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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	540.094	259.465	107.389	0.000	-	0.000	-	-	-	-	-	-
MD98: <i>Directed Energy Demonstrator Development</i>	316.345	108.685	42.000	0.000	-	0.000	-	-	-	-	-	-
MD99: <i>Discrimination Sensor Demonstrator Development</i>	183.443	135.993	62.237	0.000	-	0.000	-	-	-	-	-	-
MC98: <i>Cyber Operations</i>	6.063	0.463	0.475	0.000	-	0.000	-	-	-	-	-	-
MT99: <i>Technology Maturation Initiatives Test</i>	12.394	5.056	0.000	0.000	-	0.000	-	-	-	-	-	-
MD40: <i>Program Wide Support</i>	21.849	9.268	2.677	0.000	-	0.000	-	-	-	-	-	-

Program MDAP/MAIS Code: 362

Note
Due to a shift in Department of Defense priorities, the development of the Technology Maturation Initiatives Program has been cancelled beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change.

A. Mission Description and Budget Item Justification
Technology Maturation Initiatives (TMI) demonstrates the utility of directed energy for missile defense. The Missile Defense Agency's (MDA) directed energy plan incrementally demonstrates and improves the constituent components required to execute a directed energy kill chain; acquisition, tracking, and lethality. The efforts shape future Missile Defense System (MDS) acquisition choices by advancing the technology readiness levels of emerging and developing technologies, while simultaneously assessing the performance and contributions to the MDS architecture. TMI includes analysis, development, demonstration, systems engineering and test efforts to examine, develop, and improve directed energy systems, disruptive directed energy concepts, sensors, and future missile defense technologies.

Directed Energy Demonstrator Development (DEDD) addressed technology risk reduction and maturation for high powered strategic lasers, beam control, lethality, and related technologies. The efforts remain tightly coupled with OUSD(R&E) High Energy Laser Development Road Map, and are essential to mature strategic laser technology.

Discrimination Sensor Demonstrator Development (DSDD) included the development of an advanced sensor to discriminate lethal objects and integration of resulting technologies onto other MDS platforms in the future. The advanced sensor incorporates incrementally developed, integrated, and tested next-generation sensors and electronics to demonstrate Launch-on-Remote, Engage-on-Remote, discrimination and handover improvements for missile defense. These advanced sensors improve the probability of engagement success for stressing threats, expand the MDS battle space and increase the ability to negate larger raid sizes. The sensor technologies

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>
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also help develop the associated concept of operations and provide the basis for a quick reaction precision tracking capability to augment radar. MDA may use the sensor technology to address emerging advanced threats.

MDA collaborates with the Combatant Commands, Defense Advanced Research Projects Agency, Department of Energy, Joint Directed Energy Transition Office, Military Departments, National Laboratories and OUSD(R&E) in a systems engineering based strategy to research, analyze, develop and test directed energy weapons technology.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	264.520	67.389	73.214	-	73.214
Current President's Budget	259.465	107.389	0.000	-	0.000
Total Adjustments	-5.055	40.000	-73.214	-	-73.214
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	42.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-6.383	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	1.328	-2.000	-73.214	-	-73.214

Change Summary Explanation

FY 2020 does not include the enacted rescission of \$6.4 million for Technology Maturation Initiatives.

Increase in FY 2021 provides \$42 million Congressional increase for Diode Pumped Alkali Laser (DPAL).

Decrease in FY 2022 reflects a shift in Department of Defense priorities, cancelling the development of the Technology Maturation Initiatives Program beginning in FY 2022.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MD98: <i>Directed Energy Demonstrator Development</i>	316.345	108.685	42.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Due to a shift in Department of Defense priorities, the Directed Energy Demonstrator Development program was cancelled in FY 2021. The program received a Congressional add in FY 2021 to continue the Diode Pumped Alkali Laser program. No funding is requested for this effort in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change. FY 2020 does not include the enacted rescission for Technology Maturation Initiatives.

A. Mission Description and Budget Item Justification

The Directed Energy Demonstrator Development (DEDD) project develops, integrates, and tests the component technologies required to scale electric lasers to hundreds of kilowatts. Laser scaling focuses on maturing laser capability to levels sufficient to enter into the OUSD(R&E) High Energy Laser Road Map efforts. The DEDD project provides the necessary technology, test data, and operations familiarity to successfully transition to a higher power directed energy weapon.

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

	FY 2020	FY 2021	FY 2022
Title: Directed Energy Demonstrator Development	108.685	42.000	0.000
Articles:	-	-	-
Description: Laser scaling develops, integrates, and tests the component technologies required for scaling electric lasers while maintaining excellent size, weight, and power metrics and near diffraction limited beam quality. MDA maintains partnerships with OUSD(R&E), Industry, and National Laboratories to focus on directed energy capabilities. The DEDD effort transitions from TMI onto OUSD(R&E) High Energy Laser Road Map in FY 2022.			
Specific and/or unique planned accomplishments to each FY are as follows:			
FY 2021 Plans:			
- Continue National Laboratory Diode Pump Alkali laser (DPAL) development towards scalable, efficient, and compact high-energy laser components			
- Build and test DPAL 60 kW-Class Beta 2			
FY 2022 Plans:			
- No funding is requested in FY 2022 for this effort			
FY 2021 to FY 2022 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency	Date: May 2021
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022
FY 2021 provides Congressional increase to continue Diode Pumped Alkali Laser (DPAL) development activities and PMO oversight into FY 2022.			
Due to a shift in Department of Defense priorities, the development of the Technology Maturation Initiatives program has been cancelled beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change. FY 2020 does not include the enacted rescission for Technology Maturation Initiatives.			
Accomplishments/Planned Programs Subtotals	108.685	42.000	0.000

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 0604181C: <i>Hypersonic Defense</i>	386.528	272.632	247.931	-	247.931	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Directed Energy Demonstrator Development - Beam Control and Lethality Demonstration	C/CPFF	Multi : Multi	0.000	27.561	Jun 2020	0.000		0.000		-		0.000	0.000	27.561	0.000
Directed Energy Demonstrator Development - Industry Laser Scaling and Technology Transfer	C/CPFF	Boeing : CA	0.000	18.412	Dec 2019	0.000		0.000		-		0.000	0.000	18.412	0.000
Directed Energy Demonstrator Development - LPLD Preliminary Design A	C/CPFF	Lockheed Martin : CA	40.494	0.000		0.000		0.000		-		0.000	0.000	40.494	0.000
Directed Energy Demonstrator Development - LPLD Preliminary Design B	C/CPFF	General Atomics : CA	36.841	0.000		0.000		0.000		-		0.000	0.000	36.841	0.000
Directed Energy Demonstrator Development - LPLD Preliminary Design C	C/CPFF	Boeing : CA	36.361	0.000		0.000		0.000		-		0.000	0.000	36.361	0.000
Directed Energy Demonstrator Development - LPLD System Critical Design A (CPU)	C/CPFF	Lockheed Martin : CA	26.000	0.000		0.000		0.000		-		0.000	0.000	26.000	0.000
Directed Energy Demonstrator Development - LPLD System Critical Design B (CPU)	C/CPFF	General Atomics : CA	26.000	0.000		0.000		0.000		-		0.000	0.000	26.000	0.000
Directed Energy Demonstrator Development - LPLD	C/CPFF	Boeing : CA	26.000	0.000		0.000		0.000		-		0.000	0.000	26.000	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
System Critical Design C (CPU)															
Directed Energy Demonstrator Development - Laser Lethality Demonstration	C/CPFF	General Atomics, AFRL, Redstone Testing Center, White Sands Missile Range : CA, AL, NM	4.178	0.000		0.000		0.000		-		0.000	0.000	4.178	0.000
Directed Energy Demonstrator Development - Laser Scaling	C/Various	MIT LL, LLNL : MA, CA	85.000	51.658	Oct 2019	0.000		0.000		-		0.000	0.000	136.658	0.000
Directed Energy Demonstrator Development - Laser Scaling - Diode Pumped Alkali Laser (CPU)	Various	Multi, LLNL : Multi, CA	0.000	0.000		41.400	Mar 2021	0.000		-		0.000	0.000	41.400	0.000
Directed Energy Demonstrator Development - Performance Analysis	Various	MIT LL, Aviation and Missile Research Development and Engineering Center (AMRDEC), Combat Capabilities Development Command - Aviation and Missile Center (CCDC-AMC), AFRL, USAFA, Semquest : MA, AL, NM, CO	5.367	7.102	Jan 2020	0.000		0.000		-		0.000	0.000	12.469	0.000
Directed Energy Demonstrator Development - Technology Transfer/Component Development	C/CPIF	Boeing : CA	16.209	0.000		0.000		0.000		-		0.000	0.000	16.209	0.000
Subtotal			302.450	104.733		41.400		0.000		-		0.000	0.000	448.583	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Directed Energy Demonstrator Development - Advisory and Assistance Services	C/CPFF	MDA Multi : AL, NM	7.413	0.000		0.600	Aug 2021	0.000		-		0.000	0.000	8.013	0.000
Directed Energy Demonstrator Development - Engineering and Technical Services	MIPR	Aviation and Missile Research Development and Engineering Center (AMRDEC), Combat Capabilities Development Command - Aviation and Missile Center (CCDC-AMC) : AL	2.221	0.000		0.000		0.000		-		0.000	0.000	2.221	0.000
Directed Energy Demonstrator Development - FFRDC	MIPR	Aerospace : AL, NM	1.450	1.867	Nov 2019	0.000		0.000		-		0.000	0.000	3.317	0.000
Directed Energy Demonstrator Development - Facility Support	Various	377th ABW, Phoenix : NM	0.268	0.215	Nov 2019	0.000		0.000		-		0.000	0.000	0.483	0.000
Directed Energy Demonstrator Development - Facility Sustainment	C/CPFF	Multi : AL, NM	0.548	0.733	Jul 2020	0.000		0.000		-		0.000	0.000	1.281	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Directed Energy Demonstrator Development - Information Technology	C/CPFF	Northrop Grumman, Jacobs Technology : CO	1.995	0.987	Nov 2019	0.000		0.000		-		0.000	0.000	2.982	0.000
Directed Energy Demonstrator Development - Travel	Allot	MDA Multi : AL, NM	0.000	0.150	Oct 2019	0.000		0.000		-		0.000	0.000	0.150	0.000
Subtotal			13.895	3.952		0.600		0.000		-		0.000	0.000	18.447	N/A

Remarks
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	316.345	108.685	42.000	0.000	-	0.000	0.000	467.030	N/A

Remarks
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Missile Defense Agency **Date: May 2021**

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>
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	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 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
Laser Scaling Development - Fiber Combined Laser (FCL)	◆	◆	◆	◆	◆																							
Laser Scaling Development - FCL						◇	◇	◇																				
Laser Scaling FCL Beam Quality and Power Demonstration											△																	
Laser Scaling Development - Diode Pumped Alkali Laser (DPAL)	◆	◆	◆	◆	◆																							
Laser Scaling Development - DPAL						◇	◇	◇	◇	◇	◇																	
Laser Scaling Development – DPAL 60 kW-Class Lab Demo										◇																		
Laser Scaling Development – DPAL 60 kW-Class Lab Demo with Beam Quality measurement											◇																	
Industry Laser Scaling Technology Design Review - Phase I (LM and GA)			▲																									
Industry Laser Scaling Technology Design Review - Phase II (LM)							▲																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD98 / <i>Directed Energy Demonstrator Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Laser Scaling Development - Fiber Combined Laser (FCL)	1	2020	1	2021
Laser Scaling Development - FCL	2	2021	4	2021
Laser Scaling FCL Beam Quality and Power Demonstration	4	2021	4	2021
Laser Scaling Development - Diode Pumped Alkali Laser (DPAL)	1	2020	1	2021
Laser Scaling Development - DPAL	2	2021	3	2022
Laser Scaling Development DPAL 60 kW-Class Lab Demo	4	2021	4	2021
Laser Scaling Development DPAL 60 kW-Class Lab Demo with Beam Quality measurement	2	2022	2	2022
Industry Laser Scaling Technology Design Review - Phase I (LM and GA)	2	2020	2	2020
Industry Laser Scaling Technology Design Review - Phase II (LM)	1	2021	1	2021

Note

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>MD99: Discrimination Sensor Demonstrator Development</i>	183.443	135.993	62.237	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Due to a shift in Department of Defense priorities, the development of the Technology Maturation Initiatives Program has been cancelled beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change.

A. Mission Description and Budget Item Justification

Areas of concentration include tracking lasers, advanced detectors, infrared sensors, and precision tracking and discrimination algorithms. Discrimination Sensor Demonstrator Development (DSDD) demonstrates precision track of advanced threats at extended ranges, simple scene discrimination through ground demonstrations, and complex scene discrimination through flight and space demonstrations.

Develops and tests high-precision advanced sensors that improve incoming threat identification, acquisition, tracking, and discrimination. DSDD activities and software maturation enhances the MDS capability to discriminate lethal objects in a threat cluster, and track and hand over the threat object with Aegis Launch on Remote and Engage on Remote precision. The increased kinematics envelope of the SM-3 Block IIA, when combined with Engage on Remote capability, will expand battlespace and increase the number of threats engaged.

This effort includes the development of next-generation General Atomics' advanced sensor systems to include tracking lasers, specialized detectors, unique processors and the corollary ground, airborne and space subsystems. These advanced sensors operate at strategic ranges required to augment the MDS radar, improve the MDS discrimination capability and provide precision track of large raids. Potential development includes tracking multiple targets simultaneously, substantially reducing the number of sensor assets required for large raids.

The program leverages technology demonstrated from the ground and air to develop Massachusetts Institute of Technology/Lincoln Laboratory's (MIT/LL) compact ruggedized advanced sensor technology. This effort includes cost-effective focal plane arrays and advanced sensor components to inform future MDS layer decisions for persistent tracking and discrimination. MIT/LL develops and tests sensors to advance technology and assesses system performance from the ground.

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

	FY 2020	FY 2021	FY 2022
Title: Discrimination Sensor Demonstrator Development	135.993	47.239	0.000
Articles:	-	-	-
Description: Discrimination Sensor Demonstrator Development (DSDD) project develops an advanced sensor technology demonstration system (tracking laser, advanced detector, infrared sensor, and precision tracking and discrimination algorithms)			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency		Date: May 2021		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2020	FY 2021	FY 2022
<p>for data collection and characterization relevant conditions and relevant ranges. The sensors upgrade will provide capability for tracking and discrimination of lethal objects. In addition, it provides passive stereo tracking and discrimination algorithms for the same. The sensors provide capability for tracking and discrimination of missile representative objects.</p> <p>Specific and/or unique planned accomplishments for each FY are as follows:</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Integrate advanced sensor into a Size, Weight and Power (SWaP) confined design - Integrate ruggedized advanced sensor into SWaP constrained design - Conduct continental United States (CONUS) advanced sensor active ground test with new beam director - Continue fabrication and testing of ruggedized advanced sensor subsystems - Conduct CONUS ruggedized advanced sensor active ground test <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - No funding is requested in FY 2022 for this effort <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p> <p>Due to a shift in Department of Defense priorities, the development of the Technology Maturation Initiatives Program has been cancelled beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change.</p>				
<p>Title: Program Operations</p> <p align="right">Articles:</p> <p>Description: Program Operations provides strategic planning, program integration, acquisition, contracting, engineering, financial management, internal reviews and audits, and program assessments for the Technology Maturation Initiatives Program. Recurring activities include:</p> <ul style="list-style-type: none"> - Provide technical and business management support activities to deliver critical program status and decision quality data - Ensure program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process - Conduct internal program reviews to measure program progress - Continue a mission assurance and engineering program to include quality, configuration management, manufacturing, systems engineering, and safety in all phases of the system life cycle - Provide Quality Safety and Mission Assurance operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter <p>FY 2021 Plans:</p>		0.000 -	14.998 -	0.000 -

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022
- SEE ABOVE			
FY 2022 Plans: - No funding is requested in FY 2022 for this effort			
FY 2021 to FY 2022 Increase/Decrease Statement: Due to a shift in Department of Defense priorities, the development of the Technology Maturation Initiatives Program has been cancelled beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change.			
Accomplishments/Planned Programs Subtotals	135.993	62.237	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603176C: <i>Advanced Concepts and Performance Assessment</i>	45.852	49.410	15.800	-	15.800	-	-	-	-	-	-
• 0603180C: <i>Advanced Research</i>	27.166	35.024	21.466	-	21.466	-	-	-	-	-	-
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	348.356	265.803	224.750	-	224.750	-	-	-	-	-	-
• 0603890C: <i>BMD Enabling Programs</i>	630.196	616.455	595.301	-	595.301	-	-	-	-	-	-
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management & Communication</i>	550.513	645.741	603.448	-	603.448	-	-	-	-	-	-
• 1206895C: <i>Ballistic Missile Defense System Space Programs</i>	139.887	162.068	292.811	-	292.811	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
The acquisition strategy for DSDD consists of a contract(s) to industry via the Advanced Technology Innovation Broad Agency Announcement and competitive procurements and agreements with Federally Funded Research and Development Centers to develop and demonstrate an advanced sensor system in realistic test environments. MDA will leverage agency partner subject matter experts and use government model based assessments for better acquisition decisions.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Discrimination Sensor Demonstrator Development - Advanced Sensor - FFRDC	MIPR	Aerospace : CA	0.000	0.000		1.529	Nov 2020	0.000		-		0.000	0.000	1.529	0.000
Discrimination Sensor Demonstrator Development - Advanced Sensor Flight Demonstrator	Various	General Atomics, MIT/LL, TBD : CA, MA, TBD	53.654	55.383	Nov 2019	24.628	Nov 2020	0.000		-		0.000	0.000	133.665	0.000
Discrimination Sensor Demonstrator Development - Advanced Sensor Ground Test	MIPR	Navy China Lake : CA	32.483	1.139	Nov 2019	0.000		0.000		-		0.000	0.000	33.622	0.000
Discrimination Sensor Demonstrator Development - Advanced Sensor Performance Analysis Aegis Engage on Remote Hardware in the Loop (HWIL), and Analysis	MIPR	MIT LL, Aviation and Missile Research, Development, Engineering Center (AMRDEC), and Combat Capabilities Development Command - Aviation and Missile Center (CCDC-AMC), USAF : MA, AL, VA	16.014	7.956	Dec 2019	4.980	Dec 2020	0.000		-		0.000	0.000	28.950	0.000
Discrimination Sensor Demonstrator Development - Compact Ruggedized Advanced Sensor	Various	MIT LL, L3 : MA, NM	11.595	32.937	Jan 2020	16.102	Nov 2020	0.000		-		0.000	0.000	60.634	0.000
Discrimination Sensor Demonstrator Development - EO/IR Flight Tests	C/CPFF	General Atomics : CA	36.312	12.191	Nov 2019	0.000		0.000		-		0.000	0.000	48.503	0.000
Subtotal			150.058	109.606		47.239		0.000		-		0.000	0.000	306.903	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Discrimination Sensor Demonstrator Development - Advisory and Assistance Services	C/CPFF	Various : NM, AL	5.494	8.126	Nov 2019	0.000		0.000		-		0.000	0.000	13.620	0.000
Discrimination Sensor Demonstrator Development - Civilian Salaries and Travel	Allot	MDA Multi : AL, NM	12.502	14.116	Oct 2019	0.000		0.000		-		0.000	0.000	26.618	0.000
Discrimination Sensor Demonstrator Development - Engineering and Technical Services	MIPR	Aviation and Missile Research, Development, and Engineering Center (AMRDEC), Combat Capabilities Development Command - Aviation and Missile Center (CCDC-AMC), Aerospace : AL, CA	4.116	0.188	Oct 2019	0.000		0.000		-		0.000	0.000	4.304	0.000
Discrimination Sensor Demonstrator Development - Facility Support	MIPR	377th ABW : NM	0.311	0.000		0.000		0.000		-		0.000	0.000	0.311	0.000
Discrimination Sensor Demonstrator Development - Facility Sustainment	MIPR	377th ABW : NM	0.000	0.665	Nov 2019	0.000		0.000		-		0.000	0.000	0.665	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Discrimination Sensor Demonstrator Development - Information Management and Technology	C/CPAF	Northrop Grumman, Jacobs Technology : CO	10.962	3.292	Oct 2019	0.000		0.000		-		0.000	0.000	14.254	0.000
Program Operations - Advisory and Assistance Services	C/CPFF	Various : NM, AL	0.000	0.000		4.920	Nov 2020	0.000		-		0.000	0.000	4.920	0.000
Program Operations - Civilian Salaries and Travel	Allot	MDA Multi : NM, AL	0.000	0.000		5.583	Nov 2020	0.000		-		0.000	0.000	5.583	0.000
Program Operations - Communications	MIPR	Various : NM, AL	0.000	0.000		0.626	Nov 2020	0.000		-		0.000	0.000	0.626	0.000
Program Operations - Facility Support	MIPR	377th ABW : NM	0.000	0.000		0.157	Nov 2020	0.000		-		0.000	0.000	0.157	0.000
Program Operations - Facility Sustainment (FSRM)	MIPR	377th ABW : NM	0.000	0.000		0.310	Oct 2020	0.000		-		0.000	0.000	0.310	0.000
Program Operations - Information Management and Technology	C/CPAF	Northrop Grumman, Jacobs Technology : CO	0.000	0.000		3.402	Oct 2020	0.000		-		0.000	0.000	3.402	0.000
Subtotal			33.385	26.387		14.998		0.000		-		0.000	0.000	74.770	N/A

Remarks
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	183.443	135.993	62.237	0.000	-	0.000	0.000	381.673	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 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>
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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 2020		FY 2021		FY 2022		FY 2023		FY 2024		FY 2025		FY 2026	
Advanced Sensor Development	◆	◆	◆	◆	◆													
Planned Advanced Sensor Development						◇	◇	◇	◇	◇								
Compact Ruggedized Advanced Sensor Development	◆	◆	◆	◆	◆													
Planned Compact Ruggedized Advanced Sensor Development						◇	◇	◇	◇	◇								

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD99 / <i>Discrimination Sensor Demonstrator Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Sensor Development	1	2020	1	2021
Planned Advanced Sensor Development	2	2021	2	2022
Compact Ruggedized Advanced Sensor Development	1	2020	1	2021
Planned Compact Ruggedized Advanced Sensor Development	2	2021	2	2022

Note

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MC98 / <i>Cyber Operations</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MC98: <i>Cyber Operations</i>	6.063	0.463	0.475	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease from FY 2021 to FY 2022 reflects the cancellation of the Technology Maturation Initiatives Program.

A. Mission Description and Budget Item Justification

Cyber Operations sustains the Missile Defense Agency DoD Risk Management Framework (RMF) and Controls Validation Testing activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager Plans of Action and Milestones (POAM) for all Technology Maturation Initiative (TMI) mission systems. It maintains Certification and Accreditation data repository, capturing DoD Information Assurance Certification and Accreditation Program documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority accreditation decisions) and Plans of Action and Milestones on all MDA information systems.

This project monitors and tracks cybersecurity mitigations detailed in information technology security POAM. Activities include preparation of Certification and Accreditation documentation and accreditation recommendations to MDA Senior Information Assurance Officer /Certification Authority and Designated Approving Authority. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of MDA mission, test and administrative systems. Activities in the project are necessary to comply with the Federal Information Security Management Act.

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

	FY 2020	FY 2021	FY 2022
Title: Network / System Certification and Accreditation (C&A)	0.463	0.475	0.000
Articles:	-	-	-
Description: The Cyber Operations project sustains MDA DoD RMF certification and Controls Validation Testing activities for the TMI PE.			
Specific and/or unique planned accomplishments to each FY are as follows:			
FY 2021 Plans: - Conduct cyber security and information assurance engineering and architecture planning for TMI information technology systems			
FY 2022 Plans: - No funding is requested in FY 2022 for this effort			
FY 2021 to FY 2022 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MC98 / <i>Cyber Operations</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022
Decrease from FY 2021 to FY 2022 reflects the cancellation of the Technology Maturation Initiatives Program			
Accomplishments/Planned Programs Subtotals	0.463	0.475	0.000

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 0603176C: <i>Advanced Concepts and Performance Assessment</i>	45.852	49.410	15.800	-	15.800	-	-	-	-	-	-
• 0603180C: <i>Advanced Research</i>	27.166	35.024	21.466	-	21.466	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The acquisition strategy for Cyber Operations, consists of using MDA civilian employees and the existing competitively awarded contractor support services.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MC98 / <i>Cyber Operations</i>
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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) - Cyber Development and Engineering	C/CPFF	Davidson Technologies, JHU, Raytheon : AL, MD, MA	5.000	0.000		0.000		0.000		-		0.000	0.000	5.000	0.000
Network / System Certification and Accreditation (C&A) - Cybersecurity Management and Computer Network Defense	C/CPFF	TEAMS : AL, NM	0.270	0.334	Oct 2019	0.315	Nov 2020	0.000		-		0.000	0.000	0.919	0.000
Network / System Certification and Accreditation (C&A) - Network / System Certification and Accreditation (C and A) - Agency Operations - Civilian Salaries and Travel	Allot	Missile Defense Agency : NM	0.462	0.129	Oct 2019	0.160	Nov 2020	0.000		-		0.000	0.000	0.751	0.000
Network / System Certification and Accreditation (C&A) - Network / System Certification and Accreditation (C and A) - CDS Implementation	C/CPFF	Northrop Grumman : CO	0.331	0.000		0.000		0.000		-		0.000	0.000	0.331	0.000
Subtotal			6.063	0.463		0.475		0.000		-		0.000	0.000	7.001	N/A

Remarks
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency										Date: May 2021			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>				Project (Number/Name) MC98 / <i>Cyber Operations</i>					
	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.063	0.463		0.475		0.000		-		0.000	0.000	7.001	N/A

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

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MC98 / <i>Cyber Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cyber Security Support	1	2020	1	2021
Planned Cyber Security Support	2	2021	4	2021

Note

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MT99 / <i>Technology Maturation Initiatives Test</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MT99: <i>Technology Maturation Initiatives Test</i>	12.394	5.056	0.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2020 does not include the enacted rescission for Technology Maturation Initiatives. The remaining rescission funding is sourced from MD98.

A. Mission Description and Budget Item Justification

The TMI test project funds the management and execution of TMI system participation in MDS level tests, hardware-in-the-loop testing, and performance analysis costs for test data. This includes test asset shipment to test ranges, labor, travel, range support, Command & Control, Battle Management, Communications test support specific to TMI. No funding is requested for this project.

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

	FY 2020	FY 2021	FY 2022
Title: Technology Maturation Initiatives Test	5.056	0.000	0.000
Articles:	-	-	-
Description: The TMI Test project tests the systems developed under the DEDD and DSDD projects under realistic conditions in conjunction with on-going MDS testing and through dedicated live fire tests to inform continued testing, full development and limited fielding decisions. This effort also demonstrates potential sensors, systems, and architectures to integrate the MDS for left through right of launch.			
Specific and/or unique planned accomplishments to each FY are as follows:			
FY 2021 Plans: - No funding is requested in FY 2021 for this effort			
FY 2022 Plans: - No funding is requested in FY 2022 for this effort			
FY 2021 to FY 2022 Increase/Decrease Statement: FY 2020 does not include the enacted rescission for Technology Maturation Initiatives. The remaining rescission funding is sourced from MD98.			
Accomplishments/Planned Programs Subtotals	5.056	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MT99 / <i>Technology Maturation Initiatives Test</i>

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 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MT99 / <i>Technology Maturation Initiatives Test</i>
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Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Technology Maturation Initiatives Test - Command Control Battle Management and Communications/Aegis	Various	Northrop Grumman, Lockheed Martin, Space and Naval Warfare Center, National Air and Space Intelligence Center, Naval Surface Warfare Center Dahlgren Division : CO, CA, OH, VA	5.068	0.000		0.000		0.000		-		0.000	0.000	5.068	0.000
Technology Maturation Initiatives Test - Range Facility Test Prep	MIPR	Pacific Missile Range Facility, Edwards AFB : HI, CA	0.437	0.000		0.000		0.000		-		0.000	0.000	0.437	0.000
Technology Maturation Initiatives Test - Sensor and Directed Energy Activity	Various	MDA : NM	0.000	5.056	Nov 2019	0.000		0.000		-		0.000	0.000	5.056	0.000
Technology Maturation Initiatives Test - Transportation Costs	MIPR	US Air Force : CA	6.889	0.000		0.000		0.000		-		0.000	0.000	6.889	0.000
Subtotal			12.394	5.056		0.000		0.000		-		0.000	0.000	17.450	N/A

Remarks
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.394	5.056	0.000	0.000	-	0.000	0.000	17.450	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 2022 Missile Defense Agency						Date: May 2021					
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>				Project (Number/Name) MT99 / <i>Technology Maturation Initiatives Test</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 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
No Planned Activity due to Congressional Rescission						◇					

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MT99 / <i>Technology Maturation Initiatives Test</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
No Planned Activity due to Congressional Rescission	2	2021	2	2021

Note

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MD40: <i>Program Wide Support</i>	21.849	9.268	2.677	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Program Wide Support (PWS) is allocated 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.

A. Mission Description and Budget Item Justification

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 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 2020	FY 2021	FY 2022
Title: Program Wide Support	9.268	2.677	0.000
Articles:	-	-	-
Description: 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 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,			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Missile Defense Agency	Date: May 2021
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022
<p>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.</p> <p>FY 2021 Plans: - SEE ABOVE.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Due to a shift in Department of Defense priorities, the Department is cancelling the development of Technology Maturation Initiatives beginning in FY 2022. The decrease from FY 2021 to FY 2022 reflects this change.</p>			
Accomplishments/Planned Programs Subtotals	9.268	2.677	0.000

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 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 : AL, CO, CA, VA	0.000	9.129	Nov 2019	1.262	Nov 2020	0.000		-		0.000	0.000	10.391	0.000
Program Wide Support - Agency Operations Management	MIPR	Various : Multi: AL, VA	0.225	0.139	Jul 2020	0.000		0.000		-		0.000	0.000	0.364	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		1.200	Nov 2020	0.000		-		0.000	0.000	1.200	0.000
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL, CA, CO, VA	21.624	0.000		0.000		0.000		-		0.000	0.000	21.624	0.000
Program Wide Support - Agency Operations, Sustainment and GPC	C/FFP	Various : Multi: AK, AL, CA, HI, NY, VA	0.000	0.000		0.215	Nov 2020	0.000		-		0.000	0.000	0.215	0.000
Subtotal			21.849	9.268		2.677		0.000		-		0.000	0.000	33.794	N/A

Remarks
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.849	9.268	2.677	0.000	-	0.000	0.000	33.794	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 2022 Missile Defense Agency **Date:** May 2021

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
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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 2020		FY 2021		FY 2022		FY 2023		FY 2024		FY 2025		FY 2026		
MD40 Program-Wide Support					◇	◇	◇	◇	◇	◇	◇	◇							

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Missile Defense Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604115C / <i>Technology Maturation Initiatives</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2020	4	2021

Note

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.