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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 0604287F / <i>Physical Security Equipment</i>
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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	-	11.122	6.740	8.469	0.000	8.469	-	-	-	-	-	-
655120: <i>Physical Security Equipment - SD ED</i>	-	11.122	6.740	8.469	0.000	8.469	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Physical Security Equipment (PSE) program provides for Air Force Integrated Base Defense Security Systems (IBDSS) improvements and enhancements, to include the demonstration and testing of PSE systems related to Force Protection. This program supports the protection of tactical, fixed, and nuclear weapons systems, AF personnel and AF facilities. The PSE program includes spectrum planning for radio frequency (RF), communication security (cyber), information assurance requirements, integration and interoperability command control & communication (3) platform & components. This Program Element also includes funding for Force Protection Commercial Off the Shelf (FP COTS) market research, evaluation and testing. Force Protection programs are inherently subject to rapid changes in the operational environment and will retain sufficient Program flexibility to meet changes in location, scope and capability in order to protect Air Force people, facilities and warfighting assets. The Defender Multi-Domain Command, Control and Communications (DMDC3) is an initiative developing the foundational structure of IBDSS to provide a platform that integrates the computing power, the means of communication, and the tools for situational awareness. PSE efforts support Modular Open Source Architecture (MOSA) standards to enable faster installations and greater interoperability to address the Chief of Staff of the Air Force (CSAF's) 'Fight the Base' goals. Air Base Ground Defense (ABGD) supports all Developmental Testing, Evaluation, Integration, Certification, and Proof of Concept for technology integration management and interoperability.

IBDSS FY22 developmental efforts will continue to evaluate and test state-of-the art technology to support integrated based security systems installations worldwide, continue to improve and integrate COTS efforts into IBDSS physical security equipment, as well as further develop, integrate and test Defender Multi-Domain Command, Control and Communications (DMDC3) software applications.

Airbase Air Defense Systems (ABADS)

Airbase Air Defense Systems (ABADS) is the principal Air Force Counter-small Unmanned Aircraft System (C-sUAS) USAF program to defend against the emerging and growing small unmanned aerial system threat. This program protects strategic assets vital to national security when bedded down and when on the move. It also protects personnel deployed in theater. ABADS also includes efforts related to Counter rocket, artillery, and mortar (C-RAM) that provide an early, dependable warning of incoming rocket, artillery and mortar threats to enable quick action to protect base personnel and base assets. In FY 2021 the C-sUAS program transitions to Airbase Air Defense Systems (ABADS) PE 27522F and WSC 640410.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Base Physical Security System capabilities 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.

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In FY19 \$0.00M and in FY20 \$0.263M was expended for civilian pay expenses in this program element. In FY21 \$0.994M is forecasted for civilian pay expenses in this program element.

The FY 2020 funding currently does not show the 1.6 million reprogramming increase for the C-RAM UON.

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	8.278	6.752	10.261	0.000	10.261
Current President's Budget	11.122	6.740	8.469	0.000	8.469
Total Adjustments	2.844	-0.012	-1.792	0.000	-1.792
• 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	1.667	0.000			
• SBIR/STTR Transfer	-0.245	0.000			
• Other Adjustments	1.422	-0.012	-1.792	0.000	-1.792

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 655120: *Physical Security Equipment - SD ED*

Congressional Add: *Counter-small Unmanned Aircraft Systems (C-sUAS) Joint Urgent Operational Need (JUON)- EUCOM*

Congressional Add Subtotals for Project: 655120

Congressional Add Totals for all Projects

	FY 2020	FY 2021
	0.000	0.000
	0.000	0.000
	0.000	0.000

Change Summary Explanation

FY 2020 includes \$1.667M reprogramming increase for the C-RAM UON and \$0.245M transfer for SBIR. Our total current PB is \$11.122M

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: IBDSS-2	11.122	6.740	8.469	0.000	8.469

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C. Accomplishments/Planned Programs (\$ in Millions)					
Description: IBDSS-2 (Integrated Base Defense Security Systems) qualifies, demonstrates, and tests Physical Security Equipment (PSE) systems to include Force Protection. This continuing effort was previously named Physical Security Equipment.					
FY 2021 Plans: -Conducting evaluation and testing to address capability gaps and obsolescence to include, but not limited to Force Protection Commercial Off The Shelf (COTS). -Conducting integration and testing to qualify COTS equipment to provide essential upgrades/improvements and state-of the art technology to support integrated based security systems installations worldwide. -Integrate and/or modify COTS efforts to improve IBDSS physical security equipment -Developing, integrating and testing Defender Multi-Domain Command, Control and Communications (DMDC3) software applications -Developing an air base optimized solution for early, dependable warning of incoming rocket, artillery and mortar threats in support of a C-RAM UON. Upon completion, system will be tested to validate performance requirements.					
FY 2022 Base Plans: -Will Continue to conduct market research, evaluation and testing to address capability gaps and obsolescence to include, but not limited to Force Protection Commercial Off The Shelf (COTS) -Will continue further integration and testing to qualify COTS equipment to provide essential upgrades/improvements and state-of the art technology to support integrated based security systems installations worldwide. -Will continue with the integration and/or modification to COTS efforts to improve IBDSS physical security equipment -Will continue further development, integration and testing Defender Multi-Domain Command, Control and Communications (DMDC3) software applications.					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: Additional funding will address on-going COTS and DMDC3 development efforts.					
Title: Counter-small Unmanned Aircraft System (C-sUAS) protection capabilities at downward selected high priority sites.					
	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	0.000	0.000	0.000	0.000	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Description: Counter-small Unmanned Aircraft System (C-sUAS) protection capabilities at downward selected high priority sites. FY 2021 Plans: N/A FY 2022 Base Plans: N/A FY 2022 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.122	6.740	8.469	0.000	8.469

	FY 2020	FY 2021
Congressional Add: Counter-small Unmanned Aircraft Systems (C-sUAS) Joint Urgent Operational Need (JUON)- EUCOM FY 2020 Accomplishments: N/A FY 2021 Plans: N/A	0.000	0.000
Congressional Adds Subtotals	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 29: Base Physical Security Systems	185.684	39.601	44.812	-	44.812	-	-	-	-	-	-

Remarks

E. Acquisition Strategy
 AFSFC and Force Protection program office investigates requirements to include new and/or obsolete items. COTS sub-systems, equipment and components are competitively acquired from industry after thorough market research. Equipment for testing is purchased via competitive selection processes via direct purchase orders. For security systems COTS that are required to be qualified for nuclear security environments where industry COTS sources may not be mature, consideration is given to replacement of new items or modification of COTS through the competitive selection procedure as well.

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<p>Delivery Orders on Indefinite Delivery/Indefinite Quantity contract vehicles or other approved purchase methods are utilized to acquire equipment.</p> <p>The Force Protection program office is developing new capabilities, updating existing capabilities, exploring and fielding COTS capabilities, primarily, but not exclusively through a Mid-Tier Acquisition program.</p> <p>Notional strategy to deploy Defender Multi-Domain Command, Control and Communications (DMDC3) and IBDSS of the future. DMDC3 Pathfinder operations at Vindicator and Advantor IDS Systems at various bases.</p> <p>Counter rocket, artillery, and mortar (C-RAM) provides early, dependable warning of incoming rocket, artillery and mortar threats to enable quick action to protect base personnel and base assets. Supports Modular Open Source Architecture (MOSA) standards to enable faster installations and greater interoperability to enable Chief of Staff of the Air Force (CSAF's) 'Fight the Base' goals. C-RAM emphasizes leveraging existing Air Force contracts for development, integration, and installation work in order to support accelerated Urgent Operational Need (UON) fielding timelines.</p>		

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

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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			
Integrated Base Defense Security Systems (IBDSS-2)	Various	Various : Various	-	1.881	Jun 2020	2.892	Dec 2020	1.097	Nov 2021	-		1.097	-	-	-
Subtotal			-	1.881		2.892		1.097		-		1.097	-	-	N/A

Support (\$ 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			
Integrated Base Defense Security Systems (IBDSS-2)	Various	Various : Various	-	1.920	Jul 2020	2.094	Dec 2020	1.668	Dec 2021	-		1.668	-	-	-
Subtotal			-	1.920		2.094		1.668		-		1.668	-	-	N/A

Remarks
The support funding is planned at the above amounts. If the support contracts are less, the available funds will be transitioned to the Product Development line.

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			
Integrated Base Defense Security Systems (IBDSS-2)	Various	Various : Various	-	7.321	Mar 2020	1.754	Feb 2021	5.704	Feb 2022	-		5.704	-	-	-
Subtotal			-	7.321		1.754		5.704		-		5.704	-	-	N/A

	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		-	11.122	6.740	8.469	8.469	-	-	N/A

Remarks
Various delivery orders will be awarded through out the fiscal year for numerous projects.

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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

FY20 Events																												
Integrated Base Defense Security Systems (IBDSS-2)	██████████																											
FY21 Events																												
Integrated Base Defense Security Systems (IBDSS-2)					██████████																							
FY22 Events																												
Integrated Base Defense Security Systems (IBDSS-2)									██████████																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>FY20 Events</i>				
Integrated Base Defense Security Systems (IBDSS-2)	1	2020	4	2020
<i>FY21 Events</i>				
Integrated Base Defense Security Systems (IBDSS-2)	1	2021	4	2021
<i>FY22 Events</i>				
Integrated Base Defense Security Systems (IBDSS-2)	1	2022	4	2022