Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Air Force										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0207417F: *Airborne Warning and Control System (AWACS)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	138.053	239.755	135.961	-	135.961	150.120	149.540	152.028	100.436	Continuing	Continuing
67411L: *Airborne Warning & Control System (AWACS)*	138.053	239.755	135.961	-	135.961	150.120	149.540	152.028	100.436	Continuing	Continuing

Note

1. Totals include funding for Program Resources Collection Process (PRCP) Program Number, 277, AWACS Upgrade (for Block 40/45 Upgrade).
2. The program funding includes reduction for Overhead Reduction, Service Support Contractors, and Reports/Studies/Boards efficiencies that are not intended to impact program content. The efficiencies reductions total $17.565M in FY12.

A. Mission Description and Budget Item Justification

Mission: AWACS is the premier airborne platform providing command and control (C2)/battle management (BM) to Commander In Chief and combatant commander tasking for Joint, Allied, and Coalition operations, Humanitarian Relief, and Homeland Defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include all-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

This program element funds three areas in support of the AWACS program; Modernization, Material Solutions Development and Analysis, and Infrastructure and Support Systems.

This program element funds the following AWACS modernization efforts (RDT&E, AF):

1. Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve integration, quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure (DLI), improve electronic support measures processing and enable more effective, faster upgrades via an open-system, Ethernet-based architecture. The upgrade will also update the ground support infrastructure including training systems.

2. The Next Generation Identification Friend or Foe (NGIFF) Program provides AWACS with enhanced IFF interrogator operation to add a more secure Mode 5 capability. NSA declared IFF Mode 4 unsecure and obsolete on 5 Nov 2003. Joint Requirements Oversight Council Memo 047-07 requires IFF Mode 5 interrogation capability by FY14. The new Mode 5 interrogation capability extends the effective range of the AWACS interrogator, while helping discriminate against closely spaced cooperative targets. NGIFF developed and integrated a basic Mode 5 capability on Block 30/35 starting in FY09 and full Mode 5 on Block 40/45 in FY10. Hardware will be common between the platforms. NGIFF will also integrate Mode S, a civilian air traffic control capability residing in the NGIFF hardware, as funding allows.

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3. Diminishing Manufacturing Sources (DMS) Replacement of Avionics for Global Operations and Navigation (DRAGON) completes the FAA/International Civil Aviation Organization (ICAO)/ EUROCONTROL air traffic control mandated safety of flight capabilities. This program will provide the E-3 fleet with the flight instruments and other avionics for the Required Navigation Performance (RNP), and the surveillance and communication capabilities necessary to maintain continued critical unrestricted access to global airspace. Non-compliance will result in airspace restrictions and denials that will impact AWACS ability to support worldwide responses to situations requiring immediate on-scene command and control (C2) battle management. The DRAGON modifications replace the existing DMS GPS Integrated Navigation System (GINS) with a modern Flight Management System (FMS) that will accommodate new capabilities including Mode-5 IFF and Joint Mission Planning System (JMPS). Also included as part of the modification is the addition of data link communications, voice and data link digital radios, and improved visual displays. Emphasis on employment of COTS avionics is expected to lower cost, reduce the tech refresh cycle, and enhance life cycle management. Replacement of critical avionics subsystems that will become unsustainable beginning in 2010 are included in the DRAGON program. The Engineering and Manufacturing Development (EMD) phase of DRAGON is planned to be executed cooperatively between US and NATO. The US and NATO are currently pursuing a cooperative risk reduction effort and working towards award of a cooperative EMD contract in FY11.

4. Support the War Fighter (STWF): STWF efforts support AWACS capability to create and sustain the force. Examples of these activities include, but are not limited to: Designing, developing, and modernizing equipment and systems to ensure AWACS can respond to urgent wartime/contingency acquisition requirements (e.g. Urgent Operational Needs (UONs) and Wartime Urgent & Compelling Needs (WUCNs). Upgrading key capabilities to meet contingency needs, modernizing test systems, integrating battle management and data link enhancements, and supporting Reliability, Maintainability, and Availability (RM&A) initiatives which:

a. Improve the Mission Capable (MC) rate through RM&A analysis and development projects to provide system improvements that help meet or exceed the required MC rate. These efforts focus on increasing reliability of the air vehicle, command and control systems, voice and data communications systems, computer, sensor systems and infrastructure improvements.
b. Solve diminishing manufacturing sources (DMS) logistics problems.
c. Insert new technologies with the aim of reducing maintenance man-hours along with programmed depot maintenance (PDM) improvements to increase aircraft availability.

5. The Data Link Enhancements (DLE) program provides the warfighter with improved Link 16 capabilities aimed at increasing the target location accuracy, situational awareness, and the reduced potential for fratricide and collateral damage. This program is essential to maintaining and improving Tactical Data Links (TDL) interoperability and compatibility.

6. The Flight Performance Software (FPS) program automates calculations currently performed manually by the pilot and flight engineer in accordance with E-3B and C flight manual. Phase I, automates the Takeoff and Landing (TOLD) calculations; Phase II automates the High Speed calculation. Automated calculations, using the original source data used to create the flight manual charts increases safety, improves on time departure/arrival, improves crew efficiency, and reduces tanker support.

This program element funds the following AWACS Infrastructure and Support Systems. These efforts synchronize modernization requirements and infrastructure support across the entire weapon system from depot and field test equipment, to maintenance trainers, to simulators, to integration labs, to the TS-3 Developmental Test and Evaluation Aircraft (RDT&E, AF):

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1. Test System-3/AWACS Integration Test Support (AITS): The E-3 AWACS Developmental Test and Evaluation (DT&E) aircraft, Test System 3 (TS-3, tail number 73-1674) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated system level DT&E assets. These test-ready assets support AWACS modernization, with already imbedded test points to support sub-system and system level developmental testing, per Boeing,'s TS-3 design specifications. This level of DT&E testing supports our advanced and sustainment projects, which allow AWACS to participate in live-fly Exercises (e.g., Joint Expeditionary Force Experiment/JEFX; Empire Challenge/EC) and ground-based interoperability testing. These assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including projects for the French, RSAF, UK, Japan, and NATO AEW&C efforts.

TS-3, as one of the first AWACS production aircraft and its subsystems are qualified to Boeing (OEM) design specifications, unlike fleet aircraft, which are qualified to TCTO. In FY12, the Air Force will begin the conversion of an operational E-3 aircraft to a test configuration and will divest TS-3.

2. The Training, Support, and Infrastructure (TSI) programs cover required cross cutting programs and activities in support of AWACS modernization and enhancement efforts. These include managing the AWACS developmental infrastructure, support for equipment concurrency, modernization planning/analysis, and trainer/simulator integration and concurrency. The E-3 Radar Systems Integration Lab/Software Development Facility (SIL/SDF) is maintained, operated and supported by contract to provide customers with a functioning E-3 radar configuration in support of AWACS US, FMS and International radar development, production, and sustainment programs. New support equipment technologies and test strategies need to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline. Associate contractor agreements are used to integrate and concurrency planning and execution between the prime integrator and training service providers.

This program element funds the following Material Solutions Development & Analysis. These efforts look toward the future, investigating enhanced capabilities and exploring new mission areas (RDT&E, AF):

1. Command & Control, Intelligence, Surveillance and Reconnaissance(C2ISR) system improvements investigate and develop future capabilities of the AWACS weapon system, or next C2ISR platform. These efforts also include investigation, analysis and development to ensure that AWACS successfully integrates with Joint and Coalition forces in a net-centric environment. C2ISR primarily supports Pre-Systems Acquisition in the areas of Material Solution Analysis and Technology Development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes working with ACC to develop an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as material solutions for the user needs. Examples of supporting activities include, but are not limited to: Evaluating emerging operational needs, concepts, and technologies to enable integration of AWACS' capabilities to align with integrated C2ISR network architectures as defined in Joint Vision 2020, C2 Constellation CONOPS, and Air Force CONOPS.

Additionally: Improving sensors and identifying new sensor technologies and netted sensor architectures to meet evolving threats; communications including development of communication roadmaps and assessing related technologies e.g.: All forms of Internet Protocol (IP) communications, and multi-sensor integration such as the ability to send, receive, and fuse the air (and ground) picture via data link to fighter aircraft, through rapid prototyping, modeling, simulation, and participation in Joint exercises (e.g., Joint Expeditionary Forces Experiment (JEFX) and Empire Challenge (EC). Improving the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone by providing consistent and re-playable post-mission data to provide quicker reaction capabilities to support the

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air war. Exploring concepts, investigating emerging and developing technologies, and demonstrating efforts that support continuous improvements and self-protection for C2ISR capabilities of manned & unmanned platforms, space, data links, and advanced Battle Management decision tools.

2. Net-Centric Capability (NCC) provides Command and Control (C2) Applications access to Beyond-Line-of-Sight - Internet Protocol (BLOS-IP) SATCOM for the E-3 AWACS platform. BLOS-IP leverages the AWACS DRAGON acquisition of INMARSAT-BLOS IP for the flight deck, as well as Transitional Networking Capability (TNC) communications capabilities to specifically provide E-3 AWACS mission crew (back end) with enhanced capability to support a net-centric airborne battlespace, as well as, connect/interact with C2 battle managers (on the ground and in other airborne platforms). NCC modifications such as BLOS-IP enhance expedient off-board distribution of the AWACS air picture and other critical mission data, and give mission crews timely and accurate C2 data via access to enhanced battle-management tools including a robust chat capability and Airborne Web Services providing friendly forces tracking, Air Tasking Order (ATO) updates, and other netcentric C2 data while supporting simultaneous multi-level security domains. The program will begin risk reduction and technology development under the Material Solutions Development and Analysis. Major thrust in FY12, with a Milestone B projected in FY14.

Budget Justification: This program is in Budget Activity 7, Operational Systems 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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	175.514	239.755	181.718	-	181.718
Current President's Budget	138.053	239.755	135.961	-	135.961
Total Adjustments	-37.461	-	-45.757	-	-45.757
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-30.780	-			
• SBIR/STTR Transfer	-5.947	-			
• Other Adjustments	-0.734	-	-45.757	-	-45.757

Change Summary Explanation

1. The increase in the Current PBR/President's Budget from FY 2010 to FY 2011 is due to previously scheduled TS-3 aircraft programmed depot maintenance cycle, NGIFF starting EMD for the Block 40/45 software configuration, and DRAGON's ramp up for the EMD effort.
2. The decrease between the Previous President's Budget and the Current President's Budget in FY12 is due to a re-phasing of the co-operative RDT&E effort to keep the USAF DRAGON activity/funding synchronized with the NATO modernization efforts.
3. The decrease in FY10 is due to higher Air Force priorities.

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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
67411L: *Airborne Warning & Control System (AWACS)*	138.053	239.755	135.961	-	135.961	150.120	149.540	152.028	100.436	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Mission: AWACS is the premier airborne platform providing command and control (C2)/battle management (BM) to Commander In Chief and combatant commander tasking for Joint, Allied, and Coalition operations, Humanitarian Relief, and Homeland Defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include all-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

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System (JMPS). Also included as part of the modification is the addition of data link communications, voice and data link digital radios, and improved visual displays. Emphasis on employment of COTS avionics is expected to lower cost, reduce the tech refresh cycle, and enhance life cycle management. Replacement of critical avionics subsystems that will become unsustainable beginning in 2010 are included in the DRAGON program. The Engineering and Manufacturing Development (EMD) phase of DRAGON is planned to be executed cooperatively between US and NATO. The US and NATO are currently pursuing a cooperative risk reduction effort and working towards award of a cooperative EMD contract in FY11.

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This program element funds the following AWACS Infrastructure and Support Systems. These efforts synchronize modernization requirements and infrastructure support across the entire weapon system from depot and field test equipment, to maintenance trainers, to simulators, to integration labs, to the TS-3 Developmental Test and Evaluation Aircraft (RDT&E, AF):

1. Test System-3/AWACS Integration Test Support (AITS): The E-3 AWACS Developmental Test and Evaluation (DT&E) aircraft, Test System 3 (TS-3, tail number 73-1674) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated system level DT&E assets. These test-ready assets support AWACS modernization, with already imbedded test points to support sub-system and system level developmental testing, per Boeing,'s TS-3 design specifications. This level of DT&E testing supports our advanced and sustainment projects, which allow AWACS to participate in live-fly Exercises (e.g., Joint

Expeditionary Force Experiment/JEFX; Empire Challenge/EC) and ground-based interoperability testing. These assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including projects for the French, RSAF, UK, Japan, and NATO AEW&C efforts.

TS-3, as one of the first AWACS production aircraft and its subsystems are qualified to Boeing (OEM) design specifications, unlike fleet aircraft, which are qualified to TCTO. In FY12, the Air Force will begin the conversion of an operational E-3 aircraft to a test configuration and will divest TS-3.

2. The Training, Support, and Infrastructure (TSI) programs cover required cross cutting programs and activities in support of AWACS modernization and enhancement efforts. These include managing the AWACS developmental infrastructure, support for equipment concurrency, modernization planning/analysis, and trainer/simulator integration and concurrency. The E-3 Radar Systems Integration Lab/Software Development Facility (SIL/SDF) is maintained, operated and supported by contract to provide customers with a functioning E-3 radar configuration in support of AWACS US, FMS and International radar development, production, and sustainment programs. New support equipment technologies and test strategies need to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline. Associate contractor agreements are used to integrate and concurrency planning and execution between the prime integrator and training service providers.

This program element funds the following Material Solutions Development & Analysis. These efforts look toward the future, investigating enhanced capabilities and exploring new mission areas (RDT&E, AF):

1. Command & Control, Intelligence, Surveillance and Reconnaissance(C2ISR) system improvements investigate and develop future capabilities of the AWACS weapon system, or next C2ISR platform. These efforts also include investigation, analysis and development to ensure that AWACS successfully integrates with Joint and Coalition forces in a net-centric environment. C2ISR primarily supports Pre-Systems Acquisition in the areas of Material Solution Analysis and Technology Development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes working with ACC to develop an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as material solutions for the user needs. Examples of supporting activities include, but are not limited to: Evaluating emerging operational needs, concepts, and technologies to enable integration of AWACS' capabilities to align with integrated C2ISR network architectures as defined in Joint Vision 2020, C2 Constellation CONOPS, and Air Force CONOPS.

Additionally: Improving sensors and identifying new sensor technologies and netted sensor architectures to meet evolving threats; communications including development of communication roadmaps and assessing related technologies e.g.: All forms of Internet Protocol (IP) communications, and multi-sensor integration such as the ability to send, receive, and fuse the air (and ground) picture via data link to fighter aircraft, through rapid prototyping, modeling, simulation, and participation in Joint exercises (e.g., Joint Expeditionary Forces Experiment (JEFX) and Empire Challenge (EC). Improving the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone by providing consistent and re-playable post-mission data to provide quicker reaction capabilities to support the air war. Exploring concepts, investigating emerging and developing technologies, and demonstrating efforts that support continuous improvements and self-protection for C2ISR capabilities of manned & unmanned platforms, space, data links, and advanced Battle Management decision tools.

2. Net-Centric Capability (NCC) provides Command and Control (C2) Applications access to Beyond-Line-of-Sight - Internet Protocol (BLOS-IP) SATCOM for the E-3 AWACS platform. BLOS-IP leverages the AWACS DRAGON acquisition of INMARSAT-BLOS IP for the flight deck, as well as Transitional Networking Capability

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(TNC) communications capabilities to specifically provide E-3 AWACS mission crew (back end) with enhanced capability to support a net-centric airborne battlespace, as well as, connect/interact with C2 battle managers (on the ground and in other airborne platforms). NCC modifications such as BLOS-IP enhance expedient off-board distribution of the AWACS air picture and other critical mission data, and give mission crews timely and accurate C2 data via access to enhanced battle-management tools including a robust chat capability and Airborne Web Services providing friendly forces tracking, Air Tasking Order (ATO) updates, and other netcentric C2 data while supporting simultaneous multi-level security domains. The program will begin risk reduction and technology development under the Material Solutions Development and Analysis. Major thrust in FY12, with a Milestone B projected in FY14.

Budget Justification: This program is in Budget Activity 7, Operational Systems 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. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Material Solutions Development and Analysis	20.228	12.664	6.565	-	6.565
Description: Focuses on emerging requirements by investigating enhanced capabilities and exploring new mission areas. ***FY 2010 Accomplishments:*** Completed intial development of Flight Performance Software Phase I. Proposed Radar Modernization Program (RMP) upgrades being reviewed by major contractors. Conducted flight test to assess potential sensor vulnerabilities to Electronic Attack. Executed Joint Expeditionary Force Exercise (JEFX) 2010 & Coalition Warfare Interoperability Demonstration (CWID) 2010. Updated the Experiment Long Range Plan. ***FY 2011 Plans:*** Transitioning to Flight Performance Software Phase II. Conducting engineering/integration study to determine required modifications and associated costs to upgrade the radar system with more robust signal processing prior to mission computing, and incorporating classified Electronic Protection measures. Planning and executing International Cooperative Research & Development (ICR&D). ***FY 2012 Base Plans:*** Will continue to execute International Cooperative Research & Development (ICR&D). Will conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support Risk Reduction activities for program planning. Will continue NCC risk reduction efforts for BLOS IP SATCOM development that was begun as part of the DRAGON modification effort. ***FY 2012 OCO Plans:*** Not Applicable.					
Title: AWACS Modernization	85.486	173.568	103.356	-	103.356

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Description: Focuses on development activities associated with modification efforts. ***FY 2010 Accomplishments:*** Block 40/45: Continued Pre-Prod and ground infrastructure activities prior to first aircraft modification. Continued development of training plans for air crew/maintenance personnel for the mission system. Continued development of Data Link Infrastructure (DLI) enhancements for seamless transition from Block 30/35. Addressed DMS issues for future buys. Completed modification job plans and final drawings, reliability improvements, and Airworthiness Testing. NGIFF: Block 30/35 software development, prepared for flight test and DT/OT, Began Block 40/45 development. DRAGON: On-going risk reduction efforts. Addressed DMS issues and global airspace accessibility. Released EMD Request for Proposal and executed International Project Agreement with NATO. STWF: Prototype and test E-3 with Situation Awareness Data Link (SADL). Closed Link 16 ICP gap between platforms. Studied Single Channel Ground and Airborne Radio System (SINCGARS) capable radio. ***FY 2011 Plans:*** Block 40/45: Beginning Mission Crew Trainer Set (MCTS), Avionics Integration Software Facility (AISF) and Mission Computing Maintenance Trainer (MCMT) development efforts. Finishing Pre-Prod activities to synchronize with first aircraft install. Completing ground infrastructure and training plans. Continuing development of DLI improvements for seamless transition from Block 30/35. Continuing to administer DMS and COTS hardware tech refresh for future aircraft buys. NGIFF: Conducting Block 30/35 flight test and DT/OT. Reviewing requirements, interfaces, and manufacturing plans for UPX-40. Conducting Block 40/45 software functionality and system verification on Mission Computing. Completing Installation and Checkout of hardware equipment. Beginning software system integration. Demonstrating software and hardware interfaces in Lab. DRAGON: Continuing Risk Reduction efforts with the assessment of the DRAGON design on all system-level legacy requirements and mitigating Explosive Atmosphere (EA) risks. Awarding EMD contract. Beginning development activities for System Requirements Review and Integrated Baseline Review.					

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
STWF: Continuing closing Link 16 gap between Block 30/35 and Block 40/45. Investigating impacts of crypto modification projects on the E-3. Continuing to address emerging issues. ***FY 2012 Base Plans:*** Block 40/45: Will continue development of MCTS, AISF, and MCMT. NGIFF: Will review requirements, interfaces, and manufacturing plans. Will certify software functionality and complete system verification on Mission Computing. Will complete Installation and Checkout of hardware equipment. Will begin software system integration. Will demonstrate software and hardware interfaces in Lab. DRAGON: Will complete System Requirements Review and Integrated Baseline Review. Will complete government review of major subcontractor's Preliminary Design Reviews (PDR) and the Prime Contractor's own PDR. Will complete a PDR Assessment review with the Milestone Decision Authority. STWF: Will continue closing Link 16 gap between Block 30/35 and Block 40/45. Will investigate impacts of crypto modification projects on the E-3. Continue working emerging issues. DLE: Will begin IFF Mode 5 data exchange and software testing for functionality and system verification on Mission Computing. Will deliver delta change package to 552 ACW/ACG to install and perform operational testing on software. FPS: Will begin Phase II automation of High Speed Takeoff and Landing (TOLD) calculations. ***FY 2012 OCO Plans:*** Not Applicable.					
Title: AWACS Infrastructure and Systems Support ***Description:*** Focuses on system engineering to synchronize all modernization requirements and infrastructure support across the entire weapon system--from depot and field test equipment, to maintenance trainers, to simulators, to integration labs, to test aircraft development and support. ***FY 2010 Accomplishments:*** Supported AWACS modernization and sustainmented programs, including advanced C2ISR projects. Participated in live-fly events (JEFX) and ground-based kill chain simulation exercises (Joint Distributed	32.339	53.523	26.040	-	26.040

Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207417F: *Airborne Warning and Control System (AWACS)*	PROJECT 67411L: *Airborne Warning & Control System (AWACS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Engineering Plan (JDEP)). Continued to mature emerging technologies, net-centric operations and next generation C2/BM activities. Provided system lab support to Block 40/45, Next Generation IFF, NCC, and Japan and Saudi radar improvement integration and test. Supported AEW&C OSD mandated interoperability testing. Supported mandatory E-3 Operational, Safety, Suitability and Effectiveness program; Single Manager's modification responsibilities; and the AWACS System Engineering program. Provided E-3 Training Concurrency engineering which included maintaining the Associate Contractor Agreements between the prime integrator and the individual trainer vendors. Provided the radar system labs to support U.S., International and FMS radar improvement programs and radar sustainment efforts--major activities include Japan and RSAF radar improvement programs. Maintained TS-3 test asset. ***FY 2011 Plans:*** Supporting DRAGON lab integration efforts. Continuing to mature emerging technologies, net-centric operations and next generation C2/BM activities. Providing system lab support to Block 40/45, Next Generation IFF, NCC, and Japan and RSAF radar improvement integration and test. Supporting AEW&C OSD mandated interoperability testing. Supporting mandatory E-3 Operational, Safety, Suitability and Effectiveness program; Single Manager's modification responsibilities; and the AWACS System Engineering program by providing E-3 Training Concurrency engineering which includes maintaining the Associate Contractor Agreements between the prime integrator and the individual trainer vendors. Providing the radar system labs to support U.S., International and FMS radar improvement programs and radar sustainment efforts--major activities include Japan and RSAF Radar improvement programs. Maintaining/divesting TS-3 test asset. ***FY 2012 Base Plans:*** Will support DRAGON lab integration efforts. Will continue to mature emerging technologies, net-centric operations and next generation C2/BM activities. Will provide system lab support to Block 40/45, Next Generation IFF, NCC, and Japan and RSAF radar improvement integration and test. Will support AEW&C OSD mandated interoperability testing. Will support mandatory E-3 Operational, Safety, Suitability and Effectiveness program; Single Manager's modification responsibilities; and the AWACS System Engineering program by providing E-3 Training Concurrency engineering which includes maintaining the Associate Contractor Agreements between the prime integrator and the individual trainer vendors. Will provide the radar system labs to support U.S., International and FMS radar improvement programs and radar sustainment efforts--major activities include Japan and RSAF Radar improvement programs. Will begin conversion of operational aircraft to test configuration. ***FY 2012 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Not Applicable.					
Accomplishments/Planned Programs Subtotals	138.053	239.755	135.961	-	135.961

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• PE 0207417F: *E-3 Mods, APAF*	76.488	192.681	135.031	0.000	135.031	186.631	212.944	180.999	272.511	Continuing	Continuing
• PE 0809731F: *Training Support (E-3 Aircraft), APAF*	2.448	2.482	0.000	0.000	0.000	0.000	2.609	2.661	2.708	Continuing	Continuing
• PE 0207417F (2): *E-3 Initial Spares, APAF*	5.500	18.248	17.136	0.000	17.136	18.343	18.744	19.201	19.661	Continuing	Continuing

D. Acquisition Strategy

Most major programs (Block 40/45, DRAGON, TS-3 and lab support) will be sole source to the Boeing Corporation, Seattle, WA.

E. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207417F: *Airborne Warning and Control System (AWACS)*	PROJECT 67411L: *Airborne Warning & Control System (AWACS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) AWACS Modernization - Block 40/45 EMD and Pre-Production	SS/CPAF	Boeing:Seattle, WA	1,023.712	94.851	Jan 2011	17.112	Jan 2012	-		17.112	Continuing	Continuing	TBD
(U) AWACS Modernization - Next Generation Identification Friend or Foe (IFF)	SS/CPIF	Boeing:Seattle, WA	34.776	34.269	Feb 2011	23.083	Feb 2012	-		23.083	Continuing	Continuing	TBD
(U) AWACS Modernization - DRAGON	SS/TBD	Boeing:Seattle, WA	9.335	23.279	Aug 2011	44.744	Jan 2012	-		44.744	Continuing	Continuing	TBD
(U) AWACS Modernization - Support the War Fighter (STWF)	Various	Various:Various, NA	9.018	8.686	Jan 2011	4.351	Jan 2012	-		4.351	Continuing	Continuing	TBD
(U) Material Solutions Development and Analysis - C2ISR System Improvement	SS/Various	Boeing:Seattle, WA	109.906	8.620	Oct 2010	5.366	Oct 2011	-		5.366	Continuing	Continuing	TBD
(U) Prior Platform Modifications	Various	Various:Various, NA	1,603.751	-		-		-		-	0.000	1,603.751	0.000
		Subtotal	2,790.498	169.705		94.656		-		94.656			

Remarks

Note: Total Program does not include NATO funds.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) Support/ITSPMITRE, travel, other	Various	AWACS Program Office:Hanscom AFB, MA	377.486	21.708	Oct 2010	20.548	Oct 2011	-		20.548	Continuing	Continuing	TBD
		Subtotal	377.486	21.708		20.548		-		20.548			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force		DATE: February 2011
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) AWACS Infrastructure and Systems Support - AWACS Test System & Aircraft Conversion / AWACS Integration Test Support (AITS) Contract / Other test activities	SS/Various	Boeing:Seattle, WA	206.287	43.512	Oct 2010	13.932	Oct 2011	-		13.932	Continuing	Continuing	TBD
(U) AWACS Infrastructure and Systems Support - Training, Support & Infrastructure (TSI)	SS/Various	Boeing:Seattle, WA	26.135	4.830	Jan 2011	6.825	Jan 2012	-		6.825	Continuing	Continuing	TBD
		Subtotal	232.422	48.342		20.757		-		20.757			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,400.406	239.755		135.961		-		135.961			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207417F: *Airborne Warning and Control System (AWACS)*	**PROJECT** 67411L: *Airborne Warning & Control System (AWACS)*

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207417F: *Airborne Warning and Control System (AWACS)*	**PROJECT** 67411L: *Airborne Warning & Control System (AWACS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NAVWAR IOC	2	2010	2	2010
NAVWAR FOC	1	2012	1	2012
40/45 Mission/Maintenance Crew Trainers EMD	3	2011	3	2013
40/45 FRP Decision	4	2012	4	2012
40/45 Milestone C	1	2014	1	2014
NGIFF EMD (Software developed on 30/35)	1	2010	1	2011
NGIFF EMD (Hardware development on 40/45)	1	2011	4	2013
NGIFF Milestone C	3	2011	3	2011
DRAGON Technology Development	1	2010	3	2011
DRAGON Milestone B	3	2011	3	2011
DRAGON EMD	3	2011	1	2016
DRAGON Milestone C	4	2015	4	2015
Net Centric Capability Technology Development	1	2012	4	2013
Net Centric Capability EMD	1	2014	4	2016
Flight Performance Software EMD	1	2012	4	2013
Data Link Enhancement EMD	1	2012	4	2016
Support the War Fighter (STWF) EMD	1	2010	4	2016