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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 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</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	-	66.022	12.210	428.754	0.000	428.754	74.056	73.972	31.829	32.980	0.000	719.823
674592: <i>HLD - OTHR</i>	-	0.000	0.000	423.643	0.000	423.643	74.056	73.972	31.829	32.980	0.000	636.480
674865: <i>TACMOR Development</i>	-	66.022	12.210	5.111	0.000	5.111	0.000	0.000	0.000	0.000	0.000	83.343

A. Mission Description and Budget Item Justification

Homeland Defense Over the Horizon Radar (HLD - OTHR) efforts were funded in FY23, in PE 0102412F North Warning System (NWS) and were realigned in FY24 to PE 0102417F Over-the-Horizon Backscatter Radar to report all Department of the Air Force OTHR efforts in one R-1 line.

Efforts funded in this PE focus on development, testing, and fielding, of a long range early detection capability for airborne and surface targets of interest. Each line of effort acquires and fields a land based, high-frequency (HF) ionospheric backscatter radar for over the horizon detection and tracking of airborne and surface targets over wide geographic areas. Fielding of this capability will enable detection, tracking and reporting of airborne and surface targets that may be obscured from conventional line of sight radar systems by the curvature of the earth. Specific lines of effort funded include but are not limited to, Tactical Multi-Mission Over the Horizon Radar (TACMOR), Homeland Defense Over the Horizon Radar (HLD -OTHR) and support for a classified EUCOM requirement.

TACMOR capability is being developed for employment in the Republic of Palau (RoP) to provide enhanced Air Domain Awareness in the USINDOPACOM area of responsibility. TACMOR will be located in the RoP and operated by the United States in agreement with the RoP. Development, test and evaluation, and acquisition of the system and associated components will provide warfighters with the capability to close gaps in surveillance coverage in key regions of the Pacific area of interest to the United States and its Allies.

HLD - OTHR efforts focus on development of capability to extend current NWS surveillance of long range early warning for North America in response to emerging threats. The primary mission of the new HLD-OTHR systems will be to provide long-range sensor coverage of likely air and cruise missile threats to North America, with secondary and tertiary capability against Hypersonic Vehicles (HSVs), Hypersonic Glide Vehicles (HGVs), maritime surface vessels and additional tasking as required. The system will be comprised of four (4) sites in CONUS; Northeast, Northwest, Alaska and a Southern facing system. HLD - OTHR data will be distributed and integrated into existing air, missile and maritime defense early warning networks, as applicable.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in PE 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY22 0.0M was expended for civilian pay expenses in this program element, and in CY23 0.0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	67.400	12.210	68.033	0.000	68.033
Current President's Budget	66.022	12.210	428.754	0.000	428.754
Total Adjustments	-1.378	0.000	360.721	0.000	360.721
• 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	-1.378	0.000			
• Other Adjustments	0.000	0.000	360.721	0.000	360.721

Change Summary Explanation

FY24 \$360.7M increase to incrementally fund first two HLD-OTHR sites as prototypes.

UNCLASSIFIED

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</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
674592: <i>HLD - OTHR</i>	-	0.000	0.000	423.643	0.000	423.643	74.056	73.972	31.829	32.980	0.000	636.480
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Homeland Defense Over the Horizon Radar (HLD - OTHR) efforts were funded in FY23, in PE 0102412F North Warning System (NWS) and were realigned in FY24 to PE 0102417F Over-the-Horizon Backscatter Radar to report all Department of the Air Force OTHR efforts in one R-1 line.

HLD-OTHR development focuses on development of capability to extend current NWS surveillance to long range early warning for North America in response to emerging threats. Program will design, develop, test and field advanced generation OTHR systems operating at levels of transmit power and receiver sensitivity far exceeding current OTHR systems in operation. Program activities include C2 interface design and integration, HF sensor and digital receiver technology advancement, ionospheric characterization research, remote sensor management capability development, and sensor data fusion research. HLD-OTHR data will be distributed and integrated into existing integrated air, missile defense (IAMD) early warning networks, to include emerging Advanced Battle Management System and Cloud Based C2 architectures as applicable. Funds were added in FY24 to evaluate and develop improvements to the OTHR sensors tracking algorithms to increase probability of detection of high altitude air vehicles such as stratospheric balloons and other unidentified aerial phenomena.

Fielding involves land-based installation of Transmit and Receive site array's separated by 40 - 120 miles for bi-static operations. Transmit site requires 140 acres of land and consist of vertical log periodic elements in an array. The Receive site requires 1350 acres of land and will be positioned in 7 to 10 rows; termed as a 2-dimensional array. Additional development will include the establishment of an Operational Control Center and associated Command and Control Battle Management capability to enable the dissemination of track data and other targets of interest for Air and Cruise Missile Defense of the Homeland (ACMD-H) air domain awareness requirements.

Program Element will also be utilized to fund any emerging or urgent joint operational needs as required.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY22 0.0M was expended for civilian pay expenses in this program element, and in CY23 0.0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Homeland Defense OTHR Development	-	0.000	423.643

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: HLD OTHR development focuses on radar system design, development, manufacture and acquisition of hardware and software for the Transmit and Receive Sites. Development of modeling and simulation tools, studies, and analyses to inform systems engineering, early developmental test activities. Modeling will validate key performance characteristics and metrics unique to each site's interaction with HF radar and the ionosphere. In addition, execution of risk reduction efforts for the development of advanced radar receivers as well as system integration design into the IAMD battle control system enterprise will be used to develop system requirements and technical specifications to inform Command and Control and Operation Control Center system acquisition.</p> <p>FY 2023 Plans: FY23 efforts funded out of PE 01012412F North Warning System PE</p> <p>FY 2024 Plans: - Expand site specific electromagnetic interference and ionospheric characterization work as access to additional land becomes available -Initiate OTHR track data software interface and integration activities into existing Battle Control Centers/C2 nodes - Continue to develop, manufacture, and acquire Rx & Tx antenna, associated infrastructure, and material components necessary to support initial developmental testing as sites becomes available -Continue advanced digital receiver signal processing development</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased in this R-1 due to transfer of HLD-OTHR funding from PE 0102142F into Over the Horizon Backscatter Radar PE 0102147F. Funding increased to account for component and material purchases, prototype antenna fabrication, and delivery (Sites 1&2).</p> <p>Request Technical Adjustment of 428.754M within line # 162, BA7 PE 0102417F, BPAC 674865 to BA5 PE 0102417F, BPAC 674865. Properly aligns program element funding with the budget activity representing the current phase of program development.</p>			
Accomplishments/Planned Programs Subtotals	-	0.000	423.643

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	Total Cost
			Base	OCO	Total					Complete	
• OPAF 03 0102417F: <i>Over-the-Horizon Backscatter</i>	0.000	0.000	55.198	-	55.198	104.239	104.249	-	-	Continuing	Continuing

UNCLASSIFIED

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

C. 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>
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Remarks

D. Acquisition Strategy

HLD-OTHR is executed by PEO Digital. Acquisition Strategy still in development; planned to seek Middle Tier Acquisition Rapid Prototyping to deliver first two systems for Initial Operating Capability over a 5-year timeline as sites become available.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Manufacture and acquisition of hardware components for HLD-OTHR Transmit and Receive sites.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		360.143	Jan 2024	-		360.143	Continuing	Continuing	-
Modeling/Simulation and ionospheric characterization activities.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		15.500	Jan 2024	-		15.500	Continuing	Continuing	-
Operational Control Center development and Battle Control Center Integration.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		22.000	Jan 2024	-		22.000	Continuing	Continuing	-
Subtotal			-	-		-		397.643		-		397.643	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Travel	Various	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		2.000	Nov 2023	-		2.000	Continuing	Continuing	-
Subtotal			-	-		-		2.000		-		2.000	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Integration, Validation and Verification	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		10.000	May 2024	-		10.000	Continuing	Continuing	-
Subtotal			-	-		-		10.000		-		10.000	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HLD OTHR</i>				
Model Based Systems Engineering - Ionospheric and Siting	3	2022	3	2024
Requirements developments and system performance specification validation	3	2022	3	2023
Radar Rx risk-reduction design and technology advancement efforts	3	2023	1	2025
Battle Control System integration-interface design testing	3	2023	2	2025
Component and material purchases, prototype antenna fabrication, and delivery (sites 1&2)	4	2023	4	2025
Radar site 1- installation	1	2026	4	2027
Radar site 2 - installation	1	2026	3	2028

UNCLASSIFIED

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</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
674865: <i>TACMOR Development</i>	-	66.022	12.210	5.111	0.000	5.111	0.000	0.000	0.000	0.000	0.000	83.343
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

TACMOR capability is being developed for employment in the Republic of Palau to provide enhanced Air Domain Awareness in the USINDOPACOM area of responsibility. TACMOR will be operated by the United States and located in the Republic of Palau, with the agreement of the government of Palau. Development, test and evaluation, and acquisition of the system and associated components will provide warfighters with the capability to close gaps in surveillance coverage in key regions of the Pacific area of interest to the United States and our Allies.

TACMOR efforts funded in this Program Element include but are not limited to: A Transmit site consisting of ten elements and high power amplifiers transmitting High Frequency [HF] Skywave Over-The-Horizon Radar [OTHR] waveforms. The transmit site will also consists of a HF vertical sounder antenna and a HF backscatter sounder providing ionosphere environmental information for optimizing frequency selection.

Also includes a Receive site consisting of 128 dual-monopole antenna elements receiving the over-the-horizon reflected energy from the transmit site. The receive site also contains the secure facilities for signal processing of the received data and real-time target extraction information.

This effort will also fund the communications infrastructure necessary to enable the data flow from the Transmit and Receive sites to an off-site operations control center. The operations control center plans and executes missions in support of the Combatant Command [CCMD] and provides real-time, target tracking information to all-source information fusion and dissemination systems. TACMOR data will also be accessible to and exploited by the National Air and Space Intelligence Center [NASIC] for detailed, post-event analysis.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 0 was expended for civilian pay expenses in this program element, and in FY2023 0 is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Homeland Defense OTHR Development	25.100	0.000	0.000
Description: HLD OTHR efforts will focus on development of modeling and simulation aimed at conducting analysis for up to 4 CONUS sites. Modeling will provide key performance metrics unique to each site interaction with High Frequency Radar and the Ionosphere that will be used to finalize requirements and technical specifications to inform system acquisition.			
FY 2023 Plans:			

UNCLASSIFIED

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
N/A				
FY 2024 Plans: N/A				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
<p>Title: TACMOR Development</p> <p>Description: Will establish initial TACMOR prototype transition and development activities necessary to accept post production readiness system components and sub-components. Program re-phased to align with military construction schedule and site availability.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Execute re-phased assembly and integration activities for the major subsystems: receive subsystem, transmit subsystem, operations control center subsystems that include integration of the major subsystems within their appropriate containers and establishment of network connections necessary to enable Factory Acceptance Testing [FAT]. - Execute test plans, procedures, and procure FAT-unique test equipment necessary to collect data at multiple points within the TACMOR system to confirm subsystem components meet performance specifications - Execute FAT according to test plans, collect and analyze test data, and report on subsystem and component level successes and failures based on specifications and overall TACMOR system requirements flow down - Complete development of a System Integration Lab [SIL] capability to allow for early test and integration of TACMOR unique hardware and software to run in a maintenance environment. Allows for initial training of TACMOR maintainers to gain familiarity with the major systems and subsystem components. - Establish the Wideband Communications Architecture in the SIL environment to test, evaluate and verify the Primary, Alternate, Contingency, and Emergency communications architecture prior to fielding - Continue development and installation of communication infrastructure in support of offsite data transmission and dissemination. This includes associated authority to operate and cyber hardening - Begin development of initial operations training material in support of Initial Operational Test and Evaluation [IOT&E] process 		40.922	12.210	5.111

UNCLASSIFIED

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>- Complete development of support documentation; i.e.; Technical Orders, Site Diagrams, and finalize requirements for specific contractor deliverables in support of IOT&E</p> <p>FY 2024 Plans:</p> <p>- Will continue assembly and integration activities for the major subsystems: receive subsystem, transmit subsystem, operations control center subsystems that include integration of the major subsystems within their appropriate containers and establishment of network connections necessary to enable Factory Acceptance Testing [FAT].</p> <p>- Will execute test plans, procedures, and procure FAT-unique test equipment necessary to collect data at multiple points within the TACMOR system to confirm subsystem components meet performance specifications</p> <p>- Will continue to execute FAT according to test plans, collect and analyze test data, and report on subsystem and component level successes and failures based on specifications and overall TACMOR system requirements flow down</p> <p>- Will complete development of a System Integration Lab [SIL] capability to allow for early test and integration of TACMOR unique hardware and software to run in a maintenance environment. Allows for initial training of TACMOR maintainers to gain familiarity with the major systems and subsystem components.</p> <p>- Will integrate the Wideband Communications Architecture in the SIL environment to test, evaluate and verify the Primary, Alternate, Contingency, and Emergency communications architecture prior to fielding</p> <p>- Will continue development and installation of communication infrastructure in support of offsite data transmission and dissemination. This includes associated authority to operate and cyber hardening</p> <p>- Will begin development of initial operations training material in support of Initial Operational Test and Evaluation [IOT&E] process</p> <p>- Will complete development of support documentation; i.e.; Technical Orders, Site Diagrams, and finalize requirements for specific contractor deliverables in support of IOT&E</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to FY24 completion of TACMOR development efforts.</p>			
Accomplishments/Planned Programs Subtotals	66.022	12.210	5.111

UNCLASSIFIED

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

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

N/A

Remarks

D. Acquisition Strategy

TACMOR will be executed out of the PEO Digital. For contracting efforts program will seek approval for rapid prototyping Middle Tier Acquisition to transition the Joint Concept Technology Demonstration to a program of record.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 Integration Lab development Communications Architecture Integration Facility	TBD	AFLCMC/HBG : Robins, AFB, GA	-	-		9.610	Feb 2024	-		-		-	Continuing	Continuing	-
Component and material purchases, prototype antenna fabrication; Wide Area Communications network services	MIPR	AFLCMC/HBG : Robins, AFB, GA	-	38.582	Aug 2023	-		-		-		-	Continuing	Continuing	-
Homeland Defense OTHR Modeling and Simulation, Site Analysis, Requirements and Performance Metrics Development	Various	AFLCMC/HBD : Hanscom, MA	-	23.040	Apr 2023	-		-		-		-	Continuing	Continuing	-
Initial Operations training material development; cyber security risk management frame work implementation	TBD	AFLCMC/HBG : Robins, AFB, GA	-	-		-		3.000	Feb 2024	-		3.000	Continuing	Continuing	-
Subtotal			-	61.622		9.610		3.000		-		3.000	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Travel	Various	AFLCMC/HBG : Robins, AFB, GA	-	1.000	Mar 2022	1.000	Nov 2022	0.300	Nov 2023	-		0.300	Continuing	Continuing	-
Subtotal			-	1.000		1.000		0.300		-		0.300	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HLD OTHR</i>				
CONUS Site environmental site analysis	4	2022	3	2023
Model Based System Engineering	4	2022	4	2024
Requirements developments and system performance specification validation	3	2022	3	2023
Software Development Environment	3	2022	4	2023
<i>TACMOR Development</i>				
Full-scale prototype and FAT capability development	3	2023	4	2025
Component and material purchases, prototype antenna fabrication, and delivery	2	2024	2	2025
Assembly and integration activities for major components and subsystems	2	2024	4	2026
Test plan and test procedure development and data collection	3	2022	3	2024
FAT test plan execution	4	2024	4	2025
Communication infrastructure development	3	2023	4	2025
System Integration Lab development, software integration and communications testing	1	2024	4	2025
Cybersecurity Risk Management Framework Planning & Implementation	1	2024	4	2025
Training Material Development in support of IOT&E	2	2024	3	2025