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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604270F / <i>Electronic Warfare Development</i>							
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	-	1.994	2.094	2.110	0.000	2.110	-	-	-	-	-	-
653891: <i>Adv Infrared Counter Measures(Aircm)</i>	-	1.994	2.094	2.110	0.000	2.110	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Advanced Infrared Countermeasure (AIRCMM) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface-to-air and air-to-air missiles. These missiles may employ sophisticated next-generation Electro-Optics (EO), Infrared (IR), Radio Frequency (RF), dual-mode (i.e. IR and RF), or multi-mode seekers. AIRCMM will provide advanced expendable countermeasures and/or techniques that will be functionally compatible with existing dispenser systems and employed across multiple USAF weapons systems. This also includes any and all flare, chaff, decoy, and associated component development and testing that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. Similar activities that are supplementary to this effort may be accomplished ad hoc using platform specific funding or through other activities such as joint services or NATO test groups.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Advanced Infrared Countermeasures for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 06053891F. In FY 2022, \$0.00 is planned to be used in total compensation and benefits for 0 civilian full time equivalents with an \$0.00 average work year salary.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	2.066	2.098	2.142	0.000	2.142
Current President's Budget	1.994	2.094	2.110	0.000	2.110
Total Adjustments	-0.072	-0.004	-0.032	0.000	-0.032
• Congressional General Reductions	0.000	-0.004			
• 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	-0.072	0.000			
• Other Adjustments	0.000	0.000	-0.032	0.000	-0.032

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Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604270F / *Electronic Warfare Development*

Change Summary Explanation

No Significant Changes

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force										Date: May 2021		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604270F / <i>Electronic Warfare Development</i>				Project (Number/Name) 653891 / <i>Adv Infrared Counter Measures(Aircm)</i>			
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
653891: <i>Adv Infrared Counter Measures(Aircm)</i>	-	1.994	2.094	2.110	0.000	2.110	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Advanced Infrared Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface-to-air and air-to-air missiles. These missiles may employ sophisticated next-generation Electro-Optics (EO), Infrared (IR), Radio Frequency (RF), dual-mode (i.e. IR and RF), or multi-mode seekers. AIRCM will provide advanced expendable countermeasures and/or techniques that will be functionally compatible with existing dispenser systems and employed across multiple USAF weapons systems. This also includes any and all flare, chaff, decoy, and associated component development and testing that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. Similar activities that are supplementary to this effort may be accomplished ad hoc using platform specific funding or through other activities such as joint services or NATO test groups.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Advanced Infrared Countermeasures for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program element may include necessary test or evaluation equipment required to assess Advanced Infrared Countermeasure weapons system capabilities.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Countermeasure Development and Testing	1.994	2.094	2.110	-	2.110
Description: Development, testing and qualification of EO, IR, and RF countermeasures on aircraft					
FY 2021 Plans: Activities include development, testing and qualification of expendable countermeasures or cocktails on various aircraft.					
FY 2022 Base Plans: Activities include development, testing and qualification of expendable countermeasures or cocktails on various aircraft.					
FY 2021 to FY 2022 Increase/Decrease Statement:					

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Funding increased due to inflation.					
Accomplishments/Planned Programs Subtotals	1.994	2.094	2.110	-	2.110

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
• PAAF 01 352010: <i>Cartridges</i>	26.660	20.618	26.483	0.000	26.483	-	-	-	-	-	-
• PAAF 01 356010: <i>Flares</i>	139.388	61.259	88.815	6.482	95.297	-	-	-	-	-	-

Remarks
Qualified flares, if not in AF inventory, will be procured under program 0208030F War Reserve Munitions, Flares.

D. Acquisition Strategy
Contracts are awarded through the Department of Defense Ordnance Technology Consortium (DOTC), or Other Transaction Authorities (OTAs), such as Cornerstone Industrial Base Analysis & Sustainment (IBAS), which facilitates collaborative Government, Industry, and Academic ordnance technology development and prototyping initiatives. They serve as a single point contracting agent for development/technology demonstrations needed to advance and expand our military technological superiority.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604270F / <i>Electronic Warfare Development</i>	Project (Number/Name) 653891 / <i>Adv Infrared Counter Measures(Aircm)</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			
IR/UV: Black Body Thrusted Flare	C/CPFF	Cornerstone OTA : TBD	-	0.051	Jun 2020	-		1.110	Jun 2022	-		1.110	-	-	-
Subtotal			-	0.051		-		1.110		-		1.110	-	-	N/A

Remarks
Development of Advanced Expendable Countermeasures to defeat currently fielded threats from which aircraft are not sufficiently protected.

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			
Modeling and Simulation	MIPR	Air Force Research Laboratory : WPAFB, OH	-	1.000	Jun 2020	1.000	Jun 2021	1.000	Jun 2022	-		1.000	-	-	-
Range Test	MIPR	96th Test Wing : Eglin AFB, FL	-	0.140	Oct 2020	-		-		-		-	-	-	-
Test Support	MIPR	Various : NV	-	0.803	Jun 2020	1.094	Jun 2021	-		-		-	-	-	-
Subtotal			-	1.943		2.094		1.000		-		1.000	-	-	N/A

Remarks

Modeling and simulation

- This entails performance of modeling and simulation (to include threat hardware in-the-loop) which helps to predict advanced expendable countermeasure effectiveness and develop and define Air Force requirements
- Performing activity varies; conducted by AFRL and Georgia Tech Research Center

Range Test

- This is the cost to use the range for testing (Radiometric, Captive Seeker, Flight, etc.)
- Performing Activity & Location varies; 96th Test Wing, Eglin AFB, FL, White Sands Missile Range, NM, Gila Bend, AZ

Test Support

- This includes but is not limited to Seeker Test Vans (multiple vans required for Captive Seeker), duo chrome camera, and other test equipment
- Activities/support during testing (i.e. communications/electric/security)
- Performing Activity & Location should remain "Various: TBD", multiple activities are included

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	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	-	1.994	2.094	2.110	-	2.110	-	-	N/A		

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604270F / <i>Electronic Warfare Development</i>	Project (Number/Name) 653891 / <i>Adv Infrared Counter Measures(Aircm)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Advance IR Aircm</i>				
Modeling and Simulation - Threat Exploitation	1	2020	4	2026
Pulse Kinematic Flare Development	1	2020	4	2021
IR/UV: Black Body Thrusted Flare Development	1	2022	4	2024
Advanced IR Flare Development for future threats	1	2024	4	2026