GTI-14 (N/I) Sprint 2 (MDS Ground Test)	2	2027	2	2027

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD33 / <i>MD Space Exp Center (MDSEC)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
SKA/PIA Operations/Experimentation - 1Q FY 2027 - 4Q FY 2027	1	2027	4	2027
GTD-14 (N/I) (MDS Ground Test)	4	2027	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>				<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD42: <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>	108.139	130.000	256.222	89.220	-	89.220	74.328	75.827	3.755	3.470	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2019 Hypersonic and Ballistic Tracking Space Sensor (HBTSS), formerly called the Space Sensor Layer (SSL), was funded in budget project MD37. Beginning in FY 2020, HBTSS is being funded in budget project MD42.

Decrease from FY 2022 to FY 2023 reflects completion of Launch Vehicle procurement and satellite (bus and payload) development.

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

HBTSS will demonstrate a resilient, flexible, and global capability to detect and track hypersonic threats and boosting conventional ballistic missiles. The fire-control quality tracking data will be handed off to the hypersonic weapons systems to allow long range engagement of the threat while enhanced tracking accuracy through missile burn out will provide the warfighting community increased capability in missile defense weapons systems engagement and higher accuracy impact predictions.

The HBTSS priority is to maintain the pace of the development schedule to develop an operational capability to meet the urgent warfighter need to address rapidly developing threats. To meet this priority, HBTSS must use high technology readiness level components, take advantage of existing government capabilities to minimize development, use a management culture that does not slow down the pace of development, and use Other Transaction Authority (OTA) to minimize contracting cycle times. OTAs allow the Government to work with traditional, non-traditional, and new space businesses to identify innovative solutions.

The HBTSS seeks to demonstrate the ability to meet requirements derived from United States Strategic Command Prioritized Capabilities List, the National Defense Authorization Act for Fiscal Year 2019, and the Joint Requirements Oversight Council Capability Development Document for Missile Warning (MW)/Missile Defense (MD) Overhead Persistent Infrared (OPIR).

HBTSS developed target signal-to-clutter algorithms and evaluated them in a Signal-chain Processing Demonstration, providing insight into the constellation architecture, communications approach, and preliminary command and control design aspects. These results informed the development of the HBTSS prototype demonstration space vehicles and demonstrated the ability to detect and track dim targets in a cluttered background along with the sensitivity necessary to support the hypersonic kill chain.

Like other Missile Defense Agency space sensors, HBTSS is planned to integrate with the existing Joint OPIR Ground architecture for mission tasking and data distribution. This OPIR enterprise architecture will be integrated with the terrestrial Missile Defense System (MDS) sensors to improve missile defense architecture capabilities.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Hypersonic and Ballistic Tracking Space Sensor (HBTSS)		130.000	256.222	89.220
<b>Articles:</b>		-	-	-
<p><b>Description:</b> HBTSS is a space-based missile tracking sensor/system program to address warfighter requirements. The goal of this effort is to develop prototype space sensors to:</p> <ul style="list-style-type: none"> <li>-Detect and track hypersonic threats as well as boosting conventional ballistic missiles</li> <li>-Support MW/MD mission</li> <li>-Support other missions, as capable</li> <li>-Leverage inherent multi-domain capabilities to provide as-capable support to the OPIR Enterprise</li> </ul> <p>Recurring activities include:</p> <ul style="list-style-type: none"> <li>- Constellation analysis and mission management design</li> <li>- Ground Segment Sustainment</li> <li>- HBTSS program management, oversight, and mission support</li> </ul> <p>Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows:</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Acquire launch services through SSC to support planned launch date and unique orbital requirements for the MDS mission</li> <li>- Complete spacecraft bus procurement, assembly, integration, and testing</li> <li>- Complete ground system implementation and continue integration and testing in support of Phase IIb</li> <li>- Complete payload(s) development, assembly, integration and test (AI&amp;T)</li> <li>- Initiate Space Vehicle assembly, integration, and test activities</li> <li>- Initiate on-orbit test and calibration support activities</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete Space Vehicle assembly, integration, and test activities</li> <li>- Conduct Ground Readiness Reviews and complete ground system integration and testing</li> <li>- Conduct Payload Calibration and Test Reviews</li> <li>- Conduct Pre-ship Reviews and Launch Readiness Reviews in preparation for launch</li> <li>- Launch on-orbit prototype demonstration Space Vehicles</li> <li>- Conduct early orbit test activities and initiate on-orbit testing</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2021	FY 2022	FY 2023
Decrease from FY 2022 to FY 2023 reflects completion of Launch Vehicle procurement and satellite (bus and payload) development.			
<b>Accomplishments/Planned Programs Subtotals</b>	130.000	256.222	89.220

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

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• 0603890C: <i>BMD Enabling Programs</i>	607.167	623.644	591.847	-	591.847	613.589	625.761	635.633	640.374	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	639.027	564.946	589.374	-	589.374	575.883	588.824	612.853	605.801	Continuing	Continuing
• 0604181C: <i>Hypersonic Defense</i>	267.589	287.796	225.477	-	225.477	108.540	110.220	287.535	449.590	Continuing	Continuing
• 1206893C: <i>Space Tracking and Surveillance System</i>	33.356	15.176	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	48.532

**Remarks**

**D. Acquisition Strategy**

The HBTSS acquisition approach delivers a warfighting capability using a phased approach. Each phase has a limited duration, is capability focused, and allows HBTSS to maintain schedule, reduce risk, and add new technology and capabilities when ready.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
0400 / 4				PE 1206895C / Ballistic Missile Defense System Space Programs					MD42 / Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping						
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Component Testing	MIPR	Lawrence Berkley National Lab : Berkley, CA	0.139	0.000		0.000		0.000		-		0.000	0.000	0.139	0.139
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment	Various	Various : Various	0.000	0.000		0.000		2.320	Nov 2022	-		2.320	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - ESL Integration	C/CPAF	NORTHROP GRUMMAN : AL	0.000	0.000		0.000		2.000	Nov 2022	-		2.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - Network Comms	C/Various	DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : Various	0.000	0.000		0.000		1.000	Nov 2022	-		1.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - Sustainment	C/TBD	JACOBS TECHNOLOGY INC. : CO	21.904	16.797	Feb 2021	21.754	Nov 2021	6.348	Nov 2022	-		6.348	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Launch Services	MIPR	Space Systems Command : CA	0.000	0.000		110.000	Dec 2021	0.000		-		0.000	0.000	110.000	110.000
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Payload Risk Reduction	MIPR	Northrop Grumman : Huntsville, AL	6.269	0.000		0.000		0.000		-		0.000	0.000	6.269	6.269
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIa Team 1	C/FFP	Harris Corporation : Various	3.995	0.000		0.000		0.000		-		0.000	0.000	3.995	3.995
Hypersonic and Ballistic Tracking Space Sensor	C/FFP	Leidos : San Diego, CA	3.995	0.000		0.000		0.000		-		0.000	0.000	3.995	3.995

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(HBTSS) - Phase IIa Team 2															
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIa Team 3	C/FFP	Northrop Grumman : Los Angeles, CA	4.000	0.000		0.000		0.000		-		0.000	0.000	4.000	4.000
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIa Team 4	C/FFP	Raytheon : Los Angeles, CA	3.959	0.000		0.000		0.000		-		0.000	0.000	3.959	3.959
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIb Team 1	C/FFP	L3 Harris : IN	25.000	46.246	Jan 2021	42.870	Nov 2021	31.414	Nov 2022	-		31.414	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIb Team 2	C/FFP	Northrop Grumman : CA	25.000	64.490	Jan 2021	58.100	Nov 2021	29.914	Nov 2022	-		29.914	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Test Campaign Support	C/TBD	TBD : TBD	0.000	0.000		8.000	May 2022	2.000	Nov 2022	-		2.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			94.261	127.533		240.724		74.996		-		74.996	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hypersonic and Ballistic Tracking Space Sensor	MIPR	THE AEROSPACE CORPORATION : CA	0.000	0.000		0.000		3.335	Nov 2022	-		3.335	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
0400 / 4				PE 1206895C / Ballistic Missile Defense System Space Programs				MD42 / Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping							
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
(HBTSS) - FFRDC/UARC - Aerospace															
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Acquisition Support - Contract Support Services (CSS)	C/TBD	TBD : CO	0.000	0.000		0.000		1.095	Nov 2022	-		1.095	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - CSS	C/Various	Various : Various	4.644	0.485	Feb 2021	4.955	Nov 2021	1.134	Nov 2022	-		1.134	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Engineering Support - CSS	C/TBD	TBD : Various	0.000	0.000		0.000		2.831	Nov 2022	-		2.831	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - FFRDC/UARC	Various	Various : Various	8.205	1.167	Jun 2021	8.594	Nov 2021	1.469	Nov 2022	-		1.469	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - FFRDC/UARC - SDL	C/CPFF	SDL (Space Dynamics Lab) : Various	0.000	0.000		0.000		2.512	Nov 2022	-		2.512	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - MDA Civilian	Allot	MDA : Various	0.231	0.305	Feb 2021	1.316	Nov 2021	1.370	Oct 2022	-		1.370	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Program Mission Support	C/Various	Various : Various	0.798	0.510	Feb 2021	0.633	Nov 2021	0.478	Nov 2022	-		0.478	Continuing	Continuing	Continuing
<b>Subtotal</b>			13.878	2.467		15.498		14.224		-		14.224	Continuing	Continuing	N/A
<b>Remarks</b>															
N/A															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Missile Defense Agency								<b>Date:</b> April 2022					
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>				<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>					
	<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	108.139	130.000		256.222		89.220		-		89.220	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Missile Defense Agency** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Preliminary Concept Review (PCR)	◆																														
Ground System Development Q1 FY 2021 - Q4 FY 2021	◆◆◆◆																														
Long Lead Procurement	◇◇◇◇																														
Spacecraft Bus Procurement	◇◇◇◇◇																														
Payload Assembly/Integration/Test					◇◇◇◇◇																										
Critical Design Reviews					△																										
Ground System Development Q1 FY 2022 - Q4 FY 2022					◇◇◇◇																										
Payload Calibration Test Review (PCTR)					△																										
Space Vehicle Assembly/Integration/Test									◇◇																						
Ground Readiness Review (GRR)									△																						
Pre-Ship Review (PSR)									△																						
Launch Readiness Review (LRR)									△																						
HBTSS Phase IIb Launch									△																						
Launch and Early Orbit Test (LEOT)									△																						
On-Orbit Testing													◇◇◇◇◇◇◇◇																		
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)													△																		

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD42 / <i>Hypersonic &amp; Ballistic Tracking Space Sensor (HBTSS) Prototyping</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Preliminary Concept Review (PCR)	1	2021	1	2021
Ground System Development Q1 FY 2021 - Q4 FY 2021	1	2021	4	2021
Long Lead Procurement	2	2021	1	2022
Spacecraft Bus Procurement	2	2021	2	2022
Payload Assembly/Integration/Test	3	2021	3	2022
Critical Design Reviews	1	2022	1	2022
Ground System Development Q1 FY 2022 - Q4 FY 2022	1	2022	4	2022
Payload Calibration Test Review (PCTR)	3	2022	3	2022
Space Vehicle Assembly/Integration/Test	4	2022	1	2023
Ground Readiness Review (GRR)	1	2023	1	2023
Pre-Ship Review (PSR)	2	2023	2	2023
Launch Readiness Review (LRR)	2	2023	2	2023
HBTSS Phase IIb Launch	2	2023	2	2023
Launch and Early Orbit Test (LEOT)	3	2023	3	2023
On-Orbit Testing	4	2023	4	2025
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)	2	2024	2	2024

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>				<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MC33: <i>MD Space Exp Center (MDSEC)</i>	10.839	0.376	1.358	1.506	-	1.506	1.688	1.741	1.780	1.817	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2022 to FY 2023 provides for civilian oversight of cyber activities previously funded in Program Element 1206893C, Budget Project MC12

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

Ballistic Missile Defense System (BMDS) Space Programs Cyber Operations sustain the Missile Defense Agency (MDA) Risk Management Framework (RMF) and Security Controls Assessments (SCA)/Controls Validation Testing activities, analysis of validation results, risk assessments, and reviews of proposed Program Manager/Information System Security Manager Plans of Action and Milestones (POA&Ms) for BMDS Space Program mission systems. Activities in this Project are necessary to comply with the Federal Information Security Management Act.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Network / System Certification and Accreditation (C&A)	0.376	1.358	1.506
<b>Articles:</b>	-	-	-
<p><b>Description:</b> This activity maintains the Assessment and Authorization and C&amp;A data repository, capturing the RMF documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&amp;Ms on all MDA information systems. This activity prepares and submits C&amp;A documentation and accreditation recommendations to the MDA Chief Information Officer/Certification Authority and the DAA. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality, and non-repudiation of the MDA mission, test, and administrative systems. Recurring accomplishments include the following:</p> <ul style="list-style-type: none"> <li>- Monitor and track cybersecurity and mitigations detailed in Information Technology security POA&amp;Ms</li> <li>- Conduct cybersecurity design, engineering, and architecture planning for information technology systems</li> <li>- Plan and test the cybersecurity controls for space systems</li> <li>- Conduct SCA testing continuous monitoring of mission systems and provide POA&amp;Ms to mitigate cybersecurity vulnerabilities</li> </ul> <p>Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows:</p> <p><b>FY 2022 Plans:</b> SEE ABOVE</p> <p><b>FY 2023 Plans:</b></p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
SEE ABOVE				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase from FY 2022 to FY 2023 provides for civilian oversight of cyber activities previously funded in Program Element 1206893C, Budget Project MC12				
<b>Accomplishments/Planned Programs Subtotals</b>		0.376	1.358	1.506
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</i>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - CORE Upgrade	C/CPAF	Northrop Grumman : Schriever AFB, CO	1.157	0.000		0.000		0.000		-		0.000	0.000	1.157	1.157
Network / System Certification and Accreditation (C&A) - Contractor Support Services (CSS)	C/Various	Various : Various	2.098	0.376	Nov 2020	1.358	Nov 2021	0.108	Nov 2022	-		0.108	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Cybersecurity Management and Computer Network Defense - CSS	C/Various	TBD : Various	0.000	0.000		0.000		1.237	Nov 2022	-		1.237	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - MDSEA Solutions	C/CPIF	Jacobs : Schriever AFB, CO	3.471	0.000		0.000		0.000		-		0.000	0.000	3.471	1.106
Network / System Certification and Accreditation (C&A) - Network/Comm Assurance	Various	Various : Various	1.813	0.000		0.000		0.000		-		0.000	0.000	1.813	1.648
Network / System Certification and Accreditation (C&A) - SKA Communications	C/CPFF	JHU/APL : MD	0.360	0.000		0.000		0.000		-		0.000	0.000	0.360	0.360
Network / System Certification and Accreditation (C&A) - Strengthening Risk Management Framework	C/CPAF	Northrop Grumman, Various : Schriever AFB, CO	1.940	0.000		0.000		0.000		-		0.000	0.000	1.940	3.917
<b>Subtotal</b>			10.839	0.376		1.358		1.345		-		1.345	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</i>
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - MDA Civilian	Allot	MDA : CO	0.000	0.000		0.000		0.161	Oct 2022	-		0.161	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		0.161		-		0.161	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		10.839	0.376	1.358	1.506	-	1.506	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Missile Defense Agency						<b>Date:</b> April 2022													
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>						<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</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 2021		FY 2022		FY 2023		FY 2024		FY 2025		FY 2026		FY 2027	
MC33 Cyber Operations Planned						◇◇◇◇		◇◇◇◇		◇◇◇◇		◇◇◇◇		◇◇◇◇		◇◇◇◇		◇◇◇◇	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MC33 / <i>MD Space Exp Center (MDSEC)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC33 Cyber Operations Planned	1	2021	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>				<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD40: <i>Program-Wide Support</i>	2.661	1.274	5.165	4.719	-	4.719	4.237	4.261	1.805	1.854	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency Program Elements (PE) each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

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

PWS contains non-headquarters management costs in support of the Missile Defense Agency (MDA) functions and activities across the entire Missile Defense System (MDS). These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. 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 across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Program Wide Support	1.274	5.165	4.719
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the STEM program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; FSRM program, (formerly Real Property Maintenance) to keep the Department's			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.			
<b><i>FY 2022 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2023 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	1.274	5.165	4.719

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

**Remarks**

**D. Acquisition Strategy**  
N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Facilities and Maintenance	MIPR	Various : Multi: AL, CA, CO, VA	0.000	0.371	Nov 2020	0.023	Nov 2021	2.481	Nov 2022	-		2.481	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance SRM	MIPR	Various : Multi: AK, AL, CA, CO, HI, NY, VA	0.000	0.000		0.029	Nov 2021	1.700	Nov 2022	-		1.700	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	C/CPAF	Various Multi: AL, CA, : CO, VA	0.080	0.000		0.000		0.000		-		0.000	0.000	0.080	0.000
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK, AL, CO, CA, HI, MD, VA	0.000	0.000		0.380	Nov 2021	0.000		-		0.000	0.000	0.380	0.000
Program Wide Support - Agency Operations and Support Services	MIPR	DOD - WASHINGTON HEADQUARTERS SERVICES (WHS) : VA	2.581	0.903	Dec 2020	4.733	Nov 2021	0.538	Dec 2022	-		0.538	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	C/FFP	Various : Multi: AK, AL, CA, HI, NY, VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	0.000
<b>Subtotal</b>			2.661	1.274		5.165		4.719		-		4.719	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	2.661	1.274	5.165	4.719	-	4.719	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206895C / <i>Ballistic Missile Defense System Space Programs</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	2021	4	2027