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Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0302015F: E-4B NATIONAL AIRBORNE OPERATIONS CENTER							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	12.105	4.845	4.159	-	4.159	0.677	1.702	1.847	1.843	Continuing	Continuing
674777: E-4B Aircraft Modernization	12.105	4.845	4.159	-	4.159	0.677	1.702	1.847	1.843	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The four aircraft E-4B National Airborne Operations Center (NAOC) fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable node of the National Military Command System (NMCS). Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its mission. Additionally, funds may be used to explore modifications, upgrades, and future systems required to meet evolving mission requirements. Activities also include studies and analysis to support both current program planning and execution and future program planning.

Developmental modifications and studies/projects currently underway or planned for accomplishment under this program include:

- The Secure Data Crypto modification replaces various E-4B cryptographic systems currently scheduled to be decertified by the National Security Agency (NSA). This modification ensures the continued transmission and receipt of critical strategic force orders. Funds for this modification will be used to design an engineering solution, develop compatible software, and conduct pre-production studies for integration of NSA approved and Internet Protocol Version 6 (IPv6) compliant secure data cryptographic devices and associated peripherals on the aircraft.
- The Super High Frequency (SHF) Multiplexor (MUX) project integrates a more capable and logistically supportable MUX to replace the obsolete and temporary solution used today. The current SHF MUX is prone to intermittent disconnects and poor performance. A new device will allow the E-4B to better meet requirements of transmitting combined secure and non-secure digital data streams via satellite.
- The Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) efforts upgrades the air traffic communications systems to improve Navigation and Instrument Approach capabilities. These ongoing efforts are required to comply with both U.S. and international air traffic management requirements and maintain worldwide (anytime/anywhere) availability. This effort will add Automatic Dependent Surveillance - Broadcast Out (ADS-B Out) capability, a Mode 5 Identification Friend or Foe (IFF) capability, and a Multi-Mode Receiver for Global Positioning System (GPS) Precision Instrument Approaches and replace the obsolete Flight Management Computer (FMC) and upgrade required systems to meet domestic and foreign CNS/ATM requirements.

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- Secure, Survivable Communication efforts will upgrade and replace existing systems required to meet existing National Security Presidential Directive (NSPD)-28 and NSPD-51/Homeland Security Presidential Directive (HSPD)-20 requirements and to ensure continued connectivity and interoperability as satellite and communications infrastructure evolves. Expected modifications requiring RDT&E include, but are not limited to, installation of Advanced Extremely High Frequency (AEHF) Compatible Terminal, Presidential National Voice Conferencing (PNVC), modification of the current Super High Frequency (SHF) system to meet immediate needs, and eventual replacement of the SHF System. AEHF Compatible Command Post Terminals will replace the Military Strategic, Tactical and Relay (MILSTAR) terminal and provide access to protected wideband AEHF satellite networks. PNVC replaces Survivable Emergency Conferencing Network (SECN), which will not be supported once the AEHF satellite network is in place. Upgrade of the current SHF system is required in the near-term to replace the most critically obsolete components to ensure that the system remains operable and logistically supportable until a replacement system is fielded. A replacement to the SHF system is required as secure, survivable communications capability transitions from the Defense Satellite Communications System (DSCS).

This program is in Budget Activity 7, Operational System Development, these budget activities include development efforts to upgrade systems currently fielded or has approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	12.532	5.845	25.506	-	25.506
Current President's Budget	12.105	4.845	4.159	-	4.159
Total Adjustments	-0.427	-1.000	-21.347	-	-21.347
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.352	-			
• Other Adjustments	-0.075	-	-21.347	-	-21.347

Change Summary Explanation

FY11 Congressional General Reduction of 0.075M in Other Adjustment row.

FY12 Congressional Directed Reduction of 1M from FY12 Defense Appropriation Act

The Communication, Navigation, Surveillance/Air Traffic Management development is now presented to show three differing development thrusts that were previously contained in Communication, Navigation, Surveillance/Air Traffic Management. In prior budget submissions, these development thrusts were previously described in the Communication, Navigation, Surveillance/Air Traffic Management project description. These development efforts described herein include: 1) improved capabilities for Navigation and Instrument Approach, 2) add Automatic Dependent Surveillance - Broadcast (ADS-B)OUT capability, and 3)

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add Automatic Dependent Surveillance - Broadcast (ADS-B)IN capability. Collectively, these three efforts do not expand the scope of work previously described in the single Communication, Navigation, Surveillance/Air Traffic Management description.						
The previously funded Secure, Survivable Communication development efforts have been split into its two basic components to provide better program insight to the use and scheduling of these development funds. The two work concentrations include 1) the modernization of the aging SHF system, and 2) integration and testing of the Advanced Extremely High Frequency (AEHF) Compatible Terminal, and the Presidential National Voice Conferencing (PNVC) equipment. Collectively, these two efforts do not expand the scope of work previously described in the single Secure, Survivable Communication.						
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Title: SHF MUX Description: Develop, install, and test a more capable and logistically supportable Super High Frequency (SHF) Multiplexor (MUX). FY 2011 Accomplishments: Installed and tested prototype SHF MUX replacement. FY 2012 Plans: Installing and testing prototype SHF MUX replacement. FY 2013 Base Plans: N/A FY 2013 OCO Plans: N/A		0.285	0.068	-	-	-
Title: CNS/ATM Description: Develop, install, and test a prototype installation kit to modernize applicable CNS/ATM systems in accordance with domestic and foreign air traffic management requirements FY 2011 Accomplishments: Prototyped and developed CNS/ATM upgrade/replacement kits. FY 2012 Plans: Prototyping and developing CNS/ATM upgrade/replacement kits. FY 2013 Base Plans:		4.672	0.300	-	-	-

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
N/A						
FY 2013 OCO Plans: N/A						
Title: SHF Modernization Description: Develop, install, and test a prototype installation kit to replace the most critically obsolete components of the current SHF System FY 2011 Accomplishments: Performed technology studies for SHF Modernization capability. FY 2012 Plans: Developing, installing, and testing a prototype installation kit to replace the most critically obsolete components of the current SHF System FY 2013 Base Plans: N/A FY 2013 OCO Plans: N/A		7.000	3.177	-	-	-
Title: AEHF Compatible Terminal/PNVC Description: Will provide developmental engineering and testing to install a AEHF Compatible Terminal/PNVC prototype system to replace the existing MILSTAR Survivable Emergency Conferencing Network (SECN) system. FY 2011 Accomplishments: N/A FY 2012 Plans: N/A FY 2013 Base Plans: Will perform studies and development of prototype AEHF Compatible Terminal kit FY 2013 OCO Plans:		-	-	3.859	-	3.859

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
N/A						
Title: Secure Data Crypto Description: Conduct delvelopmental and risk reduction studies related to the replacement of decertified cryptographic equipment. FY 2011 Accomplishments: N/A FY 2012 Plans: Conducting developmental and risk reduction studies related to the replacement of decertified cryptographic equipment. FY 2013 Base Plans: N/A FY 2013 OCO Plans: N/A		-	1.000	-	-	-
Title: PMA Description: System Program Office (SPO) support and travel FY 2011 Accomplishments: Performed SPO support and travel FY 2012 Plans: Performing SPO support and travel FY 2013 Base Plans: Will perform SPO support and travel FY 2013 OCO Plans: N/A		0.148	0.300	0.300	-	0.300
Accomplishments/Planned Programs Subtotals		12.105	4.845	4.159	-	4.159

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: PE 0302015F, E-4B NAOC: <i>E-4B Nat Airborne Ops</i> <i>Center (NAOC)</i>	45.319	58.734	48.333	0.000	48.333	19.695	16.968	20.630	20.979	Continuing	Continuing
• APAF: PE 0101316F, Worldwide Joi...: <i>Worldwide Joint Strategic</i> <i>Command</i>	0.651	0.663	0.675	0.000	0.675	0.686	0.709	0.726	0.738	Continuing	Continuing

E. Acquisition Strategy

Implementation of modifications will be contracted under the sole source Product Support Integration (PSI) with Boeing - Wichita.

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force			DATE: February 2012
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SHF MUX Integration and Test	1	2011	2	2012
SHF MUX Deliverable	2	2012	2	2012
SHF MUX Production and Fielding	2	2012	1	2013
CNS/ATM Design and Development	1	2011	1	2012
CNS/ATM Integration and Test	1	2012	4	2012
CNS/ATM Deliverable	1	2013	1	2013
CNS/ATM Production and Fielding	1	2013	4	2016
Secure Data Crypto Integration and Test	1	2012	1	2013
Secure Data Crypto Production and Fielding	1	2013	4	2013
SHF Modernization Design and Development	1	2011	2	2012
SHF Modernization Integration and Test	2	2012	1	2013
SHF Modernization Deliverables	1	2013	1	2013
SHF Modernization Production and Fielding	1	2013	4	2016
AEHF Compatible Terminal/PNVC Design and Development	2	2013	3	2014
AEHF Compatible Terminal/PNVC Integration and Testing	4	2014	2	2015
AEHF Compatible Terminal/PNVC Deliverables	3	2015	3	2015
AEHF Compatible Terminal/PNVC Production and Fielding	3	2015	4	2017