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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0207455F / <i>Three Dimensional Long-Range Radar (3DELRR)</i>
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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	0.000	0.000	14.490	19.763	0.000	19.763	0.584	0.069	0.000	0.000	0.000	34.906
646002: <i>Three Dimensional Expeditionary Long Range Radar</i>	0.000	0.000	14.490	19.763	0.000	19.763	0.584	0.069	0.000	0.000	0.000	34.906
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 393

A. Mission Description and Budget Item Justification

This budget line funds the Three-Dimensional Expeditionary Long-Range Radar (3DELRR) program. The 3DELRR program replaces the unsustainable AN/TPS-75 radar. The AN/TPS-75 radar was first fielded in the early 1970s, is at the end of its service life, and costly to maintain. The 3DELRR system will be the USAF's principal long-range, ground-based sensor for detecting, identifying, tracking, and reporting aerial tracks for the Joint Force Air Component Commander (JFACC).

The 3DELRR system will provide multiple benefits and increased capabilities to the USAF and the Joint Services, including but not limited to: 1) ability to detect and track highly maneuverable, small radar cross-section airborne targets (modern and emerging threats); 2) enable greater battlefield and battlespace awareness through its precise, real-time air picture of sufficient quality to control individual aircraft under a wide range of environmental and operational conditions; and 3) mitigate reliability, operational availability, maintainability, transportability and sustainability issues.

The 3DELRR system consists of the TPY-4 radar, two (2) Heavy Expanded Mobility Tactical Trucks (HEMTTS), one (1) trailer, four (4) Micro Grid generators, and other smaller Government Furnished Equipment (GFE) items.

FY2024 funding will support continued capability development for the 3DELRR system. Development of the system will consist of electronic protection (EP) techniques, classification and clutter algorithms, and enhanced radar capabilities across various operating environments. FY2024 funds will support integration of the 3DELRR system with the United States Army using the Integrated Fire Control Network (IFCN) interface and the United States Navy & Marine Corps using the Cooperative Engagement Capability/Composite Tacker Network (CEC/CTC) interfaces.

Test and evaluation will also continue with FY2024 funding to support development of the TPY-4 radar to include cybersecurity and performance assessments, mobility, evaluations, and initial maintenance demonstrations.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0.00M was expended for civilian pay expenses in this program element, and in FY23 \$0.00M is forecasted for civilian pay expenses in this program element.

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This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	14.490	6.228	0.000	6.228
Current President's Budget	0.000	14.490	19.763	0.000	19.763
Total Adjustments	0.000	0.000	13.535	0.000	13.535
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.535	0.000	13.535

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Development and test of the AN/TPY-4 radar	0.000	9.859	5.587
Description: Funds will be used for the development, integration, and test activities of TPY-4 radar system.			
FY 2023 Plans:			
Activities supported with FY23 funding include, but are not limited to the following:			
-Will lead and manage program through daily interaction with contractor and key stakeholders			
-Will develop efforts for interoperability with external agencies as required			
-Will develop, test, and implement capability requirements for integrating data into the Army's Integrated Fire Control Network			
-Will develop, test, and implement capability requirements to provide better performance against more challenging radar environments, improve classification and provide a suite of more advanced electronic protection			
-Will identify, monitor, mitigate and report program and known risks associated with hardware, software and testing			
-Will pursue required system and sub-system certification			
-Will develop technical manuals and training material			
-Will develop system integration & interoperability with operational Command and Control (C2) systems			
-Will conduct contractor integration testing of components & subsystems			
-Will verify, validate, and accredit modelling & simulation tools for use in test			
-Will conduct test readiness reviews prior to specific test events			

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>		R-1 Program Element (Number/Name) PE 0207455F / <i>Three Dimensional Long-Range Radar (3DELRR)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> -Will conduct cybersecurity tabletop exercises -Will conduct integrated contractor/government developmental test & evaluation to characterize performance and cybersecurity posture -Will conduct preparation for initial operational test & evaluation and ensure entrance criteria are met -Will identify spares through the Provisioning Conference -Will finalize support equipment requirements <p>FY 2024 Plans: Activities will include, but are not limited to the following:</p> <ul style="list-style-type: none"> -Will finalize technical manuals and training material -Will conduct test readiness reviews prior to specific test events -Will continue integrated government developmental test & evaluation and operational test & evaluation to characterize performance and cybersecurity posture -Will conduct initial operational test & evaluation to support fielding decision -Will develop, test, and implement future requirements based on mission needs <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 funds decrease to support the 3DELRR system transition into government test and evaluation activities.</p>				
<p>Title: Government Development, Operational & Integration Test and Evaluation Planning and Execution</p> <p>Description: Planning and Execution of Government-led Developmental, & Operational Test and Evaluation Activities</p> <p>FY 2023 Plans: Activities supported with FY23 funding include but are not limited to the following:</p> <ul style="list-style-type: none"> -Will lead and manage program through daily interaction with contractor and key stakeholders -Will develop efforts for interoperability with external agencies as required -Will test and implement selected capability requirements based on mission needs -Will identify, monitor, mitigate and report program and known risks associated with hardware, software, and testing -Will conduct required system and sub-system certification -Will conduct system integration & interoperability with operational Command and Control (C2) systems -Will verify, validate, and accredit modelling & simulation tools for use in test -Will conduct Test Readiness Reviews prior to specific test events -Will conduct cybersecurity tabletop exercises -Will conduct integrated contractor/government developmental test & evaluation to characterize performance and cybersecurity posture 		0.000	4.631	14.176

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
-Will conduct preparation for initial operational test & evaluation and ensure entrance criteria are met			
<i>FY 2024 Plans:</i> Activities will include but are not limited to the following: -Will conduct test readiness reviews prior to specific test events -Will continue integrated government developmental test & evaluation and operational test & evaluation to characterize performance and cybersecurity posture -Will conduct initial operational test & evaluation to support fielding decision -Will test selected future requirements based on mission needs			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funds increase to support the 3DELRR system transition into government test and evaluation activities.			
Accomplishments/Planned Programs Subtotals	0.000	14.490	19.763

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 833060: 3D Expeditionary Long-Range Radar	96.186	92.587	83.735	-	83.735	95.961	106.860	110.182	113.048	0.000	698.559

Remarks

E. Acquisition Strategy
The Service Acquisition Executive (SAE) designated the 3DELRR program a Middle Tier of Acquisition (MTA) Rapid Prototyping effort on 27 Dec 19. The program used Other Transactional Agreements to conduct the competitive prototype capability demonstrations. On 15 Mar 21, the SAE delegated contract award and downselect decision authority to the Air Force Program Executive Officer (PEO) Digital. On 1 Apr 22, the SAE designated 3DELRR an MTA Rapid Fielding effort, thereby concluding the Rapid Prototyping effort and enabling the program to start production of the first two initial production units. 3DELRR is tentatively scheduled to transition from an MTA to a Major Capability Acquisition program in early 2024.

The total cost of the 3DELRR MTA effort is \$360.5 million, including RDT&E and procurement of prototype units. The 3DELRR program is fully funded across the Future Years Defense Program.

The Milestone Decision Authority for the 3DELRR program is the Assistant Secretary of the Air Force for Acquisition, Technology, and Logistics. Program management for the 3DELRR program is under direction of PEO Digital, located at Hanscom AFB, MA. The Air Force Life Cycle Management Center located at Wright-Patterson AFB, OH is the contracting authority for the 3DELRR program. AFLCMC provides contracting, legal, comptroller, programmatic, engineering, test, and logistics support.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 4				PE 0207455F / Three Dimensional Long-Range Radar (3DELRR)				646002 / Three Dimensional Expeditionary Long Range Radar							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TPY-4 Prime Contract	C/FFP	Lockheed Martin : Syracuse, NY	0.000	-		10.574		9.075		-		9.075	0.000	19.649	-
Subtotal			0.000	-		10.574		9.075		-		9.075	0.000	19.649	N/A
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering - C	SS/CPFF	GTRI : Atlanta, GA	0.000	-		0.500		0.758		-		0.758	0.000	1.258	-
System Engineering - D	SS/CPFF	MITRE : Bedford, MA	0.000	-		0.416		1.470		-		1.470	0.000	1.886	-
Subtotal			0.000	-		0.916		2.228		-		2.228	0.000	3.144	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Force Operational Test and Evaluation Center (AFOTEC)	PO	AFOTEC Det 2/C2 : TBD	0.000	-		-		2.843		-		2.843	0.000	2.843	-
Government Developmental Test and Evaluation Planning and Preparation	PO	46 TS : Eglin AFB, FL	0.000	-		3.000		3.107		-		3.107	0.000	6.107	-
Subtotal			0.000	-		3.000		5.950		-		5.950	0.000	8.950	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	AFLCMC/HBDD : Hanscom AFB, MA	0.000	-		-		2.510		-		2.510	0.000	2.510	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207455F / <i>Three Dimensional Long-Range Radar (3DELRR)</i>	Project (Number/Name) 646002 / <i>Three Dimensional Expeditionary Long Range Radar</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Three Dimensional Expeditionary Long Range Radar</i>				
Government Test	4	2023	4	2025
Implement full complement of electronic protection techniques	2	2023	2	2026
Implement unique classification techniques and additional clutter algorithms	2	2023	2	2026
Design radar templates for other natural and electronic attack environments	2	2023	2	2026