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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

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 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	2.820	5.982	7.768	0.000	7.768	0.000	0.000	0.000	0.000	Continuing	Continuing
674942: <i>Large Aircraft Infrared Counter Measures (LAIRCM)</i>	-	2.820	5.982	7.768	0.000	7.768	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures (LAIRCM) system is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the man-portable air-defense systems (MANPADS) missile threat. The system is currently installed on 54 aircraft types and over 1200 aircraft.

The current LAIRCM system configuration consists of missile warning sensors (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming missiles. The number of sensors and transmitter assemblies per aircraft is determined by the size and signature of the aircraft. The system is fully autonomous following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) LAIRCM ORD 314-92, validated on 03 Aug 98.

The baseline development program is complete. Follow-on efforts are continuous in order to address and counter new and emerging threats, as well as ensure integration onto new aircraft types and existing LAIRCM platforms. Additional efforts include design changes to improve Reliability Maintainability & Availability and system improvements.

LAIRCM upgrades include, but are not limited to: hardware and software upgrades, as well as testing of the LAIRCM system to maintain defensive capability against new and emerging threats.

Current and future efforts include AFRL Threat Analysis; Modeling, Simulation and Test; Virtual System Integration Lab (SIL) Development; and Studies and Analysis.

AFRL Threat Analysis: AFRL Threat Analysis encompasses the activities to support threat exploitation analysis of a variety of threats (both known and emerging) against the current LAIRCM jam code with the intent of determining if jam code updates are required. Typical threat analysis activities include: threat seeker characterization; model development for advanced threat IR seekers; development and testing of new infrared countermeasures concepts, techniques, and hardware; new technology assessment for potential incorporation into the LAIRCM system, and the evaluation/exploitation of new threats and threat characteristics relative to infrared countermeasures (IRCM).

Modeling, Simulation, and Test: Modeling, Simulation, and Test activities verify and validate the information obtained from the threat analysis activities. These activities include: evaluation of (IRCM) techniques used in defeating real threat hardware; developing and evaluating jam code; validating and verifying integration of LAIRCM

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system components to newly developed jam codes, software and/or hardware; evaluating system effectiveness; performing platform integration support tests; hardware and software upgrades required to accredit test facility; and conducting predictive risk reduction tests prior to Live Missile Fire Test (LMFT) or on aircraft flight testing.

Virtual SIL Development: Incrementally design, develop, integrate, and test software code and purchase associated infrastructure (i.e., computers, servers, commercial off-the-shelf (COTS) software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.

Studies and Analysis: Includes logistics, programmatic, and engineering studies and analysis activities to ensure continued system viability and sustainability and compliance with acquisition directives. These activities may include the evaluation of low cost/high payback opportunities to reduce software development/implementation cost, enhance production efficiency, and improve life cycle costs through increased reliability and reduced repair and return cost.

Program support cost efforts consist of, but are not limited to, contract services and government costs.

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, and 0606398F. In FY 2023 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2024 \$0.000 million is forecast 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. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	2.909	5.982	0.000	0.000	0.000
Current President's Budget	2.820	5.982	7.768	0.000	7.768
Total Adjustments	-0.089	0.000	7.768	0.000	7.768
• 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	-0.089	0.000			
• Other Adjustments	0.000	0.000	7.768	0.000	7.768

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Change Summary Explanation

FY 2025 funding request increased by \$7.768 million for LAIRCM Threat Analysis and Modeling, Simulation, and Test efforts at the AFRL Integrated Threat Warning Lab (ITWL).

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

	FY 2023	FY 2024	FY 2025
Title: LAIRCM AFRL Threat Analysis Description: Encompasses activities to support threat exploitation analysis and updates against a variety of threats for the current LAIRCM jam code with the intent of determining if jam code updates are required. FY 2024 Plans: Threat analysis, test support and system effectiveness efforts with Air Force Research Laboratory (AFRL). FY 2025 Plans: Continuation of threat analysis, test support, and system effectiveness efforts with Air Force Research Laboratory (AFRL). FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased due to ramp up of Integrated Threat Warning Lab (ITWL) Jam Code testing efforts.	2.461	5.707	6.251
Title: LAIRCM Modeling, Simulation, and Test Description: Activities that verify and validate the information obtained from threat analysis activities. FY 2024 Plans: Modeling, Simulation, and Test analysis efforts. FY 2025 Plans: Continuation of Modeling, Simulation, and Test analysis efforts. FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase from FY24 Base supports continuous Evolving Threat Analysis validation at Guided Weapons Evaluation Facility (GWEF) starting in FY25.	0.359	0.275	1.517
Accomplishments/Planned Programs Subtotals	2.820	5.982	7.768

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item LAIRCM: <i>Large Aircraft Infrared Countermeasures</i>	44.743	21.723	52.117	-	52.117	20.738	21.208	21.648	22.078	Continuing	Continuing

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<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

E. Acquisition Strategy

Efforts awarded on an annual basis, exercising existing contract options, funding government led threat analysis, and system effectiveness studies. The LAIRCM program office partners with the Air Force Research Laboratory (AFRL), the 46th Test Squadron, and the Guided Weapon Evaluation Facility (GWEF) to conduct threat analysis research and Modeling, Simulation, and Test. AFRL provides hardware-in-the-loop developmental test simulation capability on a level-of-effort (LOE) basis. The current LAIRCM Annual Lot Buy contract may be used to award multiple various study efforts.

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)	Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
LAIRCM				
AFRL Threat Analysis	1	2023	4	2025
Modeling, Simulation, and Test	1	2023	1	2026