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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 1203179F I Integrated Broadcast Service (IBS)							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	8.747	8.568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674779: Integrated Broadcast Service (IBS)	-	8.747	8.568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2020, Integrated Broadcast Service PE1203179F effort transfer to PE0305179F due to realignment to Major Force Program for Intelligence and Communications.

A. Mission Description and Budget Item Justification

The IBS fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors.

IBS is comprised of the following:

- A Common Interactive Broadcast (CIB) on UHF (Ultra High Frequency) satellite channel using a Common Message Format (CMF) and a Military Standard (MIL-STD) Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four Theater Interface Nodes (TINs) to support the geographic Combatant Commanders (COCOMs), all built to validated warfighter requirements.
- Two GINS receive data from each theater and integrate this data into a worldwide picture available to all network/broadcast users.
- Four regional TINs allow local and out-of-theater users (not directly receiving IBS broadcast) to receive the CIB information broadcast. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.

This PE funds:

- Development/upgrades of IBS (IBS-NS, CIB, and CMF)

This project will identify and implement an open, scalable system architecture that will accommodate growth as the virtual world grows and cyber operations change.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver IBS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

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As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.						
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		8.747	8.568	8.728	0.000	8.728
Current President's Budget		8.747	8.568	0.000	0.000	0.000
Total Adjustments		0.000	0.000	-8.728	0.000	-8.728
• 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		0.000	0.000	-8.728	0.000	-8.728
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Development/upgrades of the Integrated Broadcast Service (IBS-NS, CIB, and CMF)				7.257	7.078	0.000
Description: Development/upgrades of the IBS (IBS-NS, CIB, and CMF).						
FY 2019 Plans:						
- Will continue to synchronize and integrate with DOD IC Cloud as a potential producer/consumer; the capability will provide a long term searchable data store for IBS information.						
- Will continue to upgrade the IBS Enterprise-level real-time and analytic views on Global and COCOM watch floors; further integrate uplink sites with associated TIN by reducing equipment overhead and streamlining data flows						
- Will continue to upgrade Near Real-Time Information volumetric increase to provide ten times performance enhancement to throughput, storage and replay to address message volume; this will increase the enterprise output to 100M messages per day						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Will continue to provide resilience to IBS CIB UHF Broadcast by utilizing the MUOS Wideband Code Division Multiple Access SATCOM payload and supporting the receipt of IBS on 1st generation MUOS terminals - Will continue to upgrade and connect the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function - Will continue to upgrade the CIB Planning Tool and IBS-NS capability at the COCOMs to allow automated planning to occur for active producers - Will continue development of the IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices - Will continue development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS, WCDMA payload - Will continue to upgrade the P5 system health and welfare status at the COCOMs to include Alt-Path -- Will continue to upgrade the resiliency of IBS to include polar coverage - Will continue to upgrade and transition current classified dissemination path to new architecture and enable SCI-level dissemination of data - Will continue enhancement of uplink sites to handle operational surge increases - Will continue to upgrade the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watches, development and fielding of DME 				
FY 2020 Plans: N/A				
FY 2019 to FY 2020 Increase/Decrease Statement: PE1203179F efforts transfer to PE0305179F				
Title: Enterprise Systems Engineering		0.700	0.700	0.000
Description: Enterprise Systems Engineering/CMF Integration/CIB Integration.				

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C. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020	
FY 2019 Plans: - Will continue Enterprise Systems Engineering/CMF Integration/CIB Integration FY 2020 Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: PE1203179F efforts transfer to PE0305179F											
Title: Test & Evaluation Description: Tests & Evaluates the IBS system. FY 2019 Plans: - Will continue test and evaluation of the IBS system FY 2020 Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: PE1203179F efforts transfer to PE0305179F								0.790	0.790	0.000	
Accomplishments/Planned Programs Subtotals								8.747	8.568	0.000	
D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 832070: <i>Intelligence Comm Equipment</i>	17.270	0.000	16.743	-	16.743	17.134	17.341	17.667	17.985	Continuing	Continuing
• SPAF 01 IBS000: <i>INTEG BROADCAST SERV</i>	-	16.445	-	-	-	-	-	-	-	0.000	16.445
Remarks											
E. Acquisition Strategy											
IBS is in the PEO Battle Management portfolio and executed by AFLCMC/HBG.											
IBS uses an Adaptive Life-cycle approach that provides incremental improvement and new capability in 90-day cycles.											

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For contracting efforts, a Single Award IDIQ contract with multiple task orders was awarded to CACI International Inc.		
<u>F. Performance Metrics</u> 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 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1203179F / Integrated Broadcast Service (IBS)				Project (Number/Name) 674779 / Integrated Broadcast Service (IBS)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
IBS (IBS-NS, CIB, and CMF) Development/Upgrades	Various	CACI International Inc/Other Government Agency : Various	-	7.097	Oct 2017	6.918	Oct 2018	0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	7.097		6.918		0.000		-		0.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Interoperability and Development Testing	MIPR	JITC : Ft Huachuca, AZ	-	0.500	Oct 2017	0.500	Oct 2018	0.000		-		0.000	Continuing	Continuing	-
Responsible Test Organization (RTO)	PO	46th Test Squadron : Eglin AFB, FL	-	0.290	Oct 2017	0.290	Oct 2018	0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	0.790		0.790		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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 Management/Engineering Support	C/FFP	Creedence : Warner Robins, GA	-	0.160	Nov 2017	0.160	Nov 2018	0.000	Nov 2018	-		0.000	Continuing	Continuing	-
Enterprise Engineering/CMF Integration/CIB Integration	SS/CPFF	L3 Comm, IS : Greenville, TX	-	0.700	Nov 2017	0.700	Nov 2018	-		-		-	Continuing	Continuing	-
Subtotal			-	0.860		0.860		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.747		8.568		0.000		-		0.000	Continuing	Continuing	N/A

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	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force			Date: February 2019		
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
IBS-NS																												
Continue development of the IBS Thin Client																												
Continue development of the CIB MUOS Group Integration - Many to Many																												
Continue to upgrade and transition of current classified dissemination path to new architecture and enabling SCI-level dissemination of data																												
Continue to upgrade the uplink sites to handle operational surge increases																												
Continue to develop the monitoring and control tools to assist in assured dissemination																												
Continue to integrate CMF updates into IBS-NS																												
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)																												
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
IBS-NS				
Continue development of the IBS Thin Client	1	2018	1	2019
Continue development of the CIB MUOS Group Integration - Many to Many	1	2018	1	2019
Continue to upgrade and transition of current classified dissemination path to new architecture and enabling SCI-level dissemination of data	1	2018	4	2020
Continue to upgrade the uplink sites to handle operational surge increases	1	2018	4	2020
Continue to develop the monitoring and control tools to assist in assured dissemination	1	2018	4	2020
Continue to integrate CMF updates into IBS-NS	1	2018	4	2020
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)	1	2018	4	2020
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)	1	2018	4	2020