Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force											Date: February 2019	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / 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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	118.702	112.280	67.996	0.000	67.996	169.636	143.321	103.406	117.608	Continuing	Continuing
67411L: *Airborne Warning & Control System (AWACS)*	-	118.702	112.280	67.996	0.000	67.996	169.636	143.321	103.406	117.608	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0207417F, project 67411L, E-3 AWACS Communications Integration Program (ACIP), is a new start.
This program, BA 7, PE 0207417F, project 67411L, E-3 AWACS GPS Upgrade (M-Code), is a new start.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

3. E-3 Training, Support, and Infrastructure (TSI): TSI provides continuing management support for AWACS modernization and enhancement. These activities 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. The overall DT&E test infrastructure supports development, production, and sustainment projects and maintains facilities to support AWACS aircraft during system and sub-system testing at Boeing Field, WA, Baltimore, MD, and Oklahoma City, OK. The TSI assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a maintenance fee basis, not limited to projects for France, Saudi Arabia, United Kingdom, Japan, and North Atlantic Treaty (NATO) AEW&C 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, Foreign Military Sales (FMS), and international customers with a configured development and qualification system and subsystem environment supporting all AWACS system and radar development and sustainment. 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.

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. IPEC was originally planned for accomplishment as a traditional acquisition program, but due to warfighter demand, the effort has been re-classified as an Urgent Operational Need (UON).

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 Indication (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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

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 2020/FOC 2027 does not meet the Mode 5 mandate. This subset accelerates the Mode 5 transponder FOC independent of DRAGON. In previous budget cycles, this effort was referred to as E-3 Automatic Dependent Surveillance Broadcast (ADS-B) Out Acceleration, which included both ADSB Out and Mode 5 Acceleration.

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 AWACS GPS Upgrade (M-Code): The GPS M-code upgrade provides E-3G AWACS with robust capability to operate in evolving GPS jamming environment. Incorporates GPS 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. In FY20 we will be using the AWACS software integration facility to inform the GPS M-code with the DRAGON upgrade.

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 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is $14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force					Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / 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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	151.726	120.664	153.600	0.000	153.600
Current President's Budget	118.702	112.280	67.996	0.000	67.996
Total Adjustments	-33.024	-8.384	-85.604	0.000	-85.604
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-8.384			
• Congressional Rescissions	-0.475	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-27.718	0.000			
• SBIR/STTR Transfer	-4.831	0.000			
• Other Adjustments	0.000	0.000	-85.604	0.000	-85.604

C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	7.763	9.400	2.000
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 2019 Plans:*** - Continue Development of Motion Trainer Simulator - IOT&E ***FY 2020 Plans:*** - Continue Development of Motion Trainer Simulator - Complete IOT&E ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Development efforts reduced from prior year			
Title: E-3 Electronic Protection (EP)	4.749	5.909	6.787
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.			

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / 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 2018	FY 2019	FY 2020
FY 2019 Plans: - Select multiple contractors for rapid prototyping. ***FY 2020 Plans:*** - Will award rapid prototyping development contracts ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase due to projected award of prototyping contracts			
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 2019 Plans:*** - Continues to maintain and provide DT&E labs to AWACS programs - Supports AWACS development and production programs lab integration & test efforts - Provides system lab support, integration, and test to current AWACS programs. - Supports AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program ***FY 2020 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 2019 to FY 2020 Increase/Decrease Statement:*** Decrease in funding	14.115	10.131	9.100
Title: E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) ***Description:*** Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR):	34.495	23.576	2.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
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 2019 Plans:*** - Continues to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning - Continues to execute cooperative Independent Research and Development ***FY 2020 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 2019 to FY 2020 Increase/Decrease Statement:*** Decrease in risk reduction study 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 2019 Plans:*** - Continue FCA/PCA activities ***FY 2020 Plans:*** - Complete EMD effort ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Decrease due to closure of EMD	9.359	1.000	0.500
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.	12.700	22.000	5.689

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: - Will continue Phase II Risk Reduction activities including Risk Reduction for system-level integration, AWACS-specific modifications to the SEU, AWACS-specific antenna solutions, and integration prototyping. ***FY 2020 Plans:*** - Continue risk reduction efforts ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Phase II Risk Reduction contracts ending in FY20, prepping for EMD RFP release in FY20 with a planned FY21 award timeframe.			
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 2019 Plans:*** - Awarding rapid prototyping development contracts ***FY 2020 Plans:*** - Continue rapid prototyping and development effort ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease due to stabilization of prototyping contract	32.676	28.937	24.333
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 2019 Plans:*** - Awarding rapid prototyping development contracts ***FY 2020 Plans:*** - Continue rapid prototyping and development effort ***FY 2019 to FY 2020 Increase/Decrease Statement:***	2.845	11.327	15.587

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
- Increase in prototyping and development			
Title: E-3 AWACS Communications Integration Program (ACIP) ***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 2019 Plans:*** - N/A ***FY 2020 Plans:*** - Begin risk reduction effort ***FY 2019 to FY 2020 Increase/Decrease Statement:*** - Increase due to new start in FY20	0.000	0.000	1.000
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 2019 Plans:*** - N/A ***FY 2020 Plans:*** - Begin risk reduction effort ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase due to new start in FY20	0.000	0.000	1.000
Accomplishments/Planned Programs Subtotals	118.702	112.280	67.996

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 05 Line Item E00300: *E-3*	166.552	133.199	164.273	-	164.273	153.454	189.547	242.996	302.566	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 05 Line Item E34045: *Airborne Warning and Control System*	142.886	59.665	34.240	-	34.240	25.604	28.758	0.000	0.000	0.000	291.153
• APAF 06 Line Item 000999: *Initial Spares/Repair Parts*	21.139	13.563	24.175	-	24.175	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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	L3 : Arlington, TX	-	7.763	Jan 2018	8.600	Jan 2019	2.000	Jan 2020	-		2.000	Continuing	Continuing	-
E-3 Electronic Protection (EP)	SS/CPFF	GTRI : Atlanta, GA	-	0.800	Jan 2018	1.123	Jan 2019	6.787	Jan 2020	-		6.787	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance	SS/ Various	BAH & Various : Washington, DC	-	25.719	Jan 2018	23.376	Jan 2019	1.000	Jan 2020	-		1.000	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance GTRI Study	SS/CPFF	GTRI : Atlanta, GA	-	4.388	Aug 2018	0.600	Feb 2019	0.500	Feb 2020	-		0.500	Continuing	Continuing	-
E-3 Internet Protocol Enabled Communication (IPEC)	SS/ Various	Boeing : Oklahoma City, OK	-	9.330	Mar 2019	1.000	Nov 2019	0.500	Nov 2020	-		0.500	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Risk Reduction	SS/CPFF	Raytheon : Fort Wayne, IN	-	5.612	Sep 2018	8.460	Apr 2019	-		-		-	Continuing	Continuing	14.412
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Prototype Development	MIPR	DMEA : McClellan, CA	-	4.000	Mar 2019	10.000	Jun 2019	-		-		-	Continuing	Continuing	14.000
E-3 Communication Network Upgrade (CNU)	Various	Space & Naval Warfare Sys : San Diego, CA	-	29.218	Jan 2018	14.553	Jan 2019	7.858	Jan 2020	-		7.858	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) GTRI	MIPR	GTRI : Atlanta, GA	-	-		7.192	Feb 2019	12.295	Feb 2020	-		12.295	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force			Date: February 2019
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mode 5 Acceleration	MIPR	Raytheon : Aberdeen Prov. Grnds, MD	-	0.391	Jan 2018	8.836	Jan 2019	15.587	Jan 2020	-		15.587	Continuing	Continuing	-
ACIP	TBD	TBD : TBD	-	0.000	Jan 2018	0.000	Jan 2019	1.000	Jan 2020	-		1.000	Continuing	Continuing	-
AWACS GPS Upgrade (M-Code)	TBD	TBD : TBD	-	0.000	Jan 2018	0.000	Jan 2019	1.000	Jan 2020	-		1.000	Continuing	Continuing	-
		Subtotal	-	87.221		83.740		48.527		-		48.527	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
E-3 Training, Support & Infrastructure (TSI)	SS/ Various	Boeing : Oklahoma City, OK	-	14.115	Jan 2018	10.131	Jan 2019	9.100	Jan 2020	-		9.100	Continuing	Continuing	-
		Subtotal	-	14.115		10.131		9.100		-		9.100	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
(U) Program Management Administration (PMA)	Various	AWACS Program Office : Hanscom AFB, MA	-	17.366	Jan 2018	18.409	Jan 2019	10.369	Jan 2020	-		10.369	Continuing	Continuing	-
		Subtotal	-	17.366		18.409		10.369		-		10.369	Continuing	Continuing	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	118.702		112.280		67.996		-		67.996	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
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)*

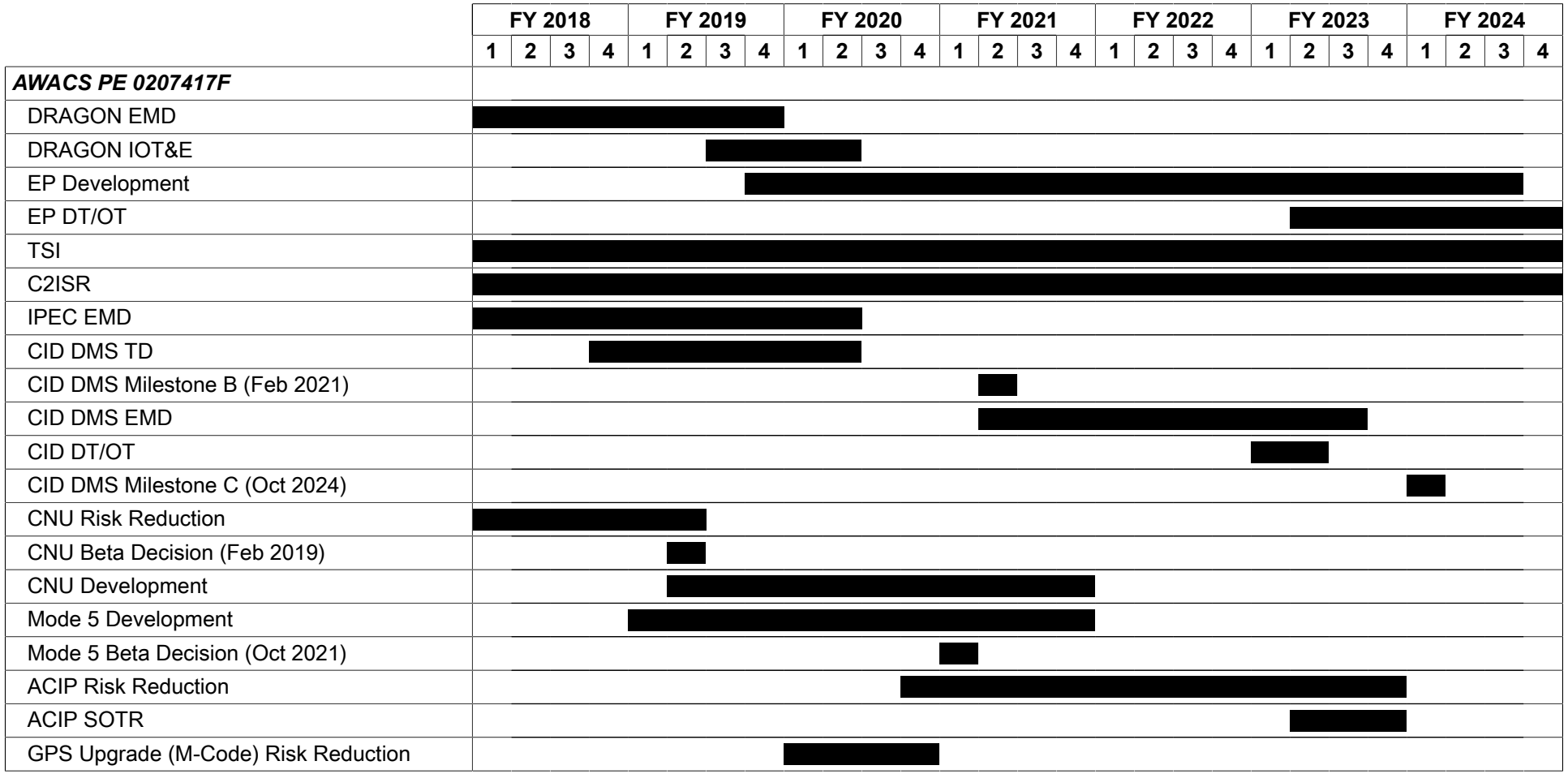

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0207417F / *Airborne Warning and Control System (AWACS)*	**Project (Number/Name)** 67411L / *Airborne Warning & Control System (AWACS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AWACS PE 0207417F				
DRAGON EMD	1	2018	4	2019
DRAGON IOT&E	3	2019	2	2020
EP Development	4	2019	3	2024
EP DT/OT	2	2023	4	2024
TSI	1	2018	4	2024
C2ISR	1	2018	4	2024
IPEC EMD	1	2018	2	2020
CID DMS TD	4	2018	2	2020
CID DMS Milestone B (Feb 2021)	2	2021	2	2021
CID DMS EMD	2	2021	3	2023
CID DT/OT	1	2023	2	2023
CID DMS Milestone C (Oct 2024)	1	2024	1	2024
CNU Risk Reduction	1	2018	2	2019
CNU Beta Decision (Feb 2019)	2	2019	2	2019
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