Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Missile Defense Agency											Date: March 2023	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 1206895C *I Ballistic Missile Defense System Space Programs*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	369.442	285.706	129.957	109.483	-	109.483	119.860	43.032	43.900	44.957	Continuing	Continuing
MD33: *MD Space Exp Center (MDSEC)*	116.153	29.327	34.512	35.367	-	35.367	37.962	35.755	36.829	37.567	Continuing	Continuing
MD42: *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	238.139	249.890	89.220	68.538	-	68.538	75.840	3.755	3.470	3.539	Continuing	Continuing
MC33: *MD Space Exp Center (MDSEC)*	11.215	1.324	1.506	1.690	-	1.690	1.744	1.783	1.820	1.857	Continuing	Continuing
MD40: *Program-Wide Support*	3.935	5.165	4.719	3.888	-	3.888	4.314	1.739	1.781	1.994	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

Decrease from Fiscal Year (FY) 2023 to FY 2024 reflects completion of satellite integration and launch of HBTSS.

A. Mission Description and Budget Item Justification

Spacebased Kill Assessment (SKA): The SKA project will deliver dedicated space sensors contributing to hit and kill assessment for Homeland Defense. Missile Defense Agency (MDA) Missile Defense System 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 hosted payload programs. The SKA experiment utilizes a network of small Infrared sensors integrated onto host satellites that while on orbit observe missile defense intercepts and deliver situational awareness hit and kill assessment declarations.

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 Missile Defense System hypersonic weapons systems to allow long range engagement of the threat. 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. Following the successful demonstration of HBTSS capabilities, the responsibility for HBTSS operational fielding will be transferred to the US Space Force and the MDA will continue the development of the next-generation of space-based fire control sensors for missile defense. 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Missile Defense Agency	Date: March 2023
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206895C *I Ballistic Missile Defense System Space Programs*

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 Missile Defense System Space Programs.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	292.811	129.957	120.392	-	120.392
Current President's Budget	285.706	129.957	109.483	-	109.483
Total Adjustments	-7.105	0.000	-10.909	-	-10.909
• 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	-7.105	0.000			
• Other Adjustment	0.000	0.000	-10.909	-	-10.909

Change Summary Explanation

Decrease reflects reduction of effort toward SKA operationalization and alignments for higher agency prioritizes.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD33 / *MD Space Exp Center (MDSEC)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD33: *MD Space Exp Center (MDSEC)*	116.153	29.327	34.512	35.367	-	35.367	37.962	35.755	36.829	37.567	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

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. 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.

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)	FY 2022	FY 2023	FY 2024
Title: Spacebased Kill Assessment	29.327	26.502	27.176
Articles:	-	-	-
Description: The SKA project is designed to deliver hit and kill assessment for Homeland Defense. It includes: - SKA sensor-host satellite integration and testing - On-orbit operations by experimenting and participating in Missile Defense System ground and flight tests			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
- Development of hit and kill assessment algorithms required to provide SKA situational awareness hit assessment - Missile Defense Space Enterprise Architecture (MDSEA) operations in support of SKA experimentation and testing - Supporting engineering trade studies and concept evaluations for current and future space-based sensors - Provide situational awareness hit assessment to Combatant Command (CCMD) United States Northern Command (USNORTHCOM) during declared Periods of Heightened Activity (POHA) Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows: ***FY 2023 Plans:*** - Continues integration of SKA into the Missile Defense System Operational Capability Baseline through the Increment 6B.2 campaign ***FY 2024 Plans:*** SEE ABOVE ***FY 2023 to FY 2024 Increase/Decrease Statement:*** N/A			
Title: Space Applications for Missile Defense	0.000	8.010	8.191
Articles:	-	-	-
Description: SAMD provides strategic planning, program integration, contracting, acquisition, engineering, financial management, and program assessments for development and acquisition of space applications Recurring activities include: - Build, develop and acquire Space Applications to support the 10 Steps to Ballistic Missile Intercept - Integration of space data with the Missile Defense System to enhance system capabilities - Coordination with U.S. Space Force on development of Missile Defense space-based capabilities - Provide technical and business management support activities to provide critical program status and decision quality data - Participate in the Space Engineering Review Board - Integration of Space capabilities with the Missile Defense System - Integration of space assets within MDA's Integrated Master Test Plan - Develop and evaluate future Space Application concepts ***FY 2023 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
SEE ABOVE ***FY 2024 Plans:*** SEE ABOVE ***FY 2023 to FY 2024 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	29.327	34.512	35.367

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	707.632	689.018	903.633	-	903.633	852.567	906.634	930.538	875.198	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	250.123	230.502	239.159	-	239.159	212.191	233.877	242.623	251.226	Continuing	Continuing
• 0603892C: *AEGIS BMD*	628.014	595.572	693.727	-	693.727	639.678	706.974	699.611	733.909	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	556.914	589.374	554.201	-	554.201	574.275	585.966	598.896	582.156	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	44.188	49.367	50.549	-	50.549	56.624	58.020	59.193	60.615	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	388.956	366.824	360.455	-	360.455	430.281	436.921	465.074	375.256	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	560.445	579.075	570.258	-	570.258	583.747	642.329	664.683	510.063	Continuing	Continuing
• 1206893C: *Space Tracking and Surveillance System*	14.907	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	14.907

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

D. Acquisition Strategy

The SKA priority is to provide situational awareness hit assessment to the warfighter. The SKA efforts would closely align with the MDA Technology Development acquisition life cycle phase. The acquisition strategy includes use of all available acquisition tools to include Military Interdepartmental Purchase Request (MIPRs)/ Support Agreements, existing contracts, and will competitively award new contracts as appropriate to meet requirements and deliver capabilities. To meet this priority, SKA has developed a body of evidence during Incremental Engineering Technical Review (IETR) preparations to improve systems engineering and facilitate program and risk management. 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 Ballistic Missile Defense 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. A direct contract has been awarded by MDA to the host integrator to improve communications and oversight. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD33 / *MD Space Exp Center (MDSEC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spacebased Kill Assessment - Development and Experimentation	C/CPFF	JHU/APL : MD	50.573	8.789	Nov 2021	14.093	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Incremental Capability Operations	C/CPFF	JACOBS TECHNOLOGY INC. : CO	0.000	9.259	Nov 2021	7.894	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Incremental Capability Operations - Various	C/CPFF	Various : Various	0.000	2.453	Jun 2022	0.000		0.000		-		0.000	2.453	4.906	2.453
Spacebased Kill Assessment - Integrate SKA into Missile Defense System Comms Network & MDSC	Various	Various : Various	1.116	0.000		0.000		0.000		-		0.000	1.116	2.232	0.000
Spacebased Kill Assessment - Software Assurance	MIPR	DEVCOM : AL	0.000	0.910	Dec 2021	0.811	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Transition To Ops (Mission Systems)	C/Various	Various : MDA CO, AL	16.421	0.000		0.000		0.000		-		0.000	16.421	32.842	16.421
Spacebased Kill Assessment - Transition to Ops (Developer)	C/CPFF	JHU/APL : Laurel, MD	12.591	4.735	Nov 2021	0.000		0.000		-		0.000	17.326	34.652	17.326
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
		Subtotal	91.706	26.146		22.798		0.000		-		0.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD33 / *MD Space Exp Center (MDSEC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

In accordance with the Financial Management Regulation cost category definitions, some items have transferred to appropriate cost categories.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spacebased Kill Assessment - Contractor Support Services (CSS) Various	C/TBD	TBD : TBD	2.822	1.282	Nov 2021	1.455	Nov 2022	2.031	Nov 2023	-		2.031	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Development and Experimentation	C/CPIF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : TBD	0.000	0.000		0.000		12.550	Oct 2023	-		12.550	Continuing	Continuing	Continuing
Spacebased Kill Assessment - FFRDC/ UARC	Various	Various : Various	3.442	0.900	Nov 2021	0.988	Nov 2022	0.953	Nov 2023	-		0.953	Continuing	Continuing	Continuing
Spacebased Kill Assessment - IT User Services	C/CPIF	JACOBS TECHNOLOGY INC. : VARIOUS	0.153	0.054	Dec 2021	0.697	Nov 2022	0.721	Nov 2023	-		0.721	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Incremental Capability Operations	C/CPIF	JACOBS TECHNOLOGY INC. : CO	0.000	0.000		0.000		6.892	Nov 2023	-		6.892	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Incremental Capability Operations Various	Various	Various : VARIOUS	0.000	0.000		0.000		2.857	Nov 2023	-		2.857	Continuing	Continuing	Continuing
Spacebased Kill Assessment - MDA Civilian	Allot	MDA : VA	0.891	0.156	Oct 2021	0.161	Oct 2022	0.166	Oct 2023	-		0.166	Continuing	Continuing	Continuing
Spacebased Kill Assessment - Program Mission Support	Various	Various : Various	0.644	0.789	Nov 2021	0.403	Nov 2022	1.006	Nov 2023	-		1.006	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Space Applications for Missile Defense - CSS - Engineering Support	C/TBD	TBD : Various	0.000	0.000		2.991	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Space Sensor Layer (SSL) - Contract Support Services (CSS)	C/CPFF	Various : CO, AL	4.805	0.000		0.000		0.000		-		0.000	0.000	4.805	4.805
Space Applications for Missile Defense - Contractor Support Services (CSS) Various and UARC Support	C/Various	Various : Various	0.000	0.000		1.309	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
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 Applications for Missile Defense - MDA Civilian	Allot	MDA : Various	0.000	0.000		3.710	Oct 2022	3.834	Oct 2023	-		3.834	Continuing	Continuing	Continuing
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) - 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) - UARC	C/CPFF	Various : UT, MD	3.202	0.000		0.000		0.000		-		0.000	0.000	3.202	3.202
		Subtotal	24.447	3.181		11.714		31.010		-		31.010	Continuing	Continuing	N/A

Remarks

In accordance with the Financial Management Regulation cost category definitions, some items have transferred to appropriate cost categories.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Space Applications for Missile Defense - Contractor Support Services (CSS) Engineering Support	C/TBD	TBD : VARIOUS	0.000	0.000		0.000		2.902	Nov 2023	-		2.902	Continuing	Continuing	Continuing
Space Applications for Missile Defense - Contractor Support Services (CSS) Various and UARC Support	C/TBD	TBD : VARIOUS	0.000	0.000		0.000		1.455	Nov 2023	-		1.455	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		4.357		-		4.357	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	116.153	29.327		34.512		35.367		-		35.367	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
FTT-26 (MRBM T1)															△													
SKA Experimentation - 1Q2022-4Q2022	✦	✦	✦	✦																								
Missile Defense System Integration Planned	✦	✦	✦	✦	✦	✦	✦	✦																				
FTT-21 (TH, DT Intercept Flight Test)		▲																										
SKA Operations/Experimentation - 1Q FY 2023 - 4Q FY 2023					✧	✧	✧	✧																				
FTX-26 (OT) (SN, OT Target Only Flight Test)								△																				
FTG-12 (GM, DT/OT Intercept Flight Test)									△																			
SKA Operations/Experimentation - 1Q FY 2024 - 4Q FY 2024									✧	✧	✧	✧																
FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)													△															
SKA Operations/Experimentation - 1Q FY 2025 - 4Q FY 2025													✧	✧	✧	✧												
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)														△														
FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)																△												
SKA Operations/Experimentation - 1Q FY 2026 - 4Q FY 2026																	✧	✧	✧	✧								
SKA Operations/Experimentation - 1Q FY 2027 - 4Q FY 2027																					✧	✧	✧	✧				
SKA Operations/Experimentation - 1Q FY 2028 - 4Q FY 2028																									✧	✧	✧	✧
FTM-47 (MRBM T4 X3/BQM-177 X4)																										△		
FTG-18 (DT/OT)																											△	

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD33 / *MD Space Exp Center (MDSEC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTT-26 (MRBM T1)	3	2025	3	2025
SKA Experimentation - 1Q2022-4Q2022	1	2022	4	2022
Missile Defense System Integration Planned	1	2022	4	2023
FTT-21 (TH, DT Intercept Flight Test)	2	2022	2	2022
SKA Operations/Experimentation - 1Q FY 2023 - 4Q FY 2023	1	2023	4	2023
FTX-26 (OT) (SN, OT Target Only Flight Test)	4	2023	4	2023
FTG-12 (GM, DT/OT Intercept Flight Test)	1	2024	1	2024
SKA Operations/Experimentation - 1Q FY 2024 - 4Q FY 2024	1	2024	4	2024
FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)	1	2025	1	2025
SKA Operations/Experimentation - 1Q FY 2025 - 4Q FY 2025	1	2025	4	2025
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)	2	2025	2	2025
FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)	4	2025	4	2025
SKA Operations/Experimentation - 1Q FY 2026 - 4Q FY 2026	1	2026	4	2026
SKA Operations/Experimentation - 1Q FY 2027 - 4Q FY 2027	1	2027	4	2027
SKA Operations/Experimentation - 1Q FY 2028 - 4Q FY 2028	1	2028	4	2028
FTM-47 (MRBM T4 X3/BQM-177 X4)	2	2028	2	2028
FTG-18 (DT/OT)	3	2028	3	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD42: *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	238.139	249.890	89.220	68.538	-	68.538	75.840	3.755	3.470	3.539	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease from FY 2023 to FY 2024 reflects completion of satellite integration and launch of HBTSS.

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 detection 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 sensors to improve missile defense architecture capabilities.

Following the successful demonstration of HBTSS capabilities, the responsibility for HBTSS operational fielding will be transferred to the US Space Force and the MDA will continue the development of the next-generation of space-based fire control sensors for missile defense.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
Title: Hypersonic and Ballistic Tracking Space Sensor (HBTSS)	249.890	89.220	68.538
Articles:	-	-	-
Description: 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: -Detect and track hypersonic threats as well as boosting conventional ballistic missiles in their boost phase of flight -Support MW/MD mission -Support other missions, as capable -Leverage inherent multi-domain capabilities to provide as-capable support to the OPIR Enterprise Recurring activities include: - Constellation analysis and mission management design - Ground Segment Sustainment - HBTSS program management, oversight, and mission support Specific and/or unique accomplishments to each FY are as follows: ***FY 2023 Plans:*** - Complete Space Vehicle assembly, integration, and test activities - Conduct Ground Readiness Reviews and complete ground system integration and testing - Conduct Payload Calibration and Test Reviews - Conduct Pre-ship Reviews and Launch Readiness Reviews in preparation for launch - Launch on-orbit prototype demonstration Space Vehicles - Conduct early orbit test activities and initiate on-orbit testing ***FY 2024 Plans:*** - Complete early orbit test activities and continue on-orbit testing - Conduct daily on-orbit satellite operations - Support the Missile Defense Agency (MDA) test events - Support test events associated with other organizations - Develop and implement Ground and Space Vehicle software updates ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects completion of satellite integration and launch of HBTSS.			
Accomplishments/Planned Programs Subtotals	249.890	89.220	68.538

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0603890C: *BMD Enabling Programs*	616.800	588.847	597.720	-	597.720	620.823	639.398	648.954	650.432	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	556.914	589.374	554.201	-	554.201	574.275	585.966	598.896	582.156	Continuing	Continuing
• 0604181C: *Hypersonic Defense*	281.886	517.977	208.997	-	208.997	218.939	294.326	366.951	644.996	Continuing	Continuing
• 1206893C: *Space Tracking and Surveillance System*	14.907	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	14.907

Remarks

D. Acquisition Strategy

The HBTSS acquisition approach uses a phased approach to deliver warfighting capability. 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. The current acquisition phase consists of competitive prototyping with multiple performers utilizing Other Transaction authorities. The current phase will culminate with the launch and two-year on-orbit demonstration period where the HBTSS space vehicles will undergo a rigorous test campaign. Following the successful demonstration of HBTSS capabilities, the responsibility for HBTSS operational fielding will be transferred to the US Space Force and the MDA will continue the development of the next-generation of space-based fire control sensors for missile defense.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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	7.609	Nov 2021	2.320	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - Add Sites	C/CPFF	JACOBS TECHNOLOGY INC. : Various	0.000	1.175	Dec 2021	0.000		0.000		-		0.000	0.000	1.175	1.175
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - ESL Integration	C/CPAF	NORTHROP GRUMMAN : AL	0.000	2.000	Nov 2021	2.000	Nov 2022	0.000		-		0.000	0.000	4.000	4.000
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - Network Comms	C/Various	DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : Various	0.000	0.166	Nov 2021	1.000	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment - Sustainment	C/CPIF	JACOBS TECHNOLOGY INC. : CO	38.701	11.563	Nov 2021	6.348	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Launch Services	MIPR	Space Systems Command : CA	0.000	105.317	Dec 2021	0.000		0.000		-		0.000	0.000	105.317	110.000
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Launch Services Payload Integration Facility	C/FFP	ASTROTECH SPACE OPERATIONS : FL	0.000	1.649	Nov 2021	0.000		0.000		-		0.000	0.000	1.649	1.649

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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 (HBTSS) - Phase IIa Team 2	C/FFP	Leidos : San Diego, CA	3.995	0.000		0.000		0.000		-		0.000	0.000	3.995	3.995
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	L-3 COMMUNICATIONS CORPORATION : IN	71.246	45.051	Nov 2021	31.414	Nov 2022	20.214	Nov 2023	-		20.214	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Phase IIb Team 2	C/FFP	NORTHROP GRUMMAN : CA	89.490	57.688	Nov 2021	29.914	Nov 2022	20.214	Nov 2023	-		20.214	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Test Campaign Support	C/Various	Various : Various	0.000	0.000		0.500	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor	MIPR	MASSACHUSETTS INSTITUTE OF TECHNOLOGY : MA	0.000	0.875	Nov 2021	1.500	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(HBTSS) - Test Campaign Support - Science Team															
		Subtotal	221.794	233.093		74.996		40.428		-		40.428	Continuing	Continuing	N/A

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Contractor Support Services (CSS) Acquisition Support	C/TBD	TBD : VARIOUS	0.000	0.240	Nov 2021	1.095	Nov 2022	1.117	Nov 2023	-		1.117	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Contractor Support Services (CSS) Engineering Services	C/TBD	TBD : VARIOUS	0.000	2.753	Nov 2021	2.831	Nov 2022	3.569	Nov 2023	-		3.569	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Contractor Support Services (CSS) Various and FFRDC/ UARC	Various	Various : Various	5.129	1.408	Nov 2021	1.134	Nov 2022	1.218	Nov 2023	-		1.218	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - FFRDC/UARC (Legacy Data)	Various	Various : Various	9.372	0.902	Nov 2021	1.469	Nov 2022	0.000		-		0.000	0.000	11.743	11.743
Hypersonic and Ballistic Tracking Space Sensor	MIPR	DOD - USSF - SPACE SYSTEMS	0.000	3.012	Nov 2021	3.335	Nov 2022	3.163	Nov 2023	-		3.163	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(HBTSS) - FFRDC/UARC Aerospace		COMMAND (SSC) : CA													
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - FFRDC/UARC SDL	C/CPFF	UTAH STATE UNIVERSITY RESEARCH FOUNDATION : VARIOUS	0.000	3.742	Nov 2021	2.512	Nov 2022	3.562	Nov 2023	-		3.562	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment Network Comms	MIPR	DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : VARIOUS	0.000	0.000		0.000		1.000	Nov 2023	-		1.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment Sustainment	C/CPFF	JACOBS TECHNOLOGY INC. : CO	0.000	0.000		0.000		6.250	Nov 2023	-		6.250	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Ground Segment Various	Various	Various : VARIOUS	0.000	0.000		0.000		1.200	Nov 2023	-		1.200	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - MDA Civilian	Allot	MDA : Various	0.536	1.316	Nov 2021	1.370	Oct 2022	1.399	Oct 2023	-		1.399	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Program Mission Support	Various	Various : VARIOUS	1.308	2.299	Nov 2021	0.478	Nov 2022	0.632	Nov 2023	-		0.632	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Test Campaign Support	TBD	Various : VARIOUS	0.000	0.000		0.000		5.000	Nov 2023	-		5.000	Continuing	Continuing	Continuing
Hypersonic and Ballistic Tracking Space Sensor (HBTSS) - Threat Tracking Advancements	C/CPFF	NORTHROP GRUMMAN : CO	0.000	1.125	Dec 2021	0.000		0.000		-		0.000	0.000	1.125	1.125
		Subtotal	16.345	16.797		14.224		28.110		-		28.110	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	238.139	249.890		89.220		68.538		-		68.538	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*

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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
Long Lead Procurement	✦																											
Critical Design Reviews	▲																											
Spacecraft Bus Procurement	✦	✦																										
Payload Assembly/Integration/Test	✧	✧	✧	✧	✧	✧																						
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									✧	✧	✧	✧	✧	✧	✧	✧	✧											
FTX-40 (AEGIS 5.1, DT Tracking Exercise Flight Test)										△																		
FTX-23 (AEGIS 5.1, DT Tracking Exercise Flight Test)										△																		
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)											△																	
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)											△																	
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)											△																	
FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)													△															
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)														△														
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)															△													
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)															△													
FTT-26 (MRBM T1)															△													
FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)																△												

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Long Lead Procurement	1	2022	1	2022
Critical Design Reviews	1	2022	1	2022
Spacecraft Bus Procurement	1	2022	2	2022
Payload Assembly/Integration/Test	1	2022	2	2023
Ground System Development Q1 FY 2022 - Q4 FY 2022	1	2022	4	2022
Payload Calibration Test Review (PCTR)	3	2023	3	2023
Space Vehicle Assembly/Integration/Test	4	2022	3	2023
Ground Readiness Review (GRR)	3	2023	3	2023
Pre-Ship Review (PSR)	3	2023	3	2023
Launch Readiness Review (LRR)	4	2023	4	2023
HBTSS Phase IIb Launch	4	2023	4	2023
Launch and Early Orbit Test (LEOT)	4	2023	1	2024
On-Orbit Testing	1	2024	1	2026
FTX-40 (AEGIS 5.1, DT Tracking Exercise Flight Test)	2	2024	2	2024
FTX-23 (AEGIS 5.1, DT Tracking Exercise Flight Test)	2	2024	2	2024
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024
FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)	1	2025	1	2025
FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)	2	2025	2	2025
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)	3	2025	3	2025
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)	3	2025	3	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD42 / *Hypersonic & Ballistic Tracking Space Sensor (HBTSS) Prototyping*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTT-26 (MRBM T1)	3	2025	3	2025
FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)	4	2025	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MC33 / *MD Space Exp Center (MDSEC)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MC33: *MD Space Exp Center (MDSEC)*	11.215	1.324	1.506	1.690	-	1.690	1.744	1.783	1.820	1.857	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from Fiscal Year (FY) 2023 to FY 2024 provides for additional civilian oversight of cyber activities.

A. Mission Description and Budget Item Justification

Ballistic Missile Defense System 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 Ballistic Missile Defense System 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)	FY 2022	FY 2023	FY 2024
Title: Network / System Certification and Accreditation (C&A)	1.324	1.506	1.690
Articles:	-	-	-

Description: This activity maintains the Assessment and Authorization and C&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&Ms on all MDA information systems. This activity prepares and submits C&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:
- Monitor and track cybersecurity and mitigations detailed in Information Technology security POA&Ms
- Conduct cybersecurity design, engineering, and architecture planning for information technology systems
- Plan and test the cybersecurity controls for space systems
- Conduct SCA testing continuous monitoring of mission systems and provide POA&Ms to mitigate cybersecurity vulnerabilities

Specific and/or unique accomplishments to each FY are as follows:

FY 2023 Plans:
SEE ABOVE

FY 2024 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MC33 / *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
SEE ABOVE ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 provides for additional civilian oversight of cyber activities			
Accomplishments/Planned Programs Subtotals	1.324	1.506	1.690

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MC33 / *MD Space Exp Center (MDSEC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	2.474	1.324	Nov 2021	0.108	Nov 2022	0.000		-		0.000	0.000	3.906	3.906
Network / System Certification and Accreditation (C&A) - Cybersecurity Management and Computer Network Defense - CSS	C/Various	TBD : Various	0.000	0.000		1.237	Nov 2022	0.000		-		0.000	0.000	1.237	1.237
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
		Subtotal	11.215	1.324		1.345		0.000		-		0.000	0.000	13.884	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MC33 / *MD Space Exp Center (MDSEC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - Contractor Support Services (CSS)	C/TBD	TBD : TBD	0.000	0.000		0.000		1.355	Nov 2023	-		1.355	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - MDA Civilian	Allot	MDA : CO	0.000	0.000		0.161	Oct 2022	0.335	Oct 2023	-		0.335	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.161		1.690		-		1.690	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.215	1.324		1.506		1.690		-		1.690	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MC33 / *MD Space Exp Center (MDSEC)*

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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
MC33 Cyber Operations Planned	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MC33 / *MD Space Exp Center (MDSEC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MC33 Cyber Operations Planned	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206895C / *Ballistic Missile Defense System Space Programs*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	3.935	5.165	4.719	3.888	-	3.888	4.314	1.739	1.781	1.994	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 MDA functions and activities across the entire Missile Defense System. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the Missile Defense System 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)	FY 2022	FY 2023	FY 2024
Title: Program Wide Support	5.165	4.719	3.888
Articles:	-	-	-
Description: PWS contains non-headquarters management costs in support of MDA functions and activities across the entire Missile Defense System. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the Missile Defense System 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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 Plans:*** - SEE ABOVE. ***FY 2024 Plans:*** - SEE ABOVE. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.			
Accomplishments/Planned Programs Subtotals	5.165	4.719	3.888

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for MDA Consolidated Support consists of contract actions to industry for: a) Engineering and technical support; b) studies, analyses, and evaluations; and c) management and professional services to MDA functional organizations and program offices. With a focus to achieve Small Business goals, MDA is leveraging existing contracts and will competitively award new contracts to meet MDA's Fiscal Years 2020-2030 Advisory and Assistance Services support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency			Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance	MIPR	Army Corps of Engineers : Multi: AL, CA, CO, VA	0.371	0.023	Nov 2021	2.481	Nov 2022	1.255	Nov 2023	-		1.255	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance SRM	MIPR	Army Corps of Engineers : Multi: AK, AL, CA, CO, HI, NY, VA	0.000	0.029	Nov 2021	1.700	Nov 2022	2.633	Nov 2023	-		2.633	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	0.380	Nov 2021	0.000		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	3.484	4.733	Nov 2021	0.538	Dec 2022	0.000		-		0.000	0.000	8.755	0.000
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
		Subtotal	3.935	5.165		4.719		3.888		-		3.888	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.935	5.165		4.719		3.888		-		3.888	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

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 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
MD40 Program-Wide Support	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 1206895C / *Ballistic Missile Defense System Space Programs*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2022	4	2028