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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force **Date:** February 2018

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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	4.986	2.241	1.909	0.000	1.909	2.066	2.102	2.145	2.185	Continuing	Continuing
653891: <i>Adv Infrared Counter Measures(Aircm)</i>	-	4.986	2.241	1.909	0.000	1.909	2.066	2.102	2.145	2.185	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Advanced Infrared Countermeasure (AIRCm) 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 explicitly includes any and all flare, chaff, decoy, and associated components 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.

BA-5 - This program is in Budget Activity 5, 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	12.476	2.241	1.924	0.000	1.924
Current President's Budget	4.986	2.241	1.909	0.000	1.909
Total Adjustments	-7.490	0.000	-0.015	0.000	-0.015
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	-7.490	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	-0.015	0.000	-0.015

Change Summary Explanation

FY17 Congressional reduction total (-\$7.3M) -\$3.3M for improved GPS- Department requested realignment of funds to RDTE, AF lines 19 and 48 and RDTE,N line 139; -\$4M for forward financing

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
653891: <i>Adv Infrared Counter Measures(Aircm)</i>	-	4.986	2.241	1.909	0.000	1.909	2.066	2.102	2.145	2.185	Continuing	Continuing
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 explicitly includes any and all flare, chaff, decoy, and associated components 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.

BA5 - 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. Accomplishments/Planned Programs (\$ in Millions)

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Countermeasure Testing	2.476	2.241	1.909	0.000	1.909
Description: IR flare testing and qualification on aircraft					
FY 2018 Plans: Activities include testing and qualification of expendable countermeasure cocktails on various aircraft.					
FY 2019 Base Plans: Activities include testing and qualification of expendable countermeasure cocktails on various aircraft.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease minimal. Continuing effort.					
Title: Military Code (M code) receiver	2.510	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force				Date: February 2018	
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>	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: The development and integration of a GPS receiver capable of receiving a Military Code (M code). FY 2018 Plans: N/A FY 2019 Base Plans: N/A FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	4.986	2.241	1.909	0.000	1.909

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PAAF 01 Line Item 356010: <i>Flares</i>	115.706	124.850	107.482	0.000	107.482	93.042	106.905	146.033	-	Continuing	Continuing
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). DOTC facilitates collaborative Government, Industry, and Academic ordnance technology development and prototyping initiatives. It serves as a single point contracting agent for development/technology demonstrations needed to advance and expand our military technological superiority.											
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
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>					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Digital RWR development	MIPR	TBD : NV	-	-		-		-		-		-	Continuing	Continuing	-
Military Code (M code) receiver	SS/CPFF	Raytheon : Tucson, AZ	-	2.510	Jun 2017	-		-		-		-	Continuing	Continuing	-
Subtotal			-	2.510		-		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Aircraft/Unit Support	MIPR	AATC : Tucson, AZ	-	0.290	Jun 2017	0.300	Jun 2018	0.260	Jun 2019	-		0.260	Continuing	Continuing	-
Mission Planning	MIPR	TBD : NV	-	0.324	Jun 2017	0.300	Jun 2018	0.260	Jun 2019	-		0.260	Continuing	Continuing	-
Subtotal			-	0.614		0.600		0.520		-		0.520	Continuing	Continuing	N/A
Remarks															
AATC supports ACC/CAF in coordinating and managing aircraft use to conduct advanced expendable countermeasure testing (this does not support other AMC or AFSOC)															
Mission planning: Provides for programming of mission data required for each airframe and each expendable countermeasure or flare cocktail; this does not support AMC or AFSOC															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Modeling and Simulation	MIPR	Air Force Research Laboratory : WPAFB, OH	-	0.325	Jun 2017	0.330	Jun 2018	0.245	Jun 2019	-		0.245	Continuing	Continuing	-
Range Test	MIPR	96th Test Wing : Eglin AFB, FL	-	1.397	Jun 2017	1.171	Jun 2018	1.016	Jun 2019	-		1.016	Continuing	Continuing	-
Test Support	MIPR	Various : NV	-	0.120	Jun 2017	0.120	Jun 2018	0.108	Jun 2019	-		0.108	Continuing	Continuing	-
Subtotal			-	1.842		1.621		1.369		-		1.369	Continuing	Continuing	N/A

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Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Remarks															
Modeling and simulation - This entails performance of modeling and simulation which helps to predict advanced expendable countermeasure effectiveness - Performing activity varies; conducted by AFRL and GTRI															
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															
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Office/ Government Support	Various	Air National Guard Air Force Reserve Command Test Center : Tucson, AZ	-	0.020	May 2017	0.020	May 2018	0.020	May 2019	-		0.020	Continuing	Continuing	-
Subtotal			-	0.020		0.020		0.020		-		0.020	Continuing	Continuing	N/A
Remarks															
AATC provides all the management, preparation and coordination of advanced expendable countermeasure testing efforts for ACC/CAF (this does not include support for AMC or AFSOC)															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.986		2.241		1.909		-		1.909	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force			Date: February 2018
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	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advance IR Aircm																												
First FY17 Semi-Annual Test Event		■																										
Second FY17 Semi-Annual Test Event				■																								
First FY18 Semi-Annual Test Event					■																							
Second FY18 Semi-Annual Test Event							■																					
First FY19 Semi-Annual Test Event								■																				
Second FY19 Semi-Annual Test Event									■																			
First FY20 Semi-Annual Test Event										■																		
Second FY20 Semi-Annual Test Event											■																	
First FY21 Semi-Annual Test Event													■															
Second FY21 Semi-Annual Test Event														■														
First FY22 Semi-Annual Test Event																	■											

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
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>				
First FY17 Semi-Annual Test Event	2	2017	2	2017
Second FY17 Semi-Annual Test Event	4	2017	4	2017
First FY18 Semi-Annual Test Event	2	2018	2	2018
Second FY18 Semi-Annual Test Event	4	2018	4	2018
First FY19 Semi-Annual Test Event	2	2019	2	2019
Second FY19 Semi-Annual Test Event	4	2019	4	2019
First FY20 Semi-Annual Test Event	2	2020	2	2020
Second FY20 Semi-Annual Test Event	4	2020	4	2020
First FY21 Semi-Annual Test Event	2	2021	2	2021
Second FY21 Semi-Annual Test Event	4	2021	4	2021
First FY22 Semi-Annual Test Event	2	2022	2	2022