Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	108.795	67.996	138.303	0.000	138.303	173.584	128.803	126.159	119.539	Continuing	Continuing
67411L: *Airborne Warning & Control System (AWACS)*	-	108.795	67.996	138.303	0.000	138.303	173.584	128.803	126.159	119.539	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

"The R-1 line #203 was rescinded in the amount of -$11.6M FY19 of the FY20 HR1158 Appropriations Bill and is not reflected in this document"

A. Mission Description and Budget Item Justification

Mission: E-3 Airborne Warning and Control System (AWACS) is the premier airborne platform providing Battle Management (BM)/Command and Control (C2) for Commander In Chief and combatant commander tasking in 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.

1. E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON): DRAGON completes the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (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 BM/C2. DRAGON replaces the existing Diminishing Manufacturing Sources (DMS) Global Positioning System (GPS) Integrated Navigation System (GINS) with a modern Flight Management System (FMS) that will accommodate new capabilities including Mode 5 Identification Friend or Foe (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. Additionally, the acquisition of DRAGON flight simulators also contains DMS efforts which include removal of end-of-life software/hardware within simulator systems and move to a modular, common open system architecture that is sustainable and cyber resilient. The simulator effort also implements requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. Emphasis on employment of Commercial-Off-The-Shelf (COTS) avionics is expected to lower cost, reduce the tech refresh cycle, and enhance life cycle management. DRAGON will provide development of support and test equipment needed for DRAGON production; DRAGON will also provide initial DMS and Initial Contractor Support (ICS) needed to support the first US developmental test aircraft (i.e., D-1) prior to the contract award of the DRAGON production effort. The Engineering and Manufacturing Development (EMD) phase of DRAGON was being executed as a Cooperative Program between the US and NATO.

2. E-3 Electronic Protection (EP): EP will provide improved radar processing in a specific flight environment to meet a classified requirement. EP will replace the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system. The EP-processed radar picture will appear on the battle manager's display and is intended to provide APY-2 radar quality to the entire U.S. AWACS fleet. This program element may include necessary civilian pay

expenses required to manage, execute, and deliver EP's weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

3. E-3 Training, Support, and Infrastructure (TSI): TSI provides continuing lab operations and maintenance support for AWACS modernization and enhancement across the enterprise. These activities include managing the AWACS Development Test and Evaluation (DT&E) infrastructure and tracking and monitoring the AWACS support equipment and program Government Furnished Property. The overall DT&E test infrastructure supports development and production projects and maintains facilities to support AWACS aircraft during system and sub-system testing in Seattle, WA, Baltimore, MD, and Oklahoma City, OK. The TSI assets also support multiple Foreign Military Sales (FMS) projects on a maintenance fee basis, not limited to projects for France, Saudi Arabia and Japan efforts. Key programs include contractual management of the AWACS Avionics Integration Laboratory (AIL) integrated with the Block 40/45 Functional Group configured lab and the AWACS Radar Systems Integration Lab/Software Development Facility (SIL/SDF). These labs provide US, and Foreign Military Sales (FMS) and Direct Commercial Sales customers with a configured development and qualification system and subsystem environment supporting all AWACS system and radar programs. TSI efforts allow new support equipment technologies and test strategies to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment. This program element may include necessary civilian pay expenses required to manage, execute, and deliver TSI's weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

4. E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR): C2ISR system improvements investigate and develop future capabilities of the AWACS weapon system. These efforts also include but are not limited to 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 materiel solution analysis and technology development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes developing an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as materiel solutions for the user needs. C2ISR will also support an analytical comparison of the operational effectiveness, suitability, and life-cycle cost of alternative materiel solutions beyond the current AWACS that satisfy an established capability need identified in an Initial Capabilities Document (ICD).

5. E-3 Internet Protocol Enabled Communication (IPEC): IPEC will provide the Block 40/45 E-3 with a medium-bandwidth Internet Protocol (IP) communications capability to connect to the Global Information Grid and will support net-centric operations/warfare. IPEC will provide a reliable IP-enabled communication capability to support a shortened digitized kill-chain of time-sensitive targets. The modification will provide a permanent Inmarsat-based IP-enabled communications package supporting warfighter identified requirements for increased bandwidth Secret Internet Protocol Router Network (SIPRNet) and multi-domain networks.

6. E-3 Combat Identification (CID) DMS: AWACS' current CID capability is based upon 1960's era technology that has become unsustainable, and requires an update to retain a significant part of AWACS overall mission capability. AWACS will address C2 CID shortfalls with a modern, persistent Airborne Moving Target Indicator (AMTI) BM/C2 combat ID. CID DMS supports the kill chain and decision superiority.

7. E-3 Communication Network Upgrade (CNU): CNU will provide a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from Air Force fighters to Navy submarines. The current 20 year old Class 2 terminal has sustainability/DMS

issues and does not support mandated Crypto Mod (CM) & Freq. Remap (FR). CNU resolves DMS issues, provides CM & FR, Link 16 enhancements & growth for Next Gen Tactical Data Link (TDL). Risk reduction activities are being executed in cooperation with foreign partners.

8. E-3 Mode 5 Acceleration: Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability since DRAGON's IOC 2022/FOC 2028 does not meet the Mode 5 mandate. This subset accelerates the Mode 5 transponder FOC independent of DRAGON.

9. E-3 AWACS Communications Integration Program (ACIP): ACIP will provide Mobile User Objective System (MUOS) and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and DAMA SATCOM radios with new radios capable of communicating via the existing and additional military waveforms as a combined integration program on AWACS. Provides continued compatibility with US and Allied forces using frequency hopping UHF in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops by maintaining compatibility with CAF / Sister service C2 nodes and theater assets.

10. E-3 GPS Upgrade (M-Code): The GPS upgrade provides E-3G AWACS with robust capability to operate in evolving GPS jamming environment. It incorporates M-Code capability into E-3G. As well as provides continued capabilities in GPS jamming environment in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops. We are compliant with OSD/NII mandate (2006), Public Law 111-383 and FY11 National Defense Authorization Act.

11. E-3 Fifth to Fourth (5th to 4th): 5th generation connectivity on E-3G will be fielded in two phases: 1) The first phase fields the capability for E-3G AWACS to operate on 5th generation Link 16 networks that include data from F-22 and F-35 aircraft participants. This phase will also include the security domain required to integrate the 5th generation data into Mission Computing Software. 2) The second phase fields the full ability to receive/transmit, ingest and process 5th generation sensory data, combining it with onboard sensor data to create the most accurate air-picture, shortening the kill chain. This is not a New Start; in FY 2020 program 0604281F, TDNE, project 655262 efforts were transferred to program 0207417F, Airborne Warning and Control System (AWACS), project 67411L in order to properly align requirement with the correct Weapon System.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver E-3 AWACS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F.

The FY 2021 funding request was reduced by $55.2 million to account for the availability of prior year execution balances.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	112.280	67.996	169.636	0.000	169.636
Current President's Budget	108.795	67.996	138.303	0.000	138.303
Total Adjustments	-3.485	0.000	-31.333	0.000	-31.333
• 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	-3.485	0.000			
• Other Adjustments	0.000	0.000	-31.333	0.000	-31.333

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	10.121	0.200	2.900
Description: DRAGON: Provides analog to digital cockpit addressing the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (EUROCONTROL) air traffic control mandated safety of flight capabilities. Provides 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. ***FY 2020 Plans:*** - Continued Development of Motion Trainer Simulator - Completed IOT&E ***FY 2021 Plans:*** - Complete Development of Motion Trainer Simulator ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to completion of Motion Trainer Simulator			
Title: E-3 Electronic Protection (EP)	4.915	16.838	30.862
Description: EP: Provides improved radar processing in a specific flight environment to meet a classified requirement. Replaces the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system. ***FY 2020 Plans:***			

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
- Awarded rapid prototyping development contracts ***FY 2021 Plans:*** - Continue rapid prototyping ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to acquisition strategy shift to a mid-tier (Sec. 804) program to accelerate rapid prototyping schedule			
Title: E-3 Training, Support and Infrastructure (TSI) ***Description:*** Training, Support, and Infrastructure (TSI): Provides continuing management support for AWACS modernization and enhancement to include managing the AWACS Development Test and Evaluation (DT&E) and Production infrastructure and tracking and monitoring the AWACS vendor's core mission and aircrew training, support equipment and program Government Furnished Property. ***FY 2020 Plans:*** - Maintained and provided DT&E labs to AWACS programs - Supported AWACS development and production programs lab integration & test efforts - Provided system lab support, integration, and test to current AWACS programs. - Supported AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program ***FY 2021 Plans:*** - Will continue to maintain and provide DT&E labs to AWACS programs - Will support AWACS development and production programs lab integration & test efforts - Will provide system lab support, integration, and test to current AWACS programs. - Will support AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program - Will support standup of organic SIL effort ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to standup of organic SIL	16.276	10.066	25.468
Title: E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) ***Description:*** Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR):	32.094	7.669	2.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Investigate and develops future capabilities of the AWACS weapon system to include but are not limited to investigation, analysis, and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. Primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development. ***FY 2020 Plans:*** - Continued to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning - Continued to execute cooperative Independent Research and Development ***FY 2021 Plans:*** - Continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning - Continue to execute cooperative Independent Research and Development ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Decrease of future capability risk reduction requirements			
Title: E-3 Internet Protocol Enabled Communication (IPEC) ***Description:*** Internet Protocol Enabled Communication (IPEC): Provides the Block 40/45 E-3 with a medium-bandwidth Internet Protocol (IP) communications capability to connect to the Global Information Grid and supports net-centric operations/warfare. Provides a reliable IP-enabled communication capability to support a shortened digitized kill-chain of time-sensitive targets. ***FY 2020 Plans:*** - Complete EMD effort ***FY 2021 Plans:*** - N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Decrease due to completion of development effort in FY 2020	0.169	0.500	0.000
Title: E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) ***Description:*** Combat Identification (CID) Diminishing Manufacturing Sources (DMS): Addresses C2 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) BM/C2 combat ID. Supports the kill chain and decision superiority.	18.578	5.689	6.313

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: - Continued risk reduction efforts; began SW and sub-system level development ***FY 2021 Plans:*** - Continue SW and sub-system level development; begin sub-system level integration ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to revised program cost estimate and acquisition strategy to accelerate schedule			
Title: E-3 Communication Network Upgrade (CNU) ***Description:*** Communication Network Upgrade (CNU): Provides a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from Air Force fighters to Navy submarines. ***FY 2020 Plans:*** - Continued rapid prototyping and development effort ***FY 2021 Plans:*** - Continue rapid prototyping and development effort; AFSI and JIT Testing ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to Phase II development in FY21	17.022	16.411	28.865
Title: Mode 5 Acceleration ***Description:*** Mode 5 Acceleration: Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability. Accelerates the Mode 5 transponder FOC independent of DRAGON. ***FY 2020 Plans:*** - Continued rapid prototyping and development effort ***FY 2021 Plans:*** - Continue with rapid prototyping and development effort ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to test requirements in FY 2021	9.620	7.587	9.265
Title: E-3 AWACS Communications Integration Program (ACIP)	0.000	2.036	22.362

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: AWACS Communications Integration Program (ACIP)Development: Provides Mobile User Objective System (MUOS) and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and DAMA SATCOM radios with new radios capable of communicating via the existing and additional military waveforms as a combined integration program on AWACS. ***FY 2020 Plans:*** - Begin risk reduction effort ***FY 2021 Plans:*** - Continue risk reduction and begin prototyping development effort ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to risk reduction and prototyping development effort			
Title: E-3 AWACS GPS Upgrade (M-Code) ***Description:*** AWACS GPS Upgrade (M-Code): Provides E-3G AWACS with robust capability to operate in evolving GPS jamming environment. Incorporates GPS M-Code capability into E-3G and provides continued capabilities in GPS jamming environment in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops. ***FY 2020 Plans:*** - Risk reduction effort ***FY 2021 Plans:*** - Continue risk reduction and begin prototyping development effort ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to risk reduction and prototyping development effort	0.000	1.000	1.000
Title: AWACS Fifth to Fourth (5th to 4th) ***Description:*** E-3 Fifth to Fourth (5th to 4th): 5th generation connectivity on E-3G will be fielded in two phases: 1) The first phase fields the capability for E-3G AWACS to operate on 5th generation Link 16 networks that include data from F-22 and F-35 aircraft participants. This phase will also include the security domain required to integrate the 5th generation data into Mission Computing Software. 2) The second phase fields the full ability to receive/transmit, ingest and process 5th generation sensory data, combining it with onboard sensor data to create the most accurate air-picture, shortening the kill chain. This is not a New	0.000	0.000	9.268

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Start; in FY 2020 PE 0604281F, TDNE, BPAC 655262 efforts were transferred to PE 0207417F, Airborne Warning and Control System (AWACS), BPAC 67411L in order to properly align requirement with the correct Weapon System. ***FY 2020 Plans:*** - N/A ***FY 2021 Plans:*** - Rapid prototyping and development effort ***FY 2020 to FY 2021 Increase/Decrease Statement:*** - Increase due to award of rapid prototype contract			
Accomplishments/Planned Programs Subtotals	108.795	67.996	138.303

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• APAF 05 Line Item E00300: *E-3*	133.199	164.273	153.454	-	153.454	189.547	242.996	302.566	-	Continuing	Continuing
• APAF 05 Line Item E34045: *Airborne Warning and Control System*	59.665	34.240	25.604	-	25.604	28.758	0.000	0.000	-	0.000	148.267
• APAF 06 Line Item 000999: *Initial Spares/Repair Parts*	13.563	24.175	21.293	-	21.293	21.720	22.114	22.512	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

The modernization of the AWACS weapon system consists of multiple capability upgrades that are developed and fielded on competitive and sole source contracts. Full and open competition is explored for all new efforts where market research indicates opportunities exist.

Air Force Program Executive Officer (PEO) for PEO Digital (AFLCMC HB) is the Milestone Decision Authority (MDA) for all AWACS Programs, with the exception of the E-3 Block 40/45 Upgrade. The E-3 Block 40/45 Upgrade MDA is the Secretary of the Air Force, with authority delegated to the Assistant Secretary of the Air Force (Acquisition) [SAF/AQ]. Of note, E-3 Block 40/45 Upgrade has completed development activities, so it has no 3600 funding and thus not otherwise referenced in this document. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the AWACS portfolio and provides Contracts, Legal, and Comptroller Support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	L3 : Arlington, TX	-	8.600	Jan 2019	0.200		2.000	Jan 2021	-		2.000	Continuing	Continuing	-
E-3 Electronic Protection (EP)	SS/CPFF	GTRI : Atlanta, GA	-	0.900	Nov 2019	1.287	Apr 2020	-		-		-	Continuing	Continuing	-
E-3 Electronic Protection (EP) Rapid Prototyping Alpha Phase 1A	C/CPAF	AFRL OTA : Rome, NY	-	0.900		-		8.152	Jan 2021	-		8.152	Continuing	Continuing	-
E-3 Electronic Protection (EP) Rapid Prototyping Alpha Phase 1B	TBD	TBD : TBD	-	-		-		16.319	Jul 2021	-		16.319	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance	SS/ Various	BAH & Various : Washington, DC	-	22.452	Jan 2019	13.933	Jan 2020	5.919	Jan 2021	-		5.919	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance GTRI Study	SS/CPFF	GTRI : Atlanta, GA	-	5.027	Feb 2019	0.500	Feb 2020	0.500	Feb 2021	-		0.500	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Risk Reduction	SS/CPFF	Raytheon : Fort Wayne, IN	-	8.460	May 2019	5.689	Apr 2020	-		-		-	Continuing	Continuing	-
E-3 Internet Protocol Enabled Communication (IPEC)	SS/ Various	Boeing : Oklahoma City, OK	-	0.169	Nov 2019	0.500	Nov 2020	-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Prototype Development	MIPR	DMEA : McClellan, CA	-	7.362	Oct 2019	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) SW and Sub-System Level Development	TBD	TBD : TBD	-	-		-		12.000	Jan 2021	-		12.000	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU)	Various	Space & Naval Warfare Sys : San Diego, CA	-	1.484	Jan 2019	1.356	Jan 2020	1.380	Jan 2021	-		1.380	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) GTRI	Various	GTRI : Atlanta, GA	-	7.225	Feb 2019	8.612	Feb 2020	4.264		-		4.264	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) SW Dev	Various	76th SWES : Tinker AFB, OK	-	4.853	Jan 2019	3.019	Jan 2020	2.320	Jan 2021	-		2.320	Continuing	Continuing	-
Mode 5 Acceleration	MIPR	Raytheon : Aberdeen Prov. Grnds, MD	-	9.000	Oct 2019	4.393	Aug 2020	7.257	Jan 2021	-		7.257	Continuing	Continuing	-
ACIP	TBD	TBD : TBD	-	0.000	Jan 2019	2.036	Jan 2020	12.615		-		12.615	Continuing	Continuing	-
AWACS GPS Upgrade (M-Code)	TBD	TBD : TBD	-	0.000	Jan 2019	-		1.000		-		1.000	Continuing	Continuing	-
Fifth to Fourth (5th to 4th) GTRI	MIPR	GTRI : Atlanta, GA	-	-		-		9.268	Jul 2021	-		9.268	Continuing	Continuing	-
		Subtotal	-	76.432		41.525		82.994		-		82.994	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
E-3 Training, Support & Infrastructure (TSI)	SS/ Various	Boeing : Oklahoma City, OK	-	5.731	Jan 2019	9.100	Jan 2020	25.445	Jan 2021	-		25.445	Continuing	Continuing	-
		Subtotal	-	5.731		9.100		25.445		-		25.445	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / *Airborne Warning and Control System (AWACS)*	Project (Number/Name) 67411L / *Airborne Warning & Control System (AWACS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
(U) Program Management Administration (PMA)	Various	AWACS Program Office : Hanscom AFB, MA	-	26.632	Jan 2019	17.371	Jan 2020	29.864	Jan 2021	-		29.864	Continuing	Continuing	-
		Subtotal	-	26.632		17.371		29.864		-		29.864	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	108.795		67.996		138.303		-		138.303	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*

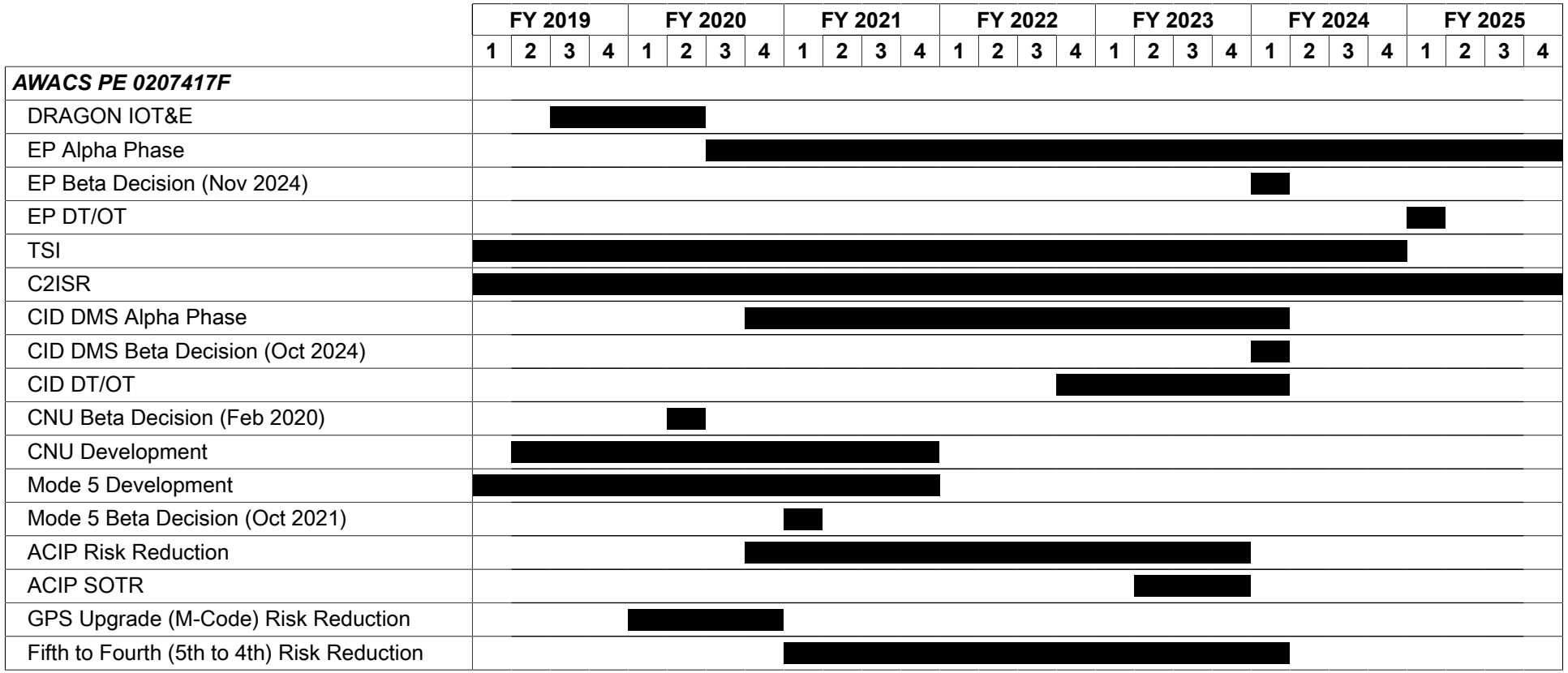

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AWACS PE 0207417F				
DRAGON IOT&E	3	2019	2	2020
EP Alpha Phase	3	2020	4	2025
EP Beta Decision (Nov 2024)	1	2024	1	2024
EP DT/OT	1	2025	1	2025
TSI	1	2019	4	2024
C2ISR	1	2019	4	2025
CID DMS Alpha Phase	4	2020	1	2024
CID DMS Beta Decision (Oct 2024)	1	2024	1	2024
CID DT/OT	4	2022	1	2024
CNU Beta Decision (Feb 2020)	2	2020	2	2020
CNU Development	2	2019	4	2021
Mode 5 Development	1	2019	4	2021
Mode 5 Beta Decision (Oct 2021)	1	2021	1	2021
ACIP Risk Reduction	4	2020	4	2023
ACIP SOTR	2	2023	4	2023
GPS Upgrade (M-Code) Risk Reduction	1	2020	4	2020
Fifth to Fourth (5th to 4th) Risk Reduction	1	2021	1	2024