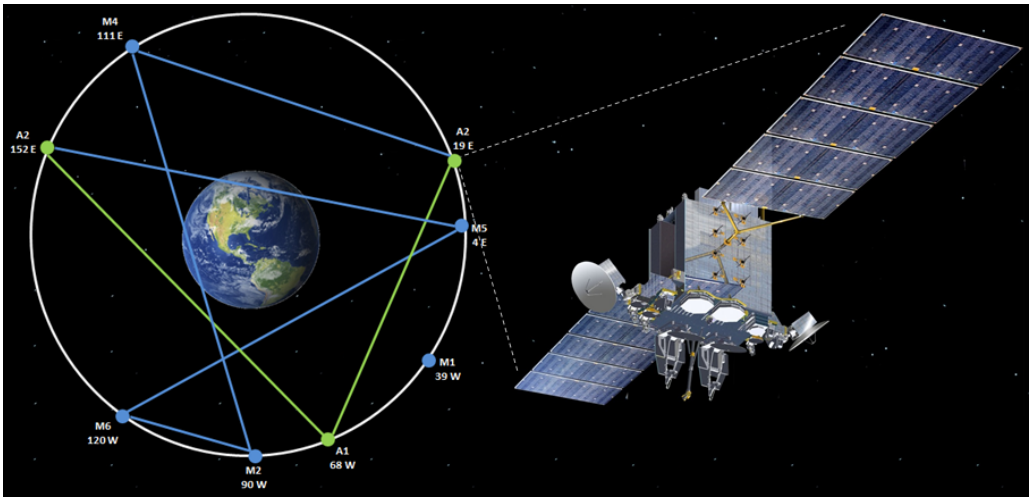
Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-261



Advanced Extremely High Frequency Satellite (AEHF)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

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

Advanced Extremely High Frequency Satellite (AEHF)

DoD Component

Air Force

Joint Participants

Canada; The Netherlands; United Kingdom

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Date Assigned: February 10, 2014

References

AEHF SV 1-4

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 3, 2005

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 31, 2014

AEHF SV 5-6

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 23, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 23, 2012

Mission and Description

Advanced Extremely High Frequency Satellite (AEHF) is a joint service satellite communications system that provides global, survivable, secure, protected, and jam-resistant communications for high priority military ground, sea, and air assets. The system consists of four satellites in Geosynchronous Earth Orbit that provide 10 times the capacity of the 1990s-era Milstar Block II satellites. The system provides continuous 24-hour Extremely High Frequency Extended Data Rate coverage between 65 degrees north and 65 degrees south latitude. AEHF allows the National Security Council and Combatant Commanders to control their tactical and strategic forces at all levels of conflict up to and including general nuclear war, and it supports the attainment of information superiority.

The AEHF operational system is composed of three segments: space, terminals, and mission control. The space segment consists of a cross-linked constellation of satellites to provide worldwide coverage. The terminal segment includes fixed and mobile ground terminals, ship and submarine terminals, and airborne terminals. The mission control segment controls satellites on orbit, monitors satellite health, and provides communication system planning and monitoring. This segment is also survivable, with both fixed and mobile control stations.

International Cooperative Program – The three countries that have signed Memoranda of Understanding are as follows: Canada, November 16, 1999; the Netherlands, November 8, 2002; and the United Kingdom, September 9, 2003. These bilateral agreements allocate a portion of protected communication resources in exchange for financial participation in development. The Netherlands, Canada, and the United Kingdom signed Memoranda of Understanding in preparation for entering into a Foreign Military Sales case to purchase International Partnership variants of AEHF terminals.

Executive Summary

Program Highlights Since Last Report

The Advanced Extremely High Frequency (AEHF) program had many noteworthy achievements in 2015. The system met all ORD requirements and AEHF IOC was declared on July 28, 2015 allowing operators to transition from limited use to full operations and increasing the number of users/missions on the system, which is within the APB threshold of December 2015. AEHF-1/2/3 are fully integrated into the Milstar/AEHF constellation and performing well with AEHF-1 operating from 68 degrees West (covering the Eastern United States), AEHF-2 operating from 19 degrees East as of October 21, 2015 (covering Western Europe and Africa), and AEHF-3 operating from 152 degrees East (covering the Pacific Ocean). In an effort to provide better support to operational users, the 2015 constellation reconfiguration plan providing better support to operational users (AEHF-2 repositioning to 19 degrees East from 16.5 degrees West, AEHF-1 and AEHF-3 remaining in their current location) was approved June 10, 2015.

The AEHF-4 satellite bus is 91% complete and the payload is 85% complete. On October 14, 2014, Northrop Grumman delivered the payload to the AEHF prime contractor, Lockheed Martin, over four months ahead of the baseline schedule for Payload Integration and Test. The Payload Module and Core Module have been successfully mated, marking the beginning of single line flow integration and testing well ahead of the baseline schedule. Launch availability for AEHF-4 is on track for the 2nd Quarter of CY 2017.

AEHF 5-6 production has steadily progressed since contract definitization on October 31, 2013, with a value of $2.2B. The Lockheed Martin satellite buses for the combined AEHF 5-6 effort are 73% complete and the Northrop Grumman payloads for the combined effort are 69% complete. Launch availability for AEHF-5 and AEHF-6 are on track for CY 2018 and CY 2019, respectively.

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

History of Significant Developments Since Program Initiation

May 1999: The DAE signed the Milestone I ADM approving entry into Phase I, System Definition.

August 1999: Two competitive System Definition contracts were awarded to Lockheed/TRW (now Northrop Grumman) and Hughes (now Boeing Satellite Systems) teams. Following the System Requirements Review and the Milstar flight 3 launch failure, the AEHF competition was re-established into a National Team consisting of all three contractors with Lockheed as the prime integration contractor. A “pathfinder” concept was put into effect to mitigate the loss of Milstar 3 capability. This concept included the acceleration of a Milstar II capable AEHF satellite followed by delivery of four additional fully capable AEHF satellites.

May 26, 2000: An ADM was approved by USD(AT&L) that authorized a sole source Firm Fixed Price pathfinder concept award to a team of contractors.

FY 2002: Due to fiscal constraints the program was initially broken into two production cycles. The first cycle consisted of AEHF-1 & -2 and the Mission Control Segment (MCS) development for an FY 2008 IOC. The second cycle included AEHF-3, -4, & -5 production for a FOC in FY 2012. After FY 2002 Congressional reductions and the initiation of the Transformational Communications Satellite (TSAT) program, the Deputy Secretary of Defense directed a change to the acquisition strategy in December 2002 removing AEHF-4 & -5 from the baseline.

December 2002: The contract launch dates for AEHF-1 & -2 were December 2006 and December 2007, and AEHF-3 was projected to be launched in April 2009. The definitized contract breached the APB IOC schedule threshold and overall program cost. An updated APB incorporating the new August 2009 IOC and revised strategy was signed in December 2002.

March 2005: A revised APB to include the launch slip and approval of AEHF-3 procurement was signed. Due to funding

constraints, the FY 2004 PB introduced a one-year production gap between AEHF-2 and AEHF-3. In addition to the cost of delaying AEHF-3 production, other subsequent cost drivers, including payload hardware testing, information assurance product delivery delays and replacement of critical electronic parts, drove a one-year launch delay. A Nunn-McCurdy significant unit cost breach was sent to Congress on December 2, 2004.

May 2007: The AEHF-1 & -2 and MCS developments were well underway. The program successfully completed run-for-record intersegment tests for AEHF/Milstar compatibility and Lockheed Martin also successfully demonstrated the ability of the AEHF Satellite Mission Control Subsystem to command and control the AEHF payload engineering model and the Interim Command and Control (C2) Terminal for Milstar.

September 2008: A Nunn-McCurdy critical unit cost breach notification occurred on September 5, 2008 due to the addition of AEHF-4 to the program and the AEHF-1 & -2 launch slips' cascading cost and schedule impacts on AEHF-3. The Government had concluded the production gap of four years for AEHF-4 would cause significant cost impacts to obsolescence issues such as Monolithic Microwave Integrated Circuits. The Nunn-McCurdy breach was caused by additional funding required for obsolescence, a seven-month schedule delay due to AEHF-1 hardware issues, additional Thermal Vacuum tests, greater than expected AEHF-1 & -2 integration costs, and an overall IOC schedule slip. The USD (AT&L) signed an ADM on December 29, 2008 certifying the AEHF program to proceed with a fully-funded four-satellite baseline. The ADM established new launch dates of September 2010, 2011, 2012, and 2016.

June 2009: After the cancellation of the TSAT program, the DoD directed the procurement of additional AEHF satellites. The AEHF-4 contract was awarded for $1.4B in December 2010, and the MDA approved the AEHF 1-4 APB in June 2011. In December 2011, The MDA approved the AEHF 5-6 Acquisition Strategy as a DoD Efficient Space Procurement, and the APB designating AEHF 5-6 as a sub-program was approved by the MDA October 23, 2012. On October 31, 2013 the Fixed Price Incentive Fee contract was definitized for the block buy of AEHF 5-6.

May 2010: The AEHF program office completed the C2 transition of the five-satellite Milstar constellation from a legacy C2 system to the new AEHF C2 system. In December 2011 an Interim Contractor Support contract was awarded to Lockheed Martin to provide sustainment of the space and ground segments until IOC is achieved.

August 2010: AEHF-1 was successfully launched from Cape Canaveral Air Force Station (CCAFS) on August 14, 2010. AEHF-1 experienced an anomaly that resulted in the failure of a Liquid Apogee Engine. Orbit raising was completed using the Reaction Engine Assemblies on October 24, 2011 after a 14-month effort. Satellite Control Authority (SCA) was transferred on March 12, 2012.

May 2012: AEHF-2 was successfully launched from CCAFS on May 4, 2012 and the space vehicle successfully completed on-orbit testing on September 24, 2012. SCA was transferred on November 7, 2012.

September 2013: AEHF-3 was successfully launched from CCAFS on September 18, 2013.

October 2013: AEHF 5-6 contract definitized with a value of $2.2B on October 31, 2013.

January 2014: AEHF-3 space vehicle arrived on-orbit and successfully completed on-orbit testing on January 6, 2014.

March 2014: SCA was completed on March 21, 2014.

May 2014: U.S. Strategic Command declared early operational use of AEHF-1, 2, and 3 on May 12 2014. All three satellites fully integrated into the Milstar constellation.

October 2014: On October 16, 2014, the program received PEO certification for the systems (ground and space vehicle) to enter Air Force Operational Test and Evaluation Center System Dedicated Operational Test which began November 3, 2014 and ran through mid-January 2015.

January 2015: Multi-service Operational Test and Evaluation (MOT&E) completed on January 16, 2015 and AEHF-3 began repositioning from its interim (MOT&E) location of 155 degrees West on January 21, 2015.

March 2015: AEHF-3 arrived at its new operating location of 152 degrees East (covering the Western Pacific Ocean) on

March 18, 2015.

July 2015: Air Force Space Command Commander declared AEHF IOC on July 28, 2015.

September 2015: USD(AT&L) redesignated AEHF as an ACAT IC on September 11, 2015.

October 2015: AEHF-2 arrived at its new operating location of 19 degrees East (covering Western Europe and Africa) on October 21, 2015.

Threshold Breaches

AEHF SV 1-4

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

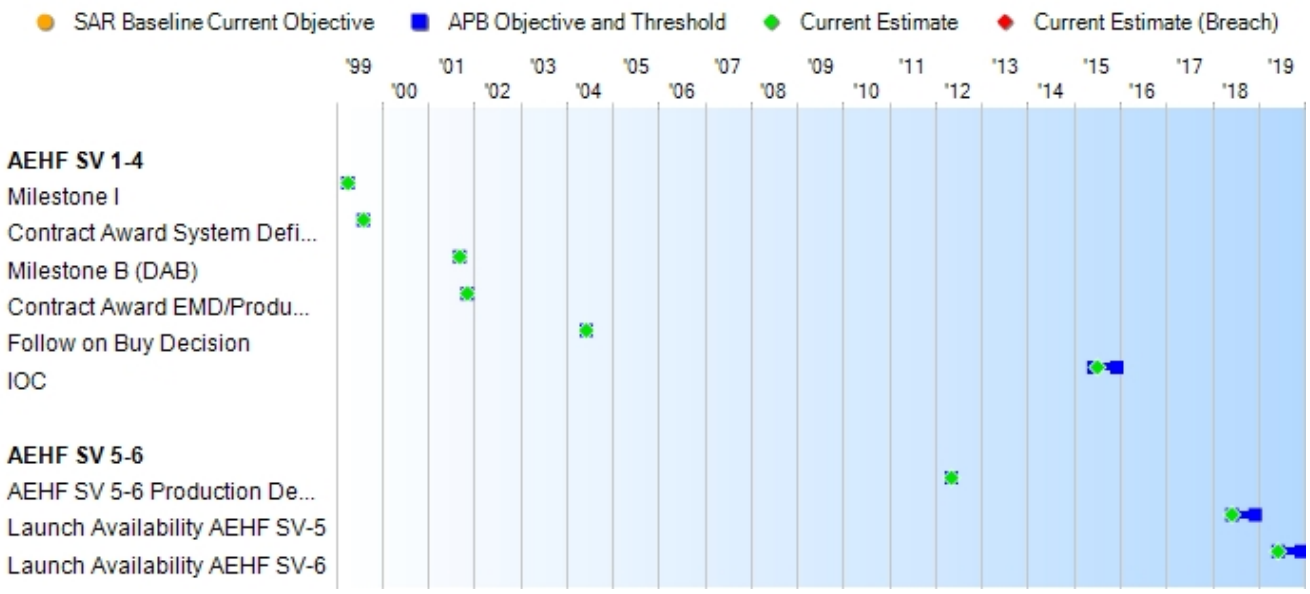
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

AEHF SV 5-6

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

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

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
'15
'16
'17
'18
'19
AEHF SV 1-4
Milestone I
Contract Award System Defi...
Milestone B (DAB)
Contract Award EMD/Produ...
Follow on Buy Decision
IOC
AEHF SV 5-6
AEHF SV 5-6 Production De...
Launch Availability AEHF SV-5
Launch Availability AEHF SV-6

AEHF SV 1-4

Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone I	Apr 1999	Apr 1999	Apr 1999	Apr 1999	
Contract Award System Definition	Aug 1999	Aug 1999	Aug 1999	Aug 1999	
Milestone B (DAB)	Jun 2001	Sep 2001	Sep 2001	Sep 2001	
Contract Award EMD/Production	Jun 2001	Nov 2001	Nov 2001	Nov 2001	
Follow on Buy Decision	Jun 2004	Jun 2004	Jun 2004	Jun 2004	
IOC	Jun 2010	Jun 2015	Dec 2015	Jul 2015	(Ch-1)

Change Explanations

(Ch-1) IOC current estimate changed from June 2015 to July 2015 to reflect the actual IOC of July 28, 2015.

Notes

The IOC milestone is defined in the AEHF ORD dated October 1, 2000 and addresses the capability at the time satellite two is operational. It also includes missions supported, networks active and two separate satellites operating in the AEHF mode. The operational control segment consists of one fixed and one transportable control element and an interim fully operational communications management system.

Mission Planning Element Release 7.5 and AEHF Satellite Mission Control System Release 7.5.1 completed Multi-service Operational Test and Evaluation on January 16, 2015. Both releases were utilized for AEHF system IOC declaration in CY 2015.

AEHF SV 5-6

Schedule Events				
Events	**SAR Baseline Production Estimate**	**Current APB Production Objective/Threshold**		**Current Estimate**
AEHF SV 5-6 Production Decision	May 2012	May 2012	May 2012	May 2012
Launch Availability AEHF SV-5	Jun 2018	Jun 2018	Dec 2018	Jun 2018
Launch Availability AEHF SV-6	Jun 2019	Jun 2019	Dec 2019	Jun 2019

Change Explanations

None

Notes

Launch Availability is defined as all factory work completed and satellite readied for shipment to the launch base.

Performance

AEHF SV 1-4

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Capacity				
1.2 Gbps CMTW, 600 Mbps Strategic	1.2 Gbps CMTW, 600 Mbps Strategic	Support at least 500 Mbps for CMTW Scenario and at least 350 Mbps for Strategic Scenario	1.0 Gbps CMTW Scenario, 600 Mbps Strategic Scenario - verified required capability as part of system requirement sell-off prior to AEHF-1 launch	1.2 Gbps CMTW, 600 Mbps Strategic
Nuclear Protection				
Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch.	Provide assured communications to survivable nuclear forces exposed to the environment specified in NCGS-89-06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direction, force management, and planning
Access and Control				
Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direct-ion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direc-tion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direc-tion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch. Demonstrated LDR operationally ready capability in AEHF-1 on-orbit test	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direction, force management, & planning shall not be disrupted by communications configuration changes to noncritical functions.

noncritical functions	noncritical functions	noncritical functions		
Interoperability				
AEHF Interopera-bility				
Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch. Demonstrated operationally ready capability in AEHF-1 on-orbit test.	Support joint interoperable warfighter communications among all military branches EHF terminals
Milstar Backward Compatible				
Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Verified required capability as part of system requirement sell-off prior to AEHF-1 launch. Demonstrated operationally ready capability in AEHF-1 on-orbit test.	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system

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

Requirements Reference

ORD dated October 1, 2000

Change Explanations

None

Notes

Performance Characteristics are the same on the AEHF 1-4 and 5-6 subprograms.

The program completed Multi-service Operational Test and Evaluation in January 2015.

Acronyms and Abbreviations

AEHF - Advanced Extremely High Frequency
AFOTEC - Air Force Operational Test and Evaluation Center
CMTW - Combined Major Theater Warfare
EHF - Extremely High Frequency
Gbps - Giga bytes per second
LDR - Low Data Rate
Mbps - Mega bytes per second
MCS - Mission Control Segment
MDR - Medium Data Rate
Milstar - Military Strategic and Tactical Relay
NCGS - Nuclear Criteria Group Secretariat
OUE - Operational Utility Evaluation

AEHF SV 5-6

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Capacity				
1.2 Gbps CMTW, 600 Mbps Strategic	1.2 Gbps CMTW, 600 Mbps Strategic	Support at least 500 Mbps for CMTW Scenario and at least 350 Mbps for Strategic Scenario	1.0 Gbps CMTW Scenario, 600 Mbps Strategic Scenario - verified required capability as part of system requirement sell-off prior to AEHF-1 launch	1.2 Gbps CMTW, 600 Mbps Strategic
Nuclear Protection				
Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Provide assured communicat-ions to survivable nuclear forces exposed to the environment specified in NCGS-89 -06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direc-tion, force manage-ment, and planning	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch.	Provide assured communications to survivable nuclear forces exposed to the environment specified in NCGS-89-06, and for those critical networks that support the following critical functions: situation monitoring, decision making, force direction, force management, and planning.
Access and Control				
Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direct-ion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to noncritical functions	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direct-ion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to noncritical functions	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direct-ion, force manage-ment, & planning shall not be disrupted by communicat-ions configuration changes to noncritical functions	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch. Demonstrated LDR operationally ready capability in AEHF-1 on-orbit test	Provide users ability to plan, control, & reconfigure their apportioned resources; critical functions such as situation monitoring, decision making, force direction, force management, & planning shall not be disrupted by communications configuration changes to noncritical functions.
AEHF Interoperability				

Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Support joint interop-erable war-fighter communicat-ions among all military branches EHF terminals	Verified required capability as part of system requirement sell-off prior to AEHF-2 launch. Demonstrated operationally ready capability in AEHF-1 on-orbit test	Support joint interoperable war-fighter communications among all military branches EHF terminals
Milstar Backward Compatible				
Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system	Verified required capability as part of system requirement sell-off prior to AEHF-1 launch. Demonstrated operationally ready capability in AEHF-1 on-orbit test	Operate with the Milstar system, at all LDR and MDR terminal supported data rates, throughout the Milstar transition to the AEHF system

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

Requirements Reference

Operational Requirements Document (ORD), dated October 1, 2000

Change Explanations

None

Notes

Performance Characteristics are the same on the AEHF 1-4 and 5-6 subprograms.

The program completed Multi-service Operational Test and Evaluation in January 2015. A final report of AFOTEC's assessment of Dedicated Operational Test will be available 90 days after the conclusion of testing.

Acronyms and Abbreviations

AFOTEC - Air Force Operational Test and Evaluation Center
CMTW - Combined Major Theater Warfare
EHF - Extremely High Frequency
Gbps - Giga bytes per second
LDR - Low Data Rate
Mbps - Mega bytes per second
MCS - Mission Control Segment
MDR - Medium Data Rate
Milstar - Military Strategic and Tactical Relay
NCGS - Nuclear Criteria Group Secretariat
OUE - Operational Utility Evaluation

Track to Budget

AEHF SV 1-4

General Notes

RDT&E is associated with AEHF Space Vehicles (SV) 1 and 2 and procurement is associated with AEHF SV 3 and 4.

In December 2014, the Office of Management and Budget directed the DoD to establish a new space procurement appropriation as a five-year availability account. Beginning in FY 2016, Air Force major procurement funding formerly under appropriation 3020F (Missile Procurement, Air Force) BA 05 will now be under 3021F (Space Procurement, Air Force) BA 01.

RDT&E

Appn		BA	PE	
Air Force	3600	04	0603430F	
	Project		**Name**	
	644050		AEHF Military Satellite Communications (MILSATCOM) (Space)	(Sunk)
Air Force	3600	05	0605431F	
	Project		**Name**	
	657103		AEHF MILSATCOM (Space)	
	Notes:		FY 2013 only	
	657104		Evolved AEHF MILSATCOM (EAM)	(Shared)
	Notes:		FY 2012, FY 2014 - 2019 only	

Procurement

Appn		BA	PE	
Air Force	3020	05	0303604F	
	Line Item		**Name**	
	ADV555		Advanced EHF	(Sunk)
Air Force	3021	01	0303604F	
	Line Item		**Name**	
	ADV555		Advanced EHF	

Notes

Due to the creation of a new appropriation for Space Procurement (3021), Satellite Vehicle quantities are accounted for under 3020 annual funding section.

AEHF SV 5-6

General Notes

In December 2014, the Office of Management and Budget directed the DoD to establish a new space procurement appropriation as a five-year availability account. Beginning in FY 2016, Air Force major procurement funding formerly under appropriation 3020F (Missile Procurement, Air Force) BA 05 will now be under 3021F (Space Procurement, Air Force) BA 01.

RDT&E

Appn		BA	PE
Air Force	3600	04	0603430F

Project	Name		
644050	AEHF MILSATCOM (Space)		(Sunk)
	Notes: FY 2011 only		
64A030	Evolved AEHF MILSATCOM (EAM)	(Shared)	(Sunk)
	Notes: FY 2013 only		

Appn		BA	PE
Air Force	3600	05	0605431F

Project	Name		
657104	Evolved AEHF MILSATCOM (EAM)	(Shared)	(Sunk)
	Notes: FY 2014 - 2015 only		

Notes

Projects 64A030 and 657104 also fund the Military Satellite Communications (MILSATCOM) Space Modernization Initiative. AEHF RDT&E funding is for the AEHF SV 6 KI-54D cryptographic device. Project 644050 is FY 2011 only. Project 64A030 is FY 2013 only. Project 657104 is for FY 2014 - 2015 only.

Procurement

Appn		BA	PE
Air Force	3020	05	0303604F

Line Item	Name	
ADV555	Advanced EHF	(Sunk)

Appn		BA	PE
Air Force	3021	01	0303604F

Line Item	Name
ADV555	Advanced EHF

Notes

Due to the creation of a new appropriation for Space Procurement (3021), satellite vehicle (SV) quantities are accounted for under 3020 annual funding section.

Cost and Funding

Cost Summary - Total Program

Total Acquisition Cost - Total Program							
Appropriation	BY 2002 $M			BY 2002 $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	5282.8	6489.3	--	6880.7	5542.2	7117.8	7631.0
Procurement	3233.0	5311.1	--	4614.2	4031.7	6565.5	5709.7
Flyaway	--	--	--	4614.2	--	--	5709.7
Recurring	--	--	--	4614.2	--	--	5709.7
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
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	8515.8	11800.4	N/A	11494.9	9573.9	13683.3	13340.7

Cost and Funding

Cost Summary - AEHF SV 1-4

Total Acquisition Cost - AEHF SV 1-4							
Appropriation	BY 2002 $M			BY 2002 $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	5223.7	6430.2	7073.2	6830.3	5468.4	7044.0	7567.8
Procurement	577.0	2655.1	2920.6	2567.5	617.3	3151.1	3054.4
Flyaway	--	--	--	2567.5	--	--	3054.4
Recurring	--	--	--	2567.5	--	--	3054.4
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
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	5800.7	9085.3	N/A	9397.8	6085.7	10195.1	10622.2

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The ICE) that supports the AEHF SV 1-4, like all life-cycle cost estimates previously performed by CAPE, is built upon a product-oriented work breakdown structure, which is based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and Government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for MDAPs. Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Total Quantity - AEHF SV 1-4			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	1	2	2
Total	3	4	4

Cost Summary - AEHF SV 5-6

Total Acquisition Cost - AEHF SV 5-6							
Appropriation	BY 2002 $M			BY 2002 $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	59.1	59.1	65.0	50.4	73.8	73.8	63.2
Procurement	2656.0	2656.0	2921.6	2046.7	3414.4	3414.4	2655.3
Flyaway	--	--	--	2046.7	--	--	2655.3
Recurring	--	--	--	2046.7	--	--	2655.3
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
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	2715.1	2715.1	N/A	2097.1	3488.2	3488.2	2718.5

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The Independent Cost Estimate (ICE) to support the AEHF SV 5-6 decision, like all life-cycle cost estimates previously performed by Cost Assessment and Program Evaluation (CAPE), is built upon a product-oriented work breakdown structure, which is based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and Government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Programs. Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Cost Notes

The AEHF SV 5-6 current estimate reflects the ceiling price on SV 5/6 Fixed Price Incentive, Firm (FPIF) contract, including potential engineering change orders.

Total Quantity - AEHF SV 5-6			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	2	2	2
Total	2	2	2

Cost and Funding

Funding Summary - Total Program

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	7433.9	77.7	62.9	42.1	14.4	0.0	0.0	0.0	7631.0
Procurement	4587.6	327.4	645.6	56.9	29.3	31.2	31.7	0.0	5709.7
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 2017 Total	12021.5	405.1	708.5	99.0	43.7	31.2	31.7	0.0	13340.7
PB 2016 Total	12024.0	411.0	688.5	70.3	29.5	31.4	16.0	0.0	13270.7
Delta	-2.5	-5.9	20.0	28.7	14.2	-0.2	15.7	0.0	70.0

Cost and Funding

Funding Summary - AEHF SV 1-4

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	7370.7	77.7	62.9	42.1	14.4	0.0	0.0	0.0	7567.8
Procurement	2926.7	106.1	21.6	0.0	0.0	0.0	0.0	0.0	3054.4
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 2017 Total	10297.4	183.8	84.5	42.1	14.4	0.0	0.0	0.0	10622.2
PB 2016 Total	10307.7	170.8	58.5	13.0	0.0	0.0	0.0	0.0	10550.0
Delta	-10.3	13.0	26.0	29.1	14.4	0.0	0.0	0.0	72.2

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	2	0	0	0	0	0	0	0	2
PB 2017 Total	2	2	0	0	0	0	0	0	0	4
PB 2016 Total	2	2	0	0	0	0	0	0	0	4
Delta	0	0	0	0	0	0	0	0	0	0

Funding Summary - AEHF SV 5-6

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.2
Procurement	1660.9	221.3	624.0	56.9	29.3	31.2	31.7	0.0	2655.3
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 2017 Total	1724.1	221.3	624.0	56.9	29.3	31.2	31.7	0.0	2718.5
PB 2016 Total	1716.3	240.2	630.0	57.3	29.5	31.4	16.0	0.0	2720.7
Delta	7.8	-18.9	-6.0	-0.4	-0.2	-0.2	15.7	0.0	-2.2

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	2	0	0	0	0	0	0	0	2
PB 2017 Total	0	2	0	0	0	0	0	0	0	2
PB 2016 Total	0	2	0	0	0	0	0	0	0	2
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation - AEHF SV 1-4

Annual Funding - AEHF SV 1-4 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
1995	--	--	--	--	--	--	23.1
1996	--	--	--	--	--	--	31.0
1997	--	--	--	--	--	--	32.3
1998	--	--	--	--	--	--	34.2
1999	--	--	--	--	--	--	54.6
2000	--	--	--	--	--	--	89.8
2001	--	--	--	--	--	--	229.8
2002	--	--	--	--	--	--	494.8
2003	--	--	--	--	--	--	832.6
2004	--	--	--	--	--	--	872.7
2005	--	--	--	--	--	--	652.2
2006	--	--	--	--	--	--	647.7
2007	--	--	--	--	--	--	599.3
2008	--	--	--	--	--	--	659.1
2009	--	--	--	--	--	--	440.7
2010	--	--	--	--	--	--	456.2
2011	--	--	--	--	--	--	364.8
2012	--	--	--	--	--	--	288.3
2013	--	--	--	--	--	--	137.0
2014	--	--	--	--	--	--	205.4
2015	--	--	--	--	--	--	225.1
2016	--	--	--	--	--	--	77.7
2017	--	--	--	--	--	--	62.9
2018	--	--	--	--	--	--	42.1
2019	--	--	--	--	--	--	14.4
Subtotal	2	--	--	--	--	--	7567.8

Annual Funding - AEHF SV 1-4 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	25.0
1996	--	--	--	--	--	--	33.0
1997	--	--	--	--	--	--	33.9
1998	--	--	--	--	--	--	35.7
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	91.3
2001	--	--	--	--	--	--	230.4
2002	--	--	--	--	--	--	491.4
2003	--	--	--	--	--	--	816.2
2004	--	--	--	--	--	--	834.3
2005	--	--	--	--	--	--	607.3
2006	--	--	--	--	--	--	585.9
2007	--	--	--	--	--	--	528.4
2008	--	--	--	--	--	--	569.7
2009	--	--	--	--	--	--	375.8
2010	--	--	--	--	--	--	384.1
2011	--	--	--	--	--	--	301.5
2012	--	--	--	--	--	--	234.0
2013	--	--	--	--	--	--	109.5
2014	--	--	--	--	--	--	161.9
2015	--	--	--	--	--	--	175.7
2016	--	--	--	--	--	--	59.7
2017	--	--	--	--	--	--	47.5
2018	--	--	--	--	--	--	31.2
2019	--	--	--	--	--	--	10.5
Subtotal	2	--	--	--	--	--	6830.3

The RDT&E APPN funding profile identified in this SAR includes $270.5M in International Partners (IP) funding, $175.2M in Capability Insertion Program (CIP) funding, and does not include $119M (FY 2003 - FY 2009) for Production and Qualification (P&Q) of Radiation Hardened Components.

The yearly breakout of the funding is as follows:

IP Funds	(TY $M)
FY 2002	35.2
FY 2003	44.0
FY 2004	91.0
FY 2005	67.0
FY 2006	28.5
FY 2007	3.0
FY 2008	1.8
Total	270.5

The yearly breakout of the P&Q of Radiation Hardened Components funding is as follows:

P&Q	(TY $M)
FY 2003	19.0
FY 2004	19.0
FY 2005	21.0
FY 2006	20.0
FY 2007	21.0
FY 2009	19.0
Total	119.0

The yearly breakout of the CIP funding from the Evolved AEHF Military Satellite Communications Budget Program Activity Code 657104, is as follows:

CIP	(TY $M)
FY 2012	4.7
FY 2014	14.3
FY 2015	43.6
FY 2016	24.2
FY 2017	31.9
FY2018	42.1
FY2019	14.4
Total	175.2

Annual Funding - AEHF SV 1-4 3020 | Procurement | Missile 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
2005	--	78.2	--	--	78.2	--	78.2
2006	1	521.9	--	--	521.9	--	521.9
2007	--	--	--	--	--	--	--
2008	--	141.4	--	--	141.4	--	141.4
2009	--	181.2	--	--	181.2	--	181.2
2010	1	1734.5	--	--	1734.5	--	1734.5
2011	--	29.7	--	--	29.7	--	29.7
2012	--	45.8	--	--	45.8	--	45.8
2013	--	68.7	--	--	68.7	--	68.7
2014	--	60.0	--	--	60.0	--	60.0
2015	--	65.3	--	--	65.3	--	65.3
Subtotal	2	2926.7	--	--	2926.7	--	2926.7

Annual Funding - AEHF SV 1-4 3020 | Procurement | Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	72.0	--	--	72.0	--	72.0
2006	1	467.5	--	--	467.5	--	467.5
2007	--	--	--	--	--	--	--
2008	--	121.4	--	--	121.4	--	121.4
2009	--	153.3	--	--	153.3	--	153.3
2010	1	1446.0	--	--	1446.0	--	1446.0
2011	--	24.3	--	--	24.3	--	24.3
2012	--	36.8	--	--	36.8	--	36.8
2013	--	54.0	--	--	54.0	--	54.0
2014	--	46.5	--	--	46.5	--	46.5
2015	--	50.0	--	--	50.0	--	50.0
Subtotal	2	2471.8	--	--	2471.8	--	2471.8

Cost Quantity Information - AEHF SV 1-4 3020 | Procurement | Missile Procurement, Air Force		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2002 $M**
2005	--	--
2006	1	858.0
2007	--	--
2008	--	--
2009	--	--
2010	1	1613.8
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
Subtotal	2	2471.8

Annual Funding - AEHF SV 1-4 3021 | Procurement | Space 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
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	106.1	--	--	106.1	--	106.1
2017	--	21.6	--	--	21.6	--	21.6
Subtotal	--	127.7	--	--	127.7	--	127.7

Annual Funding - AEHF SV 1-4 3021 | Procurement | Space Procurement, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	79.8	--	--	79.8	--	79.8
2017	--	15.9	--	--	15.9	--	15.9
Subtotal	--	95.7	--	--	95.7	--	95.7

Cost Quantity Information - AEHF SV 1-4 3021 | Procurement | Space Procurement, Air Force		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2002 $M**
2006	--	79.2
2007	--	--
2008	--	--
2009	--	--
2010	--	16.5
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
Subtotal	--	95.7

Annual Funding By Appropriation - AEHF SV 5-6

Annual Funding - AEHF SV 5-6 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
2011	--	--	--	--	--	--	13.8
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	15.0
2014	--	--	--	--	--	--	14.4
2015	--	--	--	--	--	--	20.0
Subtotal	--	--	--	--	--	--	63.2

Annual Funding - AEHF SV 5-6 3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	--	--	--	--	--	11.4
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	12.0
2014	--	--	--	--	--	--	11.4
2015	--	--	--	--	--	--	15.6
Subtotal	--	--	--	--	--	--	50.4

Annual Funding - AEHF SV 5-6 3020 | Procurement | Missile 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
2011	--	227.2	--	--	227.2	--	227.2
2012	2	524.1	--	--	524.1	--	524.1
2013	--	408.0	--	--	408.0	--	408.0
2014	--	268.4	--	--	268.4	--	268.4
2015	--	233.2	--	--	233.2	--	233.2
Subtotal	2	1660.9	--	--	1660.9	--	1660.9

Annual Funding - AEHF SV 5-6 3020 | Procurement | Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	185.8	--	--	185.8	--	185.8
2012	2	421.2	--	--	421.2	--	421.2
2013	--	320.6	--	--	320.6	--	320.6
2014	--	207.9	--	--	207.9	--	207.9
2015	--	178.6	--	--	178.6	--	178.6
Subtotal	2	1314.1	--	--	1314.1	--	1314.1

Cost Quantity Information - AEHF SV 5-6 3020 | Procurement | Missile Procurement, Air Force		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2002 $M**
2011	--	--
2012	2	1314.1
2013	--	--
2014	--	--
2015	--	--
Subtotal	2	1314.1

Annual Funding - AEHF SV 5-6 3021 | Procurement | Space 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
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	221.3	--	--	221.3	--	221.3
2017	--	624.0	--	--	624.0	--	624.0
2018	--	56.9	--	--	56.9	--	56.9
2019	--	29.3	--	--	29.3	--	29.3
2020	--	31.2	--	--	31.2	--	31.2
2021	--	31.7	--	--	31.7	--	31.7
Subtotal	--	994.4	--	--	994.4	--	994.4

Annual Funding - AEHF SV 5-6 3021 | Procurement | Space Procurement, Air Force							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	166.5	--	--	166.5	--	166.5
2017	--	460.8	--	--	460.8	--	460.8
2018	--	41.2	--	--	41.2	--	41.2
2019	--	20.8	--	--	20.8	--	20.8
2020	--	21.7	--	--	21.7	--	21.7
2021	--	21.6	--	--	21.6	--	21.6
Subtotal	--	732.6	--	--	732.6	--	732.6

Cost Quantity Information - AEHF SV 5-6 3021 | Procurement | Space Procurement, Air Force		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2002 $M**
2012	--	732.6
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
Subtotal	--	732.6

Low Rate Initial Production

There is no LRIP for this program.

Foreign Military Sales

AEHF SV 1-4

Country	Date of Sale	Quantity	Total Cost $M	Description
United Kingdom	9/9/2003		84.0	
Netherlands	11/8/2002		39.8	
Canada	11/16/1999		146.2	

Notes

The AEHF program has no FMS; all sales in the table are International Partner (IP) cooperation. The IPs access the antennas and a portion of the capacity on the AEHF satellites. The total IP O&S contribution of $114.3M is not included in the table sales above. O&S costs are commensurate with system resource usage respectively. The specific break out by IP is as follows:

Canada: $68.2M
The Netherlands: $14.8M
United Kingdom: $31.3M

AEHF SV 5-6

None

Nuclear Costs

AEHF SV 1-4

None

AEHF SV 5-6

None

Unit Cost

AEHF SV 1-4

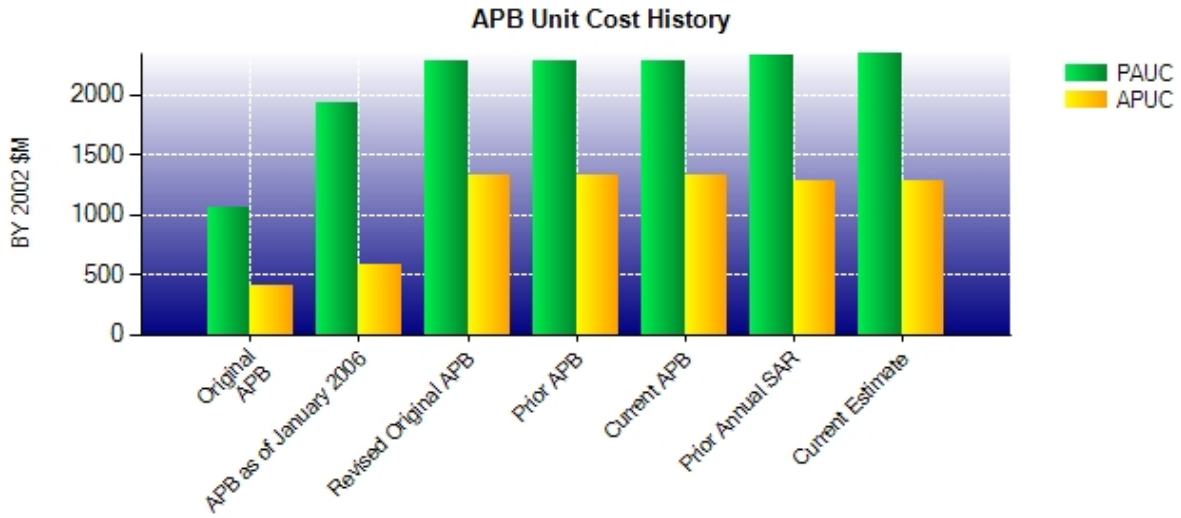
Unit Cost Report

Item	BY 2002 $M Current UCR Baseline (Mar 2014 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	9085.3	9397.8	
Quantity	4	4	
Unit Cost	2271.325	2349.450	+3.44
Average Procurement Unit Cost			
Cost	2655.1	2567.5	
Quantity	2	2	
Unit Cost	1327.550	1283.750	-3.30

Item	BY 2002 $M Revised Original UCR Baseline (Mar 2014 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	9085.3	9397.8	
Quantity	4	4	
Unit Cost	2271.325	2349.450	+3.44
Average Procurement Unit Cost			
Cost	2655.1	2567.5	
Quantity	2	2	
Unit Cost	1327.550	1283.750	-3.30

AEHF SV 1-4

Unit Cost History



Item	Date	BY 2002 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 2001	1055.840	401.667	1129.060	460.133
APB as of January 2006	Mar 2005	1933.567	577.000	2028.567	617.300
Revised Original APB	Mar 2014	2271.325	1327.550	2548.775	1575.550
Prior APB	Oct 2012	2271.325	1327.550	2548.775	1575.550
Current APB	Mar 2014	2271.325	1327.550	2548.775	1575.550
Prior Annual SAR	Dec 2014	2334.350	1280.800	2637.500	1524.100
Current Estimate	Dec 2015	2349.450	1283.750	2655.550	1527.200

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1129.060	-35.225	-291.584	262.425	0.000	342.633	0.000	-0.275	277.974	2028.567

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2028.567	39.775	-270.642	316.800	69.325	471.725	0.000	0.000	626.983	2655.550

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
460.133	-3.250	912.967	88.600	0.000	998.650	0.000	-0.550	1996.417	617.300

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
617.300	23.700	164.350	-30.900	7.000	745.750	0.000	0.000	909.900	1527.200

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Apr 1999	Apr 1999	Apr 1999	Apr 1999
Milestone B	Feb 2001	Jun 2001	Jun 2001	Sep 2001
Milestone C	Feb 2001	Jun 2004	Jun 2004	Jun 2004
IOC	Nov 2007	Jul 2008	Jun 2010	Jul 2015
Total Cost (TY $M)	2690.6	5645.3	6085.7	10622.2
Total Quantity	2	5	3	4
PAUC	1345.300	1129.060	2028.567	2655.550

AEHF SV 5-6

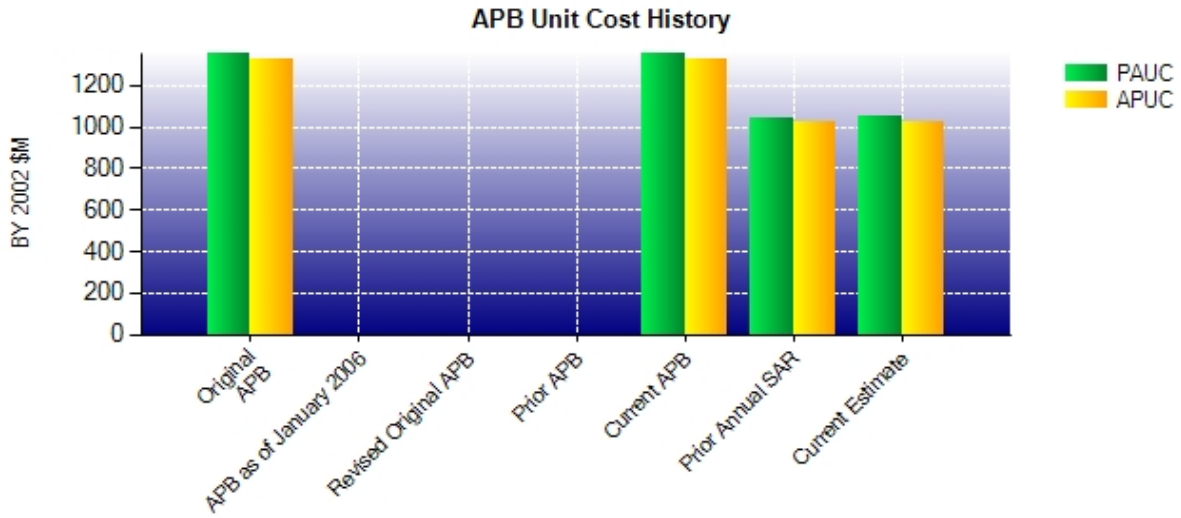
Unit Cost Report

Item	BY 2002 $M Current UCR Baseline (Oct 2012 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2715.1	2097.1	
Quantity	2	2	
Unit Cost	1357.550	1048.550	-22.76
Average Procurement Unit Cost			
Cost	2656.0	2046.7	
Quantity	2	2	
Unit Cost	1328.000	1023.350	-22.94

Item	BY 2002 $M Revised Original UCR Baseline (Oct 2012 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2715.1	2097.1	
Quantity	2	2	
Unit Cost	1357.550	1048.550	-22.76
Average Procurement Unit Cost			
Cost	2656.0	2046.7	
Quantity	2	2	
Unit Cost	1328.000	1023.350	-22.94

AEHF SV 5-6

Unit Cost History



Item	Date	BY 2002 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Mar 2014	1357.550	1328.000	1744.100	1707.200
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	Mar 2014	1357.550	1328.000	1744.100	1707.200
Prior Annual SAR	Dec 2014	1045.150	1020.050	1360.350	1328.750
Current Estimate	Dec 2015	1048.550	1023.350	1359.250	1327.650

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	
1744.100	27.450	0.000	0.000	0.000	-412.300	0.000	0.000	-384.850	1359.250

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1707.200	27.150	0.000	0.000	0.000	-406.700	0.000	0.000	-379.550	1327.650

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	N/A	N/A
Milestone C	N/A	N/A	N/A	N/A
IOC	N/A	N/A	N/A	N/A
Total Cost (TY $M)	N/A	N/A	3488.2	2718.5
Total Quantity	N/A	N/A	2	2
PAUC	N/A	N/A	1744.100	1359.250

Cost Variance

AEHF SV 1-4

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	5468.4	617.3	--	6085.7
Previous Changes				
Economic	+118.0	+49.4	--	+167.4
Quantity	--	+946.0	--	+946.0
Schedule	+1329.0	-61.8	--	+1267.2
Engineering	+202.6	--	--	+202.6
Estimating	+383.8	+1497.3	--	+1881.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+2033.4	+2430.9	--	+4464.3
Current Changes				
Economic	-6.3	-2.0	--	-8.3
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+60.7	+14.0	--	+74.7
Estimating	+11.6	-5.8	--	+5.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+66.0	+6.2	--	+72.2
Adjustments	--	--	--	--
Total Changes	+2099.4	+2437.1	--	+4536.5
CE - Cost Variance	7567.8	3054.4	--	10622.2
CE - Cost & Funding	7567.8	3054.4	--	10622.2

Summary BY 2002 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	5223.7	577.0	--	5800.7
Previous Changes				
Economic	--	--	--	--
Quantity	--	+784.9	--	+784.9
Schedule	+1091.3	--	--	+1091.3
Engineering	+164.8	--	--	+164.8
Estimating	+296.0	+1199.7	--	+1495.7
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1552.1	+1984.6	--	+3536.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+45.2	+10.4	--	+55.6
Estimating	+9.3	-4.5	--	+4.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+54.5	+5.9	--	+60.4
Adjustments	--	--	--	--
Total Changes	+1606.6	+1990.5	--	+3597.1
CE - Cost Variance	6830.3	2567.5	--	9397.8
CE - Cost & Funding	6830.3	2567.5	--	9397.8

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-6.3
Adjustment for current and prior escalation. (Estimating)	+5.2	+6.0
Revised estimate for Next-Generation Ground crypto key management system. (Estimating)	+7.5	+10.0
Revised estimate for Below Threshold Reprogramming. (Estimating)	+0.6	+0.7
Revised estimate due to application of Congressional General Reduction. (Estimating)	-4.0	-5.1
Additional funding for Increment 8 Capability Insertion Program. (Engineering)	+45.2	+60.7
RDT&E Subtotal	+54.5	+66.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-2.0
Adjustment for current and prior escalation. (Estimating)	+1.4	+1.9
Revised estimate for Next-Generation Ground crypto key management system. (Estimating)	-5.9	-7.7
Additional funding for Increment 8 Capability Insertion Program. (Engineering)	+10.4	+14.0
Procurement Subtotal	+5.9	+6.2

Cost Variance

AEHF SV 5-6

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	73.8	3414.4	--	3488.2
Previous Changes				
Economic	+0.8	+66.3	--	+67.1
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-11.4	-823.2	--	-834.6
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-10.6	-756.9	--	-767.5
Current Changes				
Economic	-0.2	-12.0	--	-12.2
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+0.2	+9.8	--	+10.0
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	-2.2	--	-2.2
Total Changes	-10.6	-759.1	--	-769.7
CE - Cost Variance	63.2	2655.3	--	2718.5
CE - Cost & Funding	63.2	2655.3	--	2718.5

Summary BY 2002 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	59.1	2656.0	--	2715.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-8.9	-615.9	--	-624.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-8.9	-615.9	--	-624.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+0.2	+6.6	--	+6.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+0.2	+6.6	--	+6.8
Total Changes	-8.7	-609.3	--	-618.0
CE - Cost Variance	50.4	2046.7	--	2097.1
CE - Cost & Funding	50.4	2046.7	--	2097.1

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.2
Adjustment for current and prior escalation. (Estimating)	+0.2	+0.2
RDT&E Subtotal	+0.2	0.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-12.0
Adjustment for current and prior escalation. (Estimating)	+5.0	+6.5
Funding realignments between subprograms to cover production activities (Missile Procurement, Air Force (MPAF)). (Estimating)	+6.0	+7.8
Funding realignments between subprograms to cover production activities (Space Procurement, Air Force (SPAF)). (Estimating)	-10.3	-13.7
Revised estimate for increase in funding for baseline extension (SPAF). (Estimating)	+10.9	+16.0
Revised estimate due to application of Congressional General Reduction (SPAF). (Estimating)	-4.5	-6.0
Revised estimate due to application of Air Force-wide inflationary adjustments (SPAF). (Estimating)	-4.5	-6.3
Revised estimate due to application of new outyear inflation indices (SPAF). (Estimating)	+4.0	+5.5
Procurement Subtotal	+6.6	-2.2

Contracts

Contract Identification

Appropriation: Procurement

Contract Name: AEHF 4 Production and Launch, 5/6 Long Lead, KI-54

Contractor: Lockheed Martin Corp.

Contractor Location: 1111 Lockheed Martin Way
Sunnyvale, CA 94089

Contract Number: F04701-02-C-0002/2

Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Fixed Fee (CPFF)

Award Date: December 15, 2010

Definitization Date: December 15, 2010

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1396.5	N/A	1	1701.1	N/A	2	1673.0	1673.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications for AEHF 4 Launch Operations, AEHF 5-6 Long Lead, KI-54D cryptographic devices, X37 integration and analysis, Protected Key Management Architecture, and studies.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2016)	+78.9	+17.2
Previous Cumulative Variances	+49.7	+15.9
Net Change	+29.2	+1.3

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to support sharing with other AEHF activities, lower negotiated material cost with vendors on some parts and credits for transfers of excess material to other programs. Integration & Test required less support than anticipated because software related issues were minimal. Also, there was a favorable net change in cost variance due to early payload delivery, subject matter expert reductions, and material/subcontracts transfers.

The favorable net change in the schedule variance is due to the following: Pre launch system test had early start associated with system test preparations. Lockheed Martin assembly integration and test is performing ahead of schedule on pre-acoustic and Fully Integrated System Test; ahead of schedule due to successful execution of accelerated schedule. The tasks that are ahead of schedule are the post-Thermal Vacuum Remove & Replace, acoustic preps/testing and post acoustic deployments.

Notes

This contract includes AEHF 4 Production, AEHF 4 Launch Operations, AEHF 5/6 Long Lead, KI-54D, X37 and studies.

Contract Identification

Appropriation: Procurement

Contract Name: AEHF 5-6 Production and Launch

Contractor: Lockheed Martin

Contractor Location: 1111 Lockheed Martin Way
Sunnyvale, CA 94089

Contract Number: FA8808-12-C-0010/1

Contract Type: Fixed Price Incentive(Firm Target) (FPIF)

Award Date: May 12, 2012

Definitization Date: October 31, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1914.4	2001.6	2	1917.8	2001.6	2	1917.8	1914.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of the AEHF 5/6 acoustic test (CLIN 4000) for $2.22M, the AEHF-5 Lithium-Ion (LiIon) battery test study (CLIN 0410) for $0.48M, and the addition of the AEHF-6 LiIon battery test study (CLIN 0410) for $0.38M.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2016)	+53.9	-31.8
Previous Cumulative Variances	+44.6	-6.1
Net Change	+9.3	-25.7

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to resource sharing with other AEHF activities, reduced support required for material handling, favorable labor rate delta, slower staff buildup of program management personnel, less Integrated Baseline Review support; cable and harness fabrication efficiencies due to lessons learned on AEHF-4, and elimination of Integration and Test deputy.

The unfavorable net change in the schedule variance is due to Deficiency Report (DR) resolutions and troubleshooting for Program Control and Coding units - Demodulator & Configurable Onboard Router delays due to late and damaged parts delaying all plug-ins for unit kit, Resource Control Computer delays for Non-Volatile Random Access Memory plug-in test failure requiring rework, and Gimble Control Unit delays for priorities given to High Efficiency Converters which delayed the Power Converter slice components; delays in Interface Downconverter Assembly Manufacturing & Support due to backlog at conductive bond and Tunable Super High Frequency Modulator Exciter Manufacturing and Support from higher priority given to other Radio Frequency units (Noise Amplifier Deconvertor, Frequency Generator Unit & Fixed Extremely High Frequency Converter) and Modem delays for Demodulator slice DR resolution and rework.

Deliveries and Expenditures

AEHF SV 1-4

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	1	1	2	50.00%
Total Program Quantity Delivered	3	3	4	75.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	10622.2	Years Appropriated	22
Expended to Date	9500.0	Percent Years Appropriated	88.00%
Percent Expended	89.44%	Appropriated to Date	10481.2
Total Funding Years	25	Percent Appropriated	98.67%

The above data is current as of February 09, 2016.

AEHF SV 5-6

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	2	0.00%
Total Program Quantity Delivered	0	0	2	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	2718.5	Years Appropriated	6
Expended to Date	1451.2	Percent Years Appropriated	54.55%
Percent Expended	53.38%	Appropriated to Date	1945.4
Total Funding Years	11	Percent Appropriated	71.56%

The above data is current as of February 09, 2016.

Operating and Support Cost

AEHF SV 1-4

Cost Estimate Details

Date of Estimate:	December 31, 2011
Source of Estimate:	POE
Quantity to Sustain:	1
Unit of Measure:	System
Service Life per Unit:	14.00 Years
Fiscal Years in Service:	FY 2015 - FY 2030

The December 2011 O&S POE included AEHF 1-4 through FY 2030. The MILSATCOM Directorate is currently developing a new O&S cost model based on the award of the Combined Orbital Operation, Logistics Sustainment (COOLS) contract, it will be completed and coordinated in CY 2016. The AEHF system being sustained consists of a four satellite constellation and associated ground segment.

Sustainment Strategy

The O&S costs support a four satellite constellation from FY 2015 through FY 2030. The estimates assume that AEHF and Milstar will be operated in parallel by the 4th Space Operations Squadron at Schriever Air Force Base (AFB). Due to the proprietary nature of the AEHF Space Satellite (on-orbit) Segment, this segment is not considered core and the Depot Source of Repair is Contractor Logistics Support for the life of the satellites. Sustainment of the AEHF Space Satellite (on -orbit) Segment transferred to the COOLS contract post-IOC. All other AEHF workloads were designated as core. Tobyhanna Army Depot is the candidate depot for hardware and Ogden Air Logistics Center (OO-ALC), Hill AFB UT for software. A Public Private Partnership is in place and will continue to ramp up the OO-ALC ground software capability over the life of the COOLS contract.

Antecedent Information

The antecedent system for AEHF is Milstar which consists of a five satellite constellation and associated ground segment. The cost estimate is based on validated requirements in the Air Force Space Command Logistics Support Requirements Brochures built for the FY 2004 President's Budget Request. The Milstar O&S costs cover all operational activities for both the space and ground segment for FY 2009 - FY 2018.

The antecedent Milstar program office estimate is from April 2003 finalized in Air Force Space Command's budget request to Headquaters Air Force.

Annual O&S Costs BY2002 $M		
Cost Element	**AEHF SV 1-4 Average Annual Cost Per System**	**Milstar (Antecedent) Average Annual Cost Per System**
Unit-Level Manpower	19.420	16.900
Unit Operations	0.053	13.200
Maintenance	14.294	3.900
Sustaining Support	54.956	39.000
Continuing System Improvements	34.611	0.000
Indirect Support	3.220	7.200
Other	0.000	0.000
Total	126.554	80.200

AEHF Average Annual Cost Per System numbers above reflect costs for planning usage and monitoring health of the AEHF constellation.

Item	Total O&S Cost $M			
	AEHF SV 1-4			Milstar (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	1143.6	1258.0	1143.6	801.5
Then Year	1593.6	N/A	1593.6	N/A

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Equation to Translate Annual Cost to Total Cost

(AEHF SV1-4 Total O&S Cost + AEHF 5-6 Total O&S Cost)/16 years = Average Annual O&S cost
($1143.6M + $881.3M)/16 = $126.5M

The O&S estimate developed in FY 2011 covers the 14 year design life of the AEHF system (4 satellite constellation and associated ground segment) starting in FY 2017 and going through FY 2030. Sustainment of the system executed under the RDT&E Interim Contractor Support contract when the first AEHF satellite launched in FY 2010 and transitioned to O&S funding once IOC was declared on July 28, 2015. The 16 year divisor in the equation is based on the O&S start date in FY 2015 carrying through FY 2030.

O&S Cost Variance		
Category	**BY 2002 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	1143.6	
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	1143.6

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2002 $M):

The disposal estimate is in development and will be included in the new O&S cost model planned for CY 2016.

AEHF SV 5-6

Cost Estimate Details

Date of Estimate:	December 31, 2011
Source of Estimate:	POE
Quantity to Sustain:	1
Unit of Measure:	System
Service Life per Unit:	14.00 Years
Fiscal Years in Service:	FY 2015 - FY 2030

The December 2011 O&S POE included AEHF 1-6 through FY 2030. The MILSATCOM Directorate is currently developing a new O&S cost model based on the award of the Combined Orbital Operation, Logistics Sustainment (COOLS) contract, it will be completed and coordinated in CY 2016. The AEHF system being sustained consists of a four satellite constellation and associated ground segment.

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The O&S costs support a four satellite constellation from FY 2015 through FY 2030. The estimates assume that AEHF and Milstar will be operated in parallel by the 4th Space Operations Squadron at Schriever AFB. Due to the proprietary nature of the AEHF Space Satellite (on-orbit) Segment, this segment is not considered core and the Depot Source of Repair is Contractor Logistics Support (CLS) for the life of the satellites. Sustainment of the AEHF Space Satellite (on-orbit) Segment transferred to the COOLS contract post-IOC. All other AEHF workloads were designated as core. Tobyhanna Army Depot (TYAD) is the candidate depot for hardware and OO-ALC Hill AFB UT for software. A Public Private Partnership is in place and will continue to ramp up the OO-ALC ground software capability over the life of the COOLS contract..

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The antecedent Milstar program office estimate is from April 2003 finalized in Air Force Space Command's budget request to Headquaters Air Force.

Annual O&S Costs BY2002 $M		
Cost Element	**AEHF SV 5-6 Average Annual Cost Per System**	**Milstar (Antecedent) Average Annual Cost Per System**
Unit-Level Manpower	19.420	16.900
Unit Operations	0.053	13.200
Maintenance	14.294	3.900
Sustaining Support	54.956	39.000
Continuing System Improvements	34.611	0.000
Indirect Support	3.220	7.200
Other	0.000	0.000
Total	126.554	80.200

AEHF Average Annual Cost Per System numbers above reflect costs for planning usage and monitoring health of the AEHF constellation.

Item	Total O&S Cost $M			
	AEHF SV 5-6			Milstar (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	881.3	969.4	881.3	801.5
Then Year	1453.8	N/A	1453.8	N/A

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Equation to Translate Annual Cost to Total Cost

(AEHF SV1-4 Total O&S Cost + AEHF 5-6 Total O&S Cost)/16 years = Average Annual O&S cost
($1143.6M + $881.3M)/16 = $126.5M

The O&S estimate developed in FY 2011 covers the 14 year design life of the AEHF system (4 satellite constellation and associated ground segment) starting in FY 2017 and going through FY 2030. Sustainment of the system executed under the RDT&E Interim Contractor Support contract when the first AEHF satellite launched in FY 2010 and transitioned to O&S funding once IOC was declared on July 28, 2015. The 16 year divisor in the equation is based on the O&S start date in FY 2015 carrying through FY 2030.

O&S Cost Variance		
Category	**BY 2002 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	881.3	
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	881.3

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2002 $M):

The disposal estimate is in development and will be included in the new O&S cost model planned for CY 2016.