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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604287F I Physical Security Equipment							
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	-	63.101	19.739	14.421	0.000	14.421	9.700	10.066	10.276	10.462	Continuing	Continuing
655120: Physical Security Equipment - SD ED	-	63.101	19.739	14.421	0.000	14.421	9.700	10.066	10.276	10.462	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

Integrated Base Defense Security Systems (IBDSS) provides improvements and enhancements, demonstrates, and tests Physical Security Equipment (PSE) systems to include Force Protection. This program supports the protection of tactical, fixed, and nuclear weapons systems, AF personnel and AF facilities. The PSE program is organized to provide PSE RDT&E for Air Force specific needs but as a complement to, and in conjunction with, the PSE RDT&E programs funded by the DOD Physical Security Enterprise and Analysis Group (PSEAG). As such this program will obtain, demonstrate, and test PSE in the same manner and to the same standards and architecture as PSEAG-funded projects to ensure interoperability with PSEAG-developed PSE. In support of PSE, this RDT&E program includes spectrum planning for radio frequency (RF), communication security (cyber), and information assurance requirements. This Program Element also includes funding for Force Protection Commercial Off The Shelf (FP COTS) market research, evaluation and testing. The FP COTS testing applies to all available technologies (delay, denial, detection, assessment, communication display, access control, power, mobility, and defeat effects) which are considered effective for AF physical security use. This program supports the maintenance and test support at Site C 3 and the Cold Weather Test Site (CWTS), as annotated in DoD Directive 3200.11, listing the 46th Test Wing (TW) as a Major Range and Test facility, conducting developmental and operational testing as the primary mission. 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.

Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Emergent Operational Need (JEON) is a rapid acquisition and deployment capability existing of full kill (detect, track, assess and defeat with various capabilities (fixed, mobile, portable and hand-held.) It is a layered system-of-systems using COTS technologies, integrated via GOTS C2 system.

Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON) supports EUCOM JUON to protect specific strategic assets in overseas theaters of operation from the evolution of small unmanned aerial systems based on low cost, extensive proliferation, and availability in the commercial marketplace. This is Overseas Contingency Operations (OCO) funding.

Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON)in support of the Combined Joint Task Force - Operations INHERENT RESOLVE in CENTCOM. This funding protects assets from the evolution of small UAS systems based on low cost, extensive proliferation and availability in the current market place.

Counter Small Unmanned Aerial System (Cs-UAS) protection capabilities at downward selected high propriety sites.

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<p>Air Base Ground Defense (ABGD) will support all Development testing, Evaluation, Integration, Certification, and proof of concept for Tactical Automated Security Systems (TASS) and other tactical/expeditionary equipment that is required to provide robust force protection capabilities worldwide; flight-line security, aircraft, intelligence, surveillance, and reconnaissance assets, critical infrastructure, sustained sortie generation and air operations, advanced technology force multipliers to include: night vision and thermal imagery equipment, counter sniper/battery capabilities, ground weapons, target acquisition radar, inter operable tactical communications, [required C3 and protective standoff equipment for] wheeled tactical [non-tactical], armored [un-armored] vehicles, tactical sensors systems, and unit/ personnel protective field equipment. Additionally, ABGD will support all Development testing, Evaluation, Integration, Certification, and proof of concept for Technology Integration Management (TIM) and associated integration and interoperability efforts</p> <p>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.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver these weapon system capabilities.</p> <p>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.</p>						
B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget		35.458	19.739	9.492	0.000	9.492
Current President's Budget		63.101	19.739	14.421	0.000	14.421
Total Adjustments		27.643	0.000	4.929	0.000	4.929
• 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		0.000	0.000			
• Other Adjustments		27.643	0.000	4.929	0.000	4.929
C. Accomplishments/Planned Programs (\$ in Millions)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: IBDSS-1		8.458	9.239	9.421	-	9.421

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p><b>Description:</b> IBDSS (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.</p> <p><b>FY 2018 Plans:</b> Includes, but not limited to continuing Force Protection Commercial Off The Shelf (COTS) market research, evaluation and testing to address capability gaps and obsolescence. This includes 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. Type of technologies includes delay/denial/detection/assessment/communication display/access control/power equipment; systems for IBDSS projects.</p> <p>Continue with previous integrated or modified COTS efforts to improve IBDSS physical security equipment:</p> <ul style="list-style-type: none"><li>- Purchasing and installing Video Analytics</li><li>- Re-compete Command, Control, Detection, Equipment (CCDE)effort</li><li>- Test and integrate Ground Base Radars (GBRs)</li><li>- Complete Tactical Automated Security System (TASS)(also known as Tactical Security System)</li><li>- Market research replacement for Long Range Passive Infrared Radar (PIR)</li><li>- Purchase and installing Cameras for obscured views</li><li>- Conduct analyses to include the adversary needs assessment and System Effectiveness Assessment (SEA) of the Nuclear Environment.</li><li>- Qualify Physical Security Alarm Systems; identify, integrate and evaluate fusion and display capability to improve command, control and communication to include fusion of disparate sensor technologies and threat indicators.</li></ul> <p><b>FY 2019 Base Plans:</b> Includes, but not limited to continuing Force Protection Commercial Off The Shelf (COTS) market research, evaluation and testing to address capability gaps and obsolescence. This includes 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. Type of technologies includes delay/denial/detection/assessment/communication display/access control/power equipment &amp; systems for IBDSS projects.</p>						

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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 0604287F I Physical Security Equipment				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue with previous integrated or modified COTS efforts to improve IBDSS physical security equipment.						
FY 2018 to FY 2019 Increase/Decrease Statement: PEM HAF/A4 Request						
Title: Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Emergent Operational Need (JEON) - STRATCOM  Description: Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Emergent Operational Need (JEON) is a rapid acquisition and deployment capability existing of full kill (detect, track, assess and defeat with various capabilities (fixed, mobile, portable and hand-held.) It is a layered system-of-systems using COTS technologies, integrated via GOTS C2 system.  FY 2018 Plans: Complete Communication and Control (C2) and Fixed-Site DT/OT.  FY 2018 to FY 2019 Increase/Decrease Statement: All development for this JEON will be completed by Nov 18		16.000	10.500	-	-	-
Title: Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON)- EUCOM  Description: Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON) supports EUCOM JUON to protect specific strategic assets in overseas theaters of operation from the evolution of small unmanned aerial systems based on low cost, extensive proliferation, and availability in the commercial marketplace. This is Overseas Contingency Operations (OCO) funding.  FY 2018 Plans: No FY18 funding required.  FY 2019 Base Plans: N/A  FY 2018 to FY 2019 Increase/Decrease Statement: N/A		11.000	0.000	0.000	-	0.000
Title: Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON) - CENTCOM  Description: Counter Small Unmanned Aerial Systems )Cs-UAS) Joint Urgent Operational Need (JUON) in support of the Combined Joint Task Force - Operations INHERENT RESOLVE in CENTCOM. This funding		27.643	0.000	0.000	-	0.000

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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 0604287F I Physical Security Equipment				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
protects assets from the evolution of small UAS systems based on low cost, extensive proliferation and availability in the current market place.						
FY 2018 Plans: Includes but not limited to DT&E of Blue Force UAV and SIL-Trainer, Integration efforts for MIT/LL and AMRDEC. Maintain Signal Library and Software Updates for WISP and NINJA.						
FY 2019 Base Plans: None						
Title: Counter Small Unmanned Aerial System (Cs-UAS) protection capabilities at downward selected high priority sites.		0.000	0.000	5.000	0.000	5.000
Description: N/A						
FY 2018 Plans: N/A						
FY 2019 Base Plans: Plans include but are not limited to:  -Research/development/integration into DE/laser options for C-sUAS defeat options. -Research/development/integration for passive and/or bistatic detection capabilities. -Continued research/development efforts into blue-force C-sUAS capabilities. -Research/development/integration for communicating up and down the C2 structure for C-sUAS SA and C2. -Integration of new/upgraded capabilities into our C-sUAS C2 system, and upgrades to our systems integration lab. -Incremental DT/OT required to verify/validate functional capabilities of newly integrated C-sUAS detect/track/id/defeat layers. -Development of C-sUAS technology roadmap.						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2019 Air Force				<b>Date:</b> February 2018	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>			<b>R-1 Program Element (Number/Name)</b> PE 0604287F <i>I Physical Security Equipment</i>		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
-Development/sustainment of signatures library.					
<b>FY 2019 OCO Plans:</b> N/A					
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Plus up					
<b>Accomplishments/Planned Programs Subtotals</b>	63.101	19.739	14.421	0.000	14.421

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 29: <i>Base Physical Security Systems</i>	230.982	166.437	92.679	-	92.679	76.406	50.241	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
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.											
Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Emergent Operational Need (JEON). The Force Protection program office is acquiring COTS sub-systems and equipment for DT/OT as well as minor development of an existing C2 System for integration.											
Counter Small Unmanned Aerial Systems (Cs-UAS) Joint Urgent Operational Need (JUON). The Force Protection program office is acquiring COTS sub-systems and equipment in support of EUCOM JUON for DT/OT as well as minor development of an existing C2 System for integration.											
Delivery Orders on Indefinite Delivery/Indefinite Quantity contract vehicles or other approved purchase methods are utilized to acquire equipment.											
<b>F. Performance Metrics</b>											
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 0604287F / <i>Physical Security Equipment</i>				Project (Number/Name) 655120 / <i>Physical Security Equipment - SD ED</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
Integrated Base Defense Security Systems (IBDSS-1)	Various	Various : Various	-	2.053		-		3.229		-		3.229	Continuing	Continuing	-
Counter Small Unmanned Aerial Systems (CsUAS) Joint Emergent Operational Need (JEON) STRATCOM	Various	Various : Various	-	15.069		9.747		-		-		-	Continuing	Continuing	-
Counter Small Unmanned Aerial Systems (CsUAS) Joint Urgent Operational Need (JUON) EUCOM	MIPR	Various : Various	-	11.000		-		-		-		-	Continuing	Continuing	-
Counter Small Unmanned Aerial Systems (CsUAS) Joint Urgent Operational Need (JUON) CENTCOM	Various	Various : Various	-	27.643		-		-		-		-	Continuing	Continuing	-
Counter Small Unmanned Aerial System (Cs-UAS) protection capabilities at downward selected high priority sites	Various	Various : Various	-	-		-		5.000		-		5.000	Continuing	Continuing	-
Subtotal			-	55.765		9.747		8.229		-		8.229	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
Integrated Base Defense Security Systems (IBDSS-1)	Various	Various : Various	-	0.978		1.203		1.249		-		1.249	Continuing	Continuing	-
Subtotal			-	0.978		1.203		1.249		-		1.249	Continuing	Continuing	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.															

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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 0604287F / Physical Security Equipment				Project (Number/Name) 655120 / Physical Security Equipment - SD ED					
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
Integrated Base Defense Security Systems (IBDSS-1)	PO	TAC-3 : FL	-	5.427		8.035		4.943		-		4.943	Continuing	Continuing	-
Counter Small Unmanned Aerial Systems (CsUAS) Joint Emergent Operational Need (JEON) STRATCOM	PO	TAC-3 : FL	-	0.931		0.754		-		-		-	Continuing	Continuing	-
Subtotal			-	6.358		8.789		4.943		-		4.943	Continuing	Continuing	N/A
			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			-	63.101		19.739		14.421		-		14.421	Continuing	Continuing	N/A
Remarks Various delivery orders will be awarded throughout the fiscal year for numerous projects.															



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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force			Date: February 2018		
Appropriation/Budget Activity 3600 / 5			R-1 Program Element (Number/Name) PE 0604287F / Physical Security Equipment	Project (Number/Name) 655120 / Physical Security Equipment - SD ED	

	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
FY19 Events																												
Integrated Base Defense Security Systems (IBDSS-1)																												

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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 0604287F / Physical Security Equipment	Project (Number/Name) 655120 / Physical Security Equipment - SD ED

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>FY19 Events</b>				
Integrated Base Defense Security Systems (IBDSS-1)	1	2018	4	2019