



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-277



Airborne Warning and Control System Block 40/45 Upgrade (AWACS Blk 40/45 Upgrade)

As of FY 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Airborne Warning and Control System Block 40/45 Upgrade (AWACS Blk 40/45 Upgrade)

DoD Component

Air Force

Responsible Office

Lt Col Franklin Gaillard, II
3 Eglin Street
Hanscom Air Force Base, MA 01731

franklin.gaillard@us.af.mil

Phone: 781-225-3359
Fax: 781-225-2373
DSN Phone: 845-3359
DSN Fax: 845-2373
Date Assigned: June 28, 2012

References

SAR Baseline (Production Estimate)

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 1, 2013

Approved APB

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 1, 2013

Mission and Description

The Airborne Warning and Control System (AWACS) provides a highly mobile, flexible, survivable theater Battle Management (BM), Wide Area Surveillance, and Command and Control (C2) capability. It is capable of detecting, identifying, and tracking airborne and maritime targets at extended ranges as well as identifying air/ground emitters. AWACS can relay “big picture” information to C2 agencies and friendly aircraft. AWACS provides worldwide response to situations requiring immediate on-scene C2/BM using embedded real-time surveillance for employment of US and allied combat air forces. AWACS is critical to gaining and maintaining battle-space air superiority. AWACS coordinates with both tactical and C2 assets in theater to execute the air mission.

The AWACS Block 40/45 Upgrade Program is the largest modification in US AWACS history and represents the critical foundation and baseline system required for all future AWACS enterprise modifications including net-centric operations. The AWACS Block 40/45 Upgrade provides a single target/single track capability with an improved human-machine interface for time-critical targeting designed to increase combat effectiveness and reduce fratricide. The AWACS Block 40/45 Upgrade Program includes an upgrade to Electronic Support Measures sensor data processing; Multi-Source Integration; a Data Link Infrastructure with prioritized data link bandwidth management for Link 16/Link 11; new battle management tools; capability to parse, allow user access to, and integrate Air Control Order/Air Tasking Order data; and enhanced mission and console recording capabilities.

Executive Summary

The AWACS Block 40/45 Upgrade Program continues to meet all KPPs. During CY 2014, AWACS Block 40/45 installation and deliveries to the 552 Air Control Wing continue to be on schedule. One E-3 aircraft completed modification this past year and was re-designated from an E-3B/C to an E-3G. There have been six modified aircraft delivered through December 31, 2014 and four more inducted for modification.

With delivery of the fifth 40/45 modified aircraft to the 552 Air Control Wing, in accordance with AWACS Block 40/45 Upgrade APB dated May 1, 2013, the PM, on January 7, 2014, declared IOC Required Assets Available (RAA) had been met. On July 28, 2014 Air Combat Command approved IOC and concurred that Block 40/45 greatly enhances crewmember's ability to execute the Command and Control mission and provides a building block for future upgrades.

Significant accomplishments in CY 2014 include:

- Delivered one Mission Crew Training Set (MCTS) on February 21, 2014.
- Completed and delivered the sixth and final LRIP E-3G modification on June 26, 2014.
- Inducted four aircraft for modification.
- Completed modification of three aircraft with Secure Iridium Chat (SIC) capability.
- Awarded two Full Rate Production Shipsets contracts to Boeing.
 - Two shipsets - March 28, 2014
 - Five shipsets - October 23, 2014
- Delivered two Deployable Ground Systems (DGS) in December 2014.

The FY 2015 PB submission sought to reduce the size of the AWACS E-3 operational fleet from 31 to 24 aircraft, to include posturing AWACS Block 40/45 Upgrade procurement quantities and associated funding for a 24 aircraft fleet. Congress directed the Air Force to retain a 31 aircraft AWACS operational fleet. The AWACS Block 40/45 Upgrade program remains funded for a fleet size of 24. In the FY 2016 PB, the Air Force re-phased the E-3 force reduction of seven aircraft to FY 2019. The AWACS Block 40/45 Upgrade program is already positioned in accordance with the planned FY 2019 divestiture; therefore, the program will continue to execute to a baseline of 24 aircraft.

The AWACS Block 40/45 Upgrade modification (ACAT IC) reduction from 31 to 24 aircraft led to the Secretary of the Air Force declaring a significant Nunn-McCurdy Breach due to PAUC and APUC increases despite overall cost decreasing. Since the declaration, the following actions are complete or in work:

- (1) Submitted Program Deviation Report & SAR in accordance with Title 10, Code Sec 2433 and Interim DoD Instruction 5000.02 (February 18, 2014).
- (2) Congressional and Acquisition Technology & Logistics notification letters signed out by the Secretary of the Air Force (April 16, 2014).
- (3) Review and adjust acquisition strategy (in-work)
- (4) Update SCP (in-work)
- (5) Amend APB to reflect the seven E-3 aircraft reduction (in-work).

There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		Explanation of Breach	
Schedule	<input type="checkbox"/>	Significant Unit Cost Breach of both the AWACS Block 40/45 Upgrade Program PAUC and APUC previously reported in December 2013 SAR report. Congress directed the Air Force to retain a 31 aircraft AWACS operational fleet. The AWACS Block 40/45 Upgrade program remains funded for a fleet size of 24. In the FY 2016 PB, the Air Force re-phased the E-3 force reduction of seven aircraft to FY 2019. The AWACS Block 40/45 Upgrade program is already positioned in accordance with the planned FY 2019 divestiture; therefore, the program will continue to execute to a baseline of 24 aircraft. The System Program Office continues to be aggressive in controlling AWACS Block 40/45 Upgrade Program costs.	
Performance	<input type="checkbox"/>		
Cost	RDT&E		<input type="checkbox"/>
	Procurement		<input type="checkbox"/>
	MILCON		<input type="checkbox"/>
	Acq O&M		<input type="checkbox"/>
O&S Cost	<input type="checkbox"/>		
Unit Cost	PAUC		<input checked="" type="checkbox"/>
	APUC		<input checked="" type="checkbox"/>

Nunn-McCurdy Breaches	
Current UCR Baseline	
	PAUC Significant
	APUC Significant
Original UCR Baseline	
	PAUC None
	APUC None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Current Estimate	Current Estimate (Breach)
Milestone B - System Development and Demonstration	Jul 2003	Jul 2003	Jul 2003	Jul 2003
Milestone C - Low-Rate Initial Production	Jan 2009	Jan 2009	Jan 2009	Jan 2009
Initial Operational Test and Evaluation Complete (IOT&E)	Jun 2012	Jun 2012	Jun 2012	Jun 2012
Full Rate Production Decision	Dec 2012	Dec 2012	Dec 2012	Dec 2012
IOC RAA	Apr 2014	Apr 2014	Oct 2014	Jan 2014
FOC RAA	Aug 2020	Aug 2020	Feb 2021	Sep 2019 (Ch-1)

Change Explanations

(Ch-1) Current Estimate for FOC RAA has changed from Aug 2020 to Sep 2019 due to receipt of additional funding in FY 2015 allowed for acceleration of the production kit buys and reduced cost of engineering and production support in later years.

Notes

On June 17, 2013, the SAR Baseline Production Estimate, Current Production APB Objective and Threshold, and Current Estimate for IOT&E milestone have been corrected from June 2011 to June 2012, to reflect the actual date of accomplishment.

IOC RAA is the date five Block 40/45 E-3G Sentry AWACS aircraft are delivered to ACC. On January 7, 2014 IOC RAA was declared after the fifth delivery to ACC.

FOC RAA is the date all Block 40/45 E-3G Sentry AWACS aircraft and associated ground systems are delivered to ACC.

Acronyms and Abbreviations

ACC - Air Combat Command

FOC - Full Operational Capability

RAA - Required Assets Available

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Multi-Source Integration				
(Objective = Threshold) All target data shall be correlated, fused, and integrated into a single track	(Objective = Threshold) All target data shall be correlated, fused, and integrated into a single track	All target data shall be correlated, fused, and integrated into a single track	TBD	Same as Threshold. All target data shall be correlated, fused, and integrated into a single track.
Net Ready				
System must fully support execution of all activities identified in joint and system integrated architectures. 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) Net-Centric Operations and Warfare Reference Model Enterprise Services. 4) IA requirements and issuance of an ATO by the DAA. 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.	System must fully support execution of all activities identified in joint and system integrated architectures. 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) Net-Centric Operations and Warfare Reference Model Enterprise Services. 4) IA requirements and issuance of an ATO by the DAA. 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.	System must fully support execution of joint critical activities identified in joint and system integrated architectures. System must satisfy the technical requirements for future transition to Net-Centric operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1; 2) DISR mandated GIG KIPs identified in the KIP declaration table; 3) Net-Centric Operations and Warfare Reference Model Enterprise Services; 4) IA requirements and issuance of an IATO by the DAA; 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.	TBD	Same as Threshold. System must fully support execution of joint critical activities identified in joint and system integrated architectures. System must satisfy the technical requirements for future transition to Net-Centric operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1; 2) DISR mandated GIG KIPs identified in the KIP declaration table; 3) Net-Centric Operations and Warfare Reference Model Enterprise Services; 4) IA requirements and issuance of an IATO by the DAA; 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Operational Requirements Document (ORD) (Combat Air Forces (CAF) 010-02-I/II) dated June 16, 2009 (in lieu of Capability Production Document) (CPD))

Change Explanations

None

Acronyms and Abbreviations

ATO - Approval to Operate

DAA - Designated Accrediting Authority

DISR - Department of Defense Information Technology Standards and Profile Registry

GIG - Global Information Grid

IA - Information Assurance

IATO - Interim Approval to Operate

IT - Information Technology

KIP - Key Interface Profile

TV-1 - Technical View 1

Track to Budget

RDT&E

Appn	BA	PE
Air Force	3600 07	0207417F
	Project	Name
	67411L	AWACS (Shared)

Procurement

Appn	BA	PE
Air Force	3010 06	0207417F
	Line Item	Name
	000999	Initial Spares (Shared)
Air Force	3010 05	0207417F
	Line Item	Name
	E00300	AWACS (Shared) (Sunk)
	Notes:	The Procurement funding for the AWACS Block 40/45 Upgrade program is located in Modification number 50001T.
	E34045	AWACS 40/45
	Notes:	In accordance with the Major Programs Transparency Initiative, AWACS Block 40/45 Upgrade funding was moved to a new budget line starting in FY 2015

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2012 \$M			BY 2012 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1319.0	1319.0	1450.9	1285.5	1192.2	1192.2	1160.9
Procurement	1503.4	1503.4	1653.7	1387.7	1615.4	1615.4	1493.2
Flyaway	--	--	--	1350.5	--	--	1452.9
Recurring	--	--	--	938.8	--	--	1005.2
Non Recurring	--	--	--	411.7	--	--	447.7
Support	--	--	--	37.2	--	--	40.3
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	37.2	--	--	40.3
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	2822.4	2822.4	N/A	2673.2	2807.6	2807.6	2654.1

Confidence Level

Confidence Level of cost estimate for current APB: 54%

The Life-Cycle Cost Estimate (LCCE) confidence level of 54% reflects the expected value, or mean, of the cost estimate distribution. It takes into consideration relevant risks, including ordinary levels of external and unforeseen events, aiming to provide sufficient resources to execute the program under normal conditions encountering average levels of technical, schedule, and programmatic risk and external influence.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	31	31	24
Total	31	31	24

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	1145.9	0.0	0.0	0.0	0.0	0.0	15.0	0.0	1160.9
Procurement	678.1	194.3	188.8	230.9	106.8	61.5	32.8	0.0	1493.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	1824.0	194.3	188.8	230.9	106.8	61.5	47.8	0.0	2654.1
PB 2015 Total	1825.7	163.3	185.5	206.4	142.9	61.1	87.2	0.0	2672.1
Delta	-1.7	31.0	3.3	24.5	-36.1	0.4	-39.4	0.0	-18.0

Funding Notes

Procurement line includes BP16 Initial Spares

Funding for this modification is located in two P-1 Line Item Numbers. AWACS Block 40/45 funding had previously been contained in Weapon System Code (WSC) E00300, but as part of the Major Programs Transparency Initiative and starting in FY15, the AWACS Block 40/45 Upgrade (MDAP) was moved to WSC E34045. Prior year funding remains in WSC E00300.

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	13	5	2	4	0	0	0	0	24
PB 2016 Total	0	13	5	2	4	0	0	0	0	24
PB 2015 Total	0	13	3	2	3	3	0	0	0	24
Delta	0	0	2	0	1	-3	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	--	0.9
2000	--	--	--	--	--	--	14.2
2001	--	--	--	--	--	--	10.1
2002	--	--	--	--	--	--	17.8
2003	--	--	--	--	--	--	116.0
2004	--	--	--	--	--	--	193.0
2005	--	--	--	--	--	--	243.7
2006	--	--	--	--	--	--	106.3
2007	--	--	--	--	--	--	127.9
2008	--	--	--	--	--	--	90.7
2009	--	--	--	--	--	--	69.9
2010	--	--	--	--	--	--	50.1
2011	--	--	--	--	--	--	85.1
2012	--	--	--	--	--	--	5.8
2013	--	--	--	--	--	--	3.1
2014	--	--	--	--	--	--	11.3
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	15.0
Subtotal	--	--	--	--	--	--	1160.9

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	--	1.1
2000	--	--	--	--	--	--	17.6
2001	--	--	--	--	--	--	12.4
2002	--	--	--	--	--	--	21.6
2003	--	--	--	--	--	--	138.6
2004	--	--	--	--	--	--	224.9
2005	--	--	--	--	--	--	276.9
2006	--	--	--	--	--	--	117.2
2007	--	--	--	--	--	--	137.4
2008	--	--	--	--	--	--	95.5
2009	--	--	--	--	--	--	72.7
2010	--	--	--	--	--	--	51.4
2011	--	--	--	--	--	--	85.8
2012	--	--	--	--	--	--	5.7
2013	--	--	--	--	--	--	3.0
2014	--	--	--	--	--	--	10.8
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	12.9
Subtotal	--	--	--	--	--	--	1285.5

Annual Funding								
3010 Procurement Aircraft Procurement, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2008	--	--	0.2	2.4	2.6	--	2.6	
2009	1	32.5	15.3	13.4	61.2	2.9	64.1	
2010	2	45.7	6.5	12.1	64.3	0.5	64.8	
2011	3	112.8	20.3	29.4	162.5	2.8	165.3	
2012	5	105.9	8.5	3.8	118.2	3.6	121.8	
2013	--	--	66.0	71.4	137.4	5.4	142.8	
2014	2	66.7	8.3	39.4	114.4	2.3	116.7	
2015	5	91.6	55.4	44.3	191.3	3.0	194.3	
2016	2	89.1	6.5	87.7	183.3	5.5	188.8	
2017	4	115.8	43.5	67.1	226.4	4.5	230.9	
2018	--	51.0	5.2	47.4	103.6	3.2	106.8	
2019	--	25.1	5.0	28.1	58.2	3.3	61.5	
2020	--	26.3	2.0	1.2	29.5	3.3	32.8	
Subtotal	24	762.5	242.7	447.7	1452.9	40.3	1493.2	

Annual Funding 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2008	--	--	0.2	2.5	2.7	--	2.7
2009	1	33.3	15.6	13.7	62.6	3.0	65.6
2010	2	45.9	6.5	12.2	64.6	0.5	65.1
2011	3	111.4	20.1	29.0	160.5	2.8	163.3
2012	5	103.0	8.2	3.7	114.9	3.5	118.4
2013	--	--	62.7	68.0	130.7	5.1	135.8
2014	2	62.4	7.8	36.8	107.0	2.2	109.2
2015	5	84.4	51.1	40.8	176.3	2.8	179.1
2016	2	80.6	5.9	79.3	165.8	5.0	170.8
2017	4	102.8	38.6	59.5	200.9	4.0	204.9
2018	--	44.4	4.5	41.2	90.1	2.8	92.9
2019	--	21.4	4.3	24.0	49.7	2.8	52.5
2020	--	22.0	1.7	1.0	24.7	2.7	27.4
Subtotal	24	711.6	227.2	411.7	1350.5	37.2	1387.7

Cost Quantity Information		
3010 Procurement Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 \$M
2008	--	--
2009	1	33.3
2010	2	45.9
2011	3	111.4
2012	5	103.0
2013	--	--
2014	2	62.4
2015	5	105.8
2016	2	103.4
2017	4	146.4
2018	--	--
2019	--	--
2020	--	--
Subtotal	24	711.6

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	11/24/2008	11/24/2008
Approved Quantity	6	6
Reference	Milestone C ADM	Milestone C ADM
Start Year	2009	2009
End Year	2014	2014

The Current Total LRIP Quantity is more than 10% of the total production quantity due to operational requirements.

Air Combat Command identified a requirement for five AWACS Block 40/45 modified aircraft for declaration of IOC. The program office requested an LRIP quantity of six, utilizing the first modified aircraft as a risk reduction effort to streamline the process of combining a major upgrade with Programmed Depot Maintenance.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

Unit Cost Report

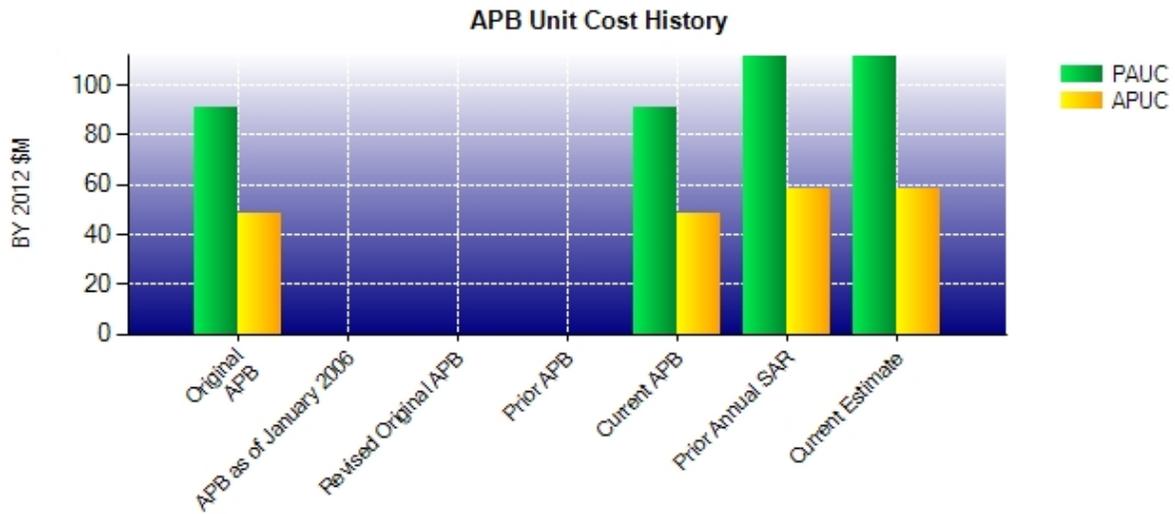
Item	BY 2012 \$M	BY 2012 \$M	% Change
	Current UCR Baseline (May 2013 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	2822.4	2673.2	
Quantity	31	24	
Item	91.045	111.383	+22.34¹
Average Procurement Unit Cost			
Cost	1503.4	1387.7	
Quantity	31	24	
Unit Cost	48.497	57.821	+19.23¹

Item	BY 2012 \$M	BY 2012 \$M	% Change
	Original UCR Baseline (May 2013 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	2822.4	2673.2	
Quantity	31	24	
Unit Cost	91.045	111.383	+22.34
Average Procurement Unit Cost			
Cost	1503.4	1387.7	
Quantity	31	24	
Unit Cost	48.497	57.821	+19.23

¹ Nunn-McCurdy Breach

Significant Unit Cost Breach of both the AWACS Block 40/45 Upgrade Program PAUC and APUC previously reported in December 2013 SAR report. Congress directed the Air Force to retain a 31 aircraft AWACS operational fleet. The AWACS Block 40/45 Upgrade program remains funded for a fleet size of 24. In the FY 2016 PB, the Air Force re-phased the E-3 force reduction of seven aircraft to FY 2019. The AWACS Block 40/45 Upgrade program is already positioned in accordance with the planned FY 2019 divestiture; therefore, the program will continue to execute to a baseline of 24 aircraft. The System Program Office continues to be aggressive in controlling AWACS Block 40/45 Upgrade Program costs.

Unit Cost History



Item	Date	BY 2012 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2013	91.045	48.497	90.568	52.110
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	May 2013	91.045	48.497	90.568	52.110
Prior Annual SAR	Dec 2013	111.483	57.854	111.338	62.900
Current Estimate	Dec 2014	111.383	57.821	110.588	62.217

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
90.568	0.058	15.624	-0.912	0.000	5.408	0.000	-0.158	20.020	110.588

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
52.110	0.021	4.407	-0.217	0.000	6.054	0.000	-0.158	10.107	62.217

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	Jul 2003	Jul 2003
Milestone C	N/A	N/A	Jan 2009	Jan 2009
IOC	N/A	N/A	Apr 2014	Jan 2014
Total Cost (TY \$M)	N/A	N/A	2807.6	2654.1
Total Quantity	N/A	N/A	31	24
PAUC	N/A	N/A	90.568	110.588

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1192.2	1615.4	--	2807.6
Previous Changes				
Economic	+1.2	+11.3	--	+12.5
Quantity	--	-259.0	--	-259.0
Schedule	-16.7	+6.5	--	-10.2
Engineering	--	--	--	--
Estimating	-14.2	+142.5	--	+128.3
Other	--	--	--	--
Support	--	-7.1	--	-7.1
Subtotal	-29.7	-105.8	--	-135.5
Current Changes				
Economic	-0.3	-10.8	--	-11.1
Quantity	--	--	--	--
Schedule	--	-11.7	--	-11.7
Engineering	--	--	--	--
Estimating	-1.3	+2.8	--	+1.5
Other	--	--	--	--
Support	--	+3.3	--	+3.3
Subtotal	-1.6	-16.4	--	-18.0
Total Changes	-31.3	-122.2	--	-153.5
CE - Cost Variance	1160.9	1493.2	--	2654.1
CE - Cost & Funding	1160.9	1493.2	--	2654.1

Summary BY 2012 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1319.0	1503.4	--	2822.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	-227.1	--	-227.1
Schedule	-17.9	--	--	-17.9
Engineering	--	--	--	--
Estimating	-14.0	+119.5	--	+105.5
Other	--	--	--	--
Support	--	-7.3	--	-7.3
Subtotal	-31.9	-114.9	--	-146.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-6.4	--	-6.4
Engineering	--	--	--	--
Estimating	-1.6	+2.7	--	+1.1
Other	--	--	--	--
Support	--	+2.9	--	+2.9
Subtotal	-1.6	-0.8	--	-2.4
Total Changes	-33.5	-115.7	--	-149.2
CE - Cost Variance	1285.5	1387.7	--	2673.2
CE - Cost & Funding	1285.5	1387.7	--	2673.2

Previous Estimate: December 2013

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.3
Revised estimate due to contract cost under runs. (Estimating)	-1.7	-1.7
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Revised estimate to reflect the application of new out year escalation index. (Estimating)	+0.2	+0.2
\$15.028M incorrectly added to Block 40/45 funding line in FY 2020. There is an action in the FY 2017 POM to move these funds to the correct funding line within the AWACS PE. (Estimating)	-0.2	+0.1
RDT&E Subtotal	-1.6	-1.6

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-10.8
Acceleration of procurement buy profile of 3 production kits from FY 2018 to FY 2015 & 2017. 2 kits were added to FY 2015 and 1 kit added to FY 2017. (Schedule)	0.0	-4.4
Additional funding received in FY 2015 allowed for acceleration of the production Kit buys and reduced cost of engineering and production support in later years (Schedule)	-6.4	-7.3
Adjustment for current and prior escalation. (Estimating)	+2.7	+2.8
Adjustment for current and prior escalation. (Support)	+0.2	+0.2
Adjustment to initial spares requirement for future DMS version. (Support)	+2.7	+3.1
Procurement Subtotal	-0.8	-16.4

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: AWACS 40/45 Upgrade Program Full Rate Production
Contractor: The Boeing Company
Contractor Location: P.O. Box 3707
 Seattle, WA 98124-2207
Contract Number: F19628-01-D-0016/26
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 27, 2012
Definitization Date: December 27, 2012

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
137.3	142.5	N/A	178.2	187.0	N/A	178.2	168.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of Next Generation Identify Friend or Foe Integration and FRP Shipset #12 & 13.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/22/2014)	+3.1	-2.1
Previous Cumulative Variances	+4.1	-0.8
Net Change	-1.0	-1.3

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the unforeseen complexity involved in upgrading the software operating system from 32 bit to 64 bit. This has been somewhat offset by favorable performance in the shipset #1 CLIN due to work being outsourced.

The unfavorable net change in the schedule variance is due to incomplete delivery of Group of Parts (GOP) 2. The contractor cannot take full credit for GOP delivery until the new 64-bit software and rotatable Titanium Ducts are delivered to depot.

Notes

Earned Value Management Data is received only for specific CLINs listed below representing \$178.2M, 61% of the total contract value.

CLIN 3300 Engineering Support to DMS Upgrade
CLIN 3606 FRP #1 Shipsets for aircraft P7 - P11
CLIN 3608 Life of Type Buy
CLIN 3613 FRP Shipsets # P12 & P13
CLIN 3302 Next Generation Identify Friend or Foe Integration

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	6	6	24	25.00%
Total Program Quantity Delivered	6	6	24	25.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	2654.1	Years Appropriated	17
Expended to Date	1422.4	Percent Years Appropriated	77.27%
Percent Expended	53.59%	Appropriated to Date	2018.3
Total Funding Years	22	Percent Appropriated	76.04%

The above data is current as of January 31, 2015.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	November 06, 2012
Source of Estimate:	SCP
Quantity to Sustain:	24
Unit of Measure:	Aircraft
Service Life per Unit:	25.00 Years
Fiscal Years in Service:	FY 2011 - FY 2035

O&S cost estimate update pending. Awaiting results of Product Support Business Case Analysis (PSBCA) that may alter sustainment strategy. Anticipated completion date of updated O&S estimate May 2015.

Sustainment Strategy

- Production will leave the AWACS fleet with two Commercial Off The Shelf (COTS) Diminishing Manufacturing Sources (DMS) versions (DMS 3.0 and DMS 4.0) going into the O&S phase
- DMS tech refresh every 5 years starting in FY 2019 through life of program
- O&S COTS procured with 3400 funding
- O&S COTS installed by Air Logistics Complex (ALC) during Programmed Depot Maintenance or a dedicated modification installation line
- Software maintained organically with contractor support/partnership
- COTS, active DMS and DMS refreshes done with contractor partnership
- No modifications or capability upgrades included other than planned DMS tech refresh

Antecedent Information

The AWACS Block 30/35 O&S cost is based on historical Block 30/35 O&S cost projected through 2035. Used for comparison to Block 40/45 O&S cost. Assumes the Block 30/35 can be maintained through 2035 and assumes no major DMS issues (Status Quo). Block 30/35 cost was obtained from the Air Force Total Ownership Cost database for a period of 2007-2011. The data was normalized to Base Year 2012 and projected out through 2035.

Cost Element	Annual O&S Costs BY2012 \$M	
	AWACS Blk 40/45 Upgrade Average Annual Cost Per Aircraft	AWACS Blk 30/35 (Antecedent) Average Annual Cost Per Aircraft
Unit-Level Manpower	0.000	11.733
Unit Operations	0.000	6.162
Maintenance	0.965	8.318
Sustaining Support	0.555	1.203
Continuing System Improvements	0.181	0.737
Indirect Support	0.000	3.583
Other	0.000	0.000
Total	1.701	31.736

AWACS Block 40/45 Upgrade Program Yearly Average per Aircraft costs represent the additional funding required per aircraft when compared to the antecedent AWACS Block 30/35 yearly average per Aircraft O&S costs. Thus, these costs are due solely to the AWACS Block 40/45 Upgrade.

Item	Total O&S Cost \$M			
	AWACS Blk 40/45 Upgrade		AWACS Blk 30/35 (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	1064.8	1171.2	1020.8	19041.1
Then Year	1377.8	N/A	1378.0	N/A

The AWACS Block 40/45 Upgrade Program Current Estimate is the delta cost from the AWACS Block 30/35 (Antecedent) Current Estimate, reflecting the total O&S cost of the AWACS Enterprise.

Equation to Translate Annual Cost to Total Cost

Average annual cost per AWACS aircraft (24) (entire fleet). Calculated by taking the total AWACS system cost and dividing by the life of the platform (2011-2035, 25 years) and then dividing by the total quantity of aircraft (24).

O&S Cost Variance		
Category	BY 2012 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2013 SAR	1020.8	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	1020.8	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 \$M):

There are no disposal costs associated specifically with the AWACS Block 40/45 Upgrade.