Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force											Date: May 2017	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 1203179F / *Integrated Broadcast Service (IBS)*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	9.760	8.833	8.747	0.000	8.747	8.632	8.794	8.947	9.130	Continuing	Continuing
674779: *Integrated Broadcast Service (IBS)*	-	9.760	8.833	8.747	0.000	8.747	8.632	8.794	8.947	9.130	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2018, PE0305179F Integrated Broadcast System efforts were transferred to PE1203179F, Integrated Broadcast System due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE1203179F

A. Mission Description and Budget Item Justification

In FY2018, PE0305179F Integrated Broadcast System efforts were transferred to PE1203179F, Integrated Broadcast System due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE1203179F.

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.

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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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	7.860	8.833	8.722	0.000	8.722
Current President's Budget	9.760	8.833	8.747	0.000	8.747
Total Adjustments	1.900	0.000	0.025	0.000	0.025
• 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	1.900	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.025	0.000	0.025

Change Summary Explanation

FY16 Above Threshold Reprogramming for $1.9M for polar dissemination development effort.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Development/upgrades of the Integrated Broadcast Service (IBS-NS, CIB, and CMF)	8.270	7.343	7.257
Description: Development/upgrades of the IBS (IBS-NS, CIB, and CMF).			
FY 2016 Accomplishments: - Initiated development, synchronization and integration with the DOD Intelligence Community (IC) Cloud as a potential producer/ consumer; the capability provided a long term searchable data store for IBS information - Completed phase one of providing IBS Enterprise-level real-time and analytic views on Global and COCOM watch floors; the watch can now access real time CIB broadcast data from the Command (CCMD) TIN - Initiated performance enhancement to throughput, storage and replay to address increased volume of messages for IBS-NS as well as Over the Air (OTA) capabilities			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
- Completed initial terminal testing to provide resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload and supporting the receipt of IBS on 1st generation MUOS terminals - Continued connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function - Initiated integration of the CIB Planning Tool and IBS-NS capability at the COCOMs to allow automated planning to occur for active producers - Continued upgrading P5 system health and welfare status at the COCOMs to include Alternate (Alt)-Path -- Completed and implemented phase one of polar coverage - Initiated transition of current classified dissemination path to new architecture and enabled Sensitive Compartmented Information (SCI)-level dissemination of data - Initiated enhancement of uplink sites to handle operational surge increases - Initiated modifying monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watches, development and fielding of Downlink Monitoring Element (DME) - Continued integrating CMF updates into IBS-NS - Completed Initial Operational Capability (IOC) of the IBS-NS Enterprise			
FY 2017 Plans: - Continue developing, synchronizing and integrating with DOD IC Cloud as a potential producer/consumer; this capability provides a long term searchable data store for IBS information - Continue enhancing 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 - Continue developing volumetric increases providing ten times performance enhancement to throughput, storage and replay to address message volume; this increases the enterprise output to 100M messages per day			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
- Continue providing 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 - Continue upgrading and connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function - Continue integrating the CIB Planning Tool and IBS-NS capability at the COCOMs to allow automated planning to occur for active producers - Initiate developing the IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices - Initiate developing the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS Wideband Code Division Multiple Access (WCDMA) payload - Continue upgrading P5 system health and welfare status at the COCOMs to include Alt-Path -- Continue upgrading the resiliency of IBS to include polar coverage - Continue upgrading and transitioning of current classified dissemination path to new architecture and enabling SCI-level dissemination of data - Continue upgrading of the uplink sites to handle operational surge increases - Continue developing the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watches, development and fielding of Downlink Monitoring Element			
FY 2018 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 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 2016	FY 2017	FY 2018
- 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 Downlink Monitoring Element (DME) ...			
Title: Enterprise Systems Engineering ***Description:*** Enterprise Systems Engineering/CMF Integration/CIB Integration. ***FY 2016 Accomplishments:***	0.700	0.700	0.700

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
- Continued Enterprise Systems Engineering/CMF Integration/CIB Integration ***FY 2017 Plans:*** - Continuing Enterprise Systems Engineering/CMF Integration/CIB Integration ***FY 2018 Plans:*** - Will continue Enterprise Systems Engineering/CMF Integration/CIB Integration			
Title: Test & Evaluation ***Description:*** Tests & Evaluates the IBS system. ***FY 2016 Accomplishments:*** - Tested and evaluated the IBS system ***FY 2017 Plans:*** - Testing and evaluating the IBS system ***FY 2018 Plans:*** - Will test and evaluate the IBS system	0.790	0.790	0.790
Accomplishments/Planned Programs Subtotals	9.760	8.833	8.747

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 832070: *Intelligence Comm Equipment*	15.011	16.452	17.283	0.000	17.283	16.580	16.875	17.179	17.490	Continuing	Continuing

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.

For contracting efforts, a Single Award IDIQ contract with multiple task orders was awarded to CACI International Inc.

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F. 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.