Selected Acquisition Report (SAR)

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

Advanced Extremely High Frequency Satellite (AEHF)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Advanced Extremely High Frequency Satellite (AEHF)

DoD Component

Air Force

Joint Participants

Canada; The Netherlands; United Kingdom

Responsible Office

Responsible Office

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Date Assigned February 18, 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

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

Mission and Description

Advanced Extremely High Frequency (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 provides 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 through general nuclear war and supports the attainment of information superiority.

The AEHF operational system is composed of three segments: space (the satellites), terminal (the users), and a mission control segment. 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 a Memoranda of Understanding in preparation for entering into a Foreign Military Sales case to purchase International Partnership variants of AEHF terminals.

Executive Summary

The Advanced Extremely High Frequency (AEHF) program had noteworthy achievements in 2013. AEHF-3 was successfully launched and arrived on-orbit on January 6, 2014. Mission Control Segment (MCS) Increment 5 was operationally accepted by the user community on August 1, 2013. This accomplishment concludes the Operational Trial Period (OTP), allows for Increment 4 retirement, and was a precursor to Increment 7 OTP, which began on September 17, 2013 with the approval of Air Force Space Command (AFSPC).

AEHF-1/2 vehicles are fully integrated into the Milstar constellation and performing well with AEHF-1 operating from 68 deg West and AEHF-2 operating from 16.5 deg West.

AEHF-3 was successfully launched on September 18, 2013 from Cape Canaveral Air Force Station, Florida. AEHF-3 reached geosynchronous orbit at 120 degree West on January 6, 2014. On-Orbit Test began on January 10, 2014 and was successfully completed on February 23, 2014. AEHF-3 is fully integrated into the Milstar constellation and performing well, operating from 120 deg West. Satellite Control Authority of AEHF-3 was transferred from the MILSATCOM Directorate to 14th Air Force in March 2014.

For AEHF-4, the Lockheed Martin satellite bus is 68% complete and the Northrop Grumman payload is 67% complete. Payload and space vehicle frame integration is progressing well at the Northrop Grumman facility. The payload and U-frame integration is critical to keeping the satellite bus on schedule to start the space vehicle assembly, integration and test. AEHF-4 is scheduled to be available for launch in 2017.

AEHF 5-6 production acquisition progressed well. The Milestone Decision Authority (MDA) approved the AEHF 5-6 APB on October 23, 2012, which designated AEHF 5-6 as a subprogram. The contract for the Block Buy of the fifth and sixth AEHF satellites was definitized on October 31, 2013 with a contract value of $2.232 billion, which includes $227 million of FY 2011 advanced procurement, saving hundreds of millions of dollars over the Future Years Defense Program.

In 2013, the Program Office overcame the challenges of developing and fielding the AEHF Mission Control System software due to disconnects between the delivered system and operational suitability. A large number of deficiencies caused delays to Increment 5 software Operational Acceptance (OA) and contributed to a six month schedule slip to the IOC milestone (from December 2014 to June 2015).

The Air Force submitted a Program Deviation Report in April 2013 which resulted in an APB schedule breach. Since declaring the schedule breach, the program brought in an independent team to identify opportunities for more rigorous development processes, worked with the operational community to determine discrepancy fixes and adjudication required for IOC, and added contractor operations support to provide increased technical presence in the development/fielding of the system. The updated APB with an IOC Objective of June 2015 and Threshold of December 2015 was signed by the MDA on March 31, 2014.

Increment 5 of AEHF’s MCS completed Operational Utility Evaluation dedicated testing in April 2013 and Increment 5 OA was achieved on August 1, 2013. Increment 7.4 software completed testing on November 19, 2013 and is currently operating the Milstar and AEHF constellation. Increment 7.5, the version required for IOC, was delivered for test on December 19, 2013 with no major issues to date. The program office is on track to reach IOC in June 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	☐

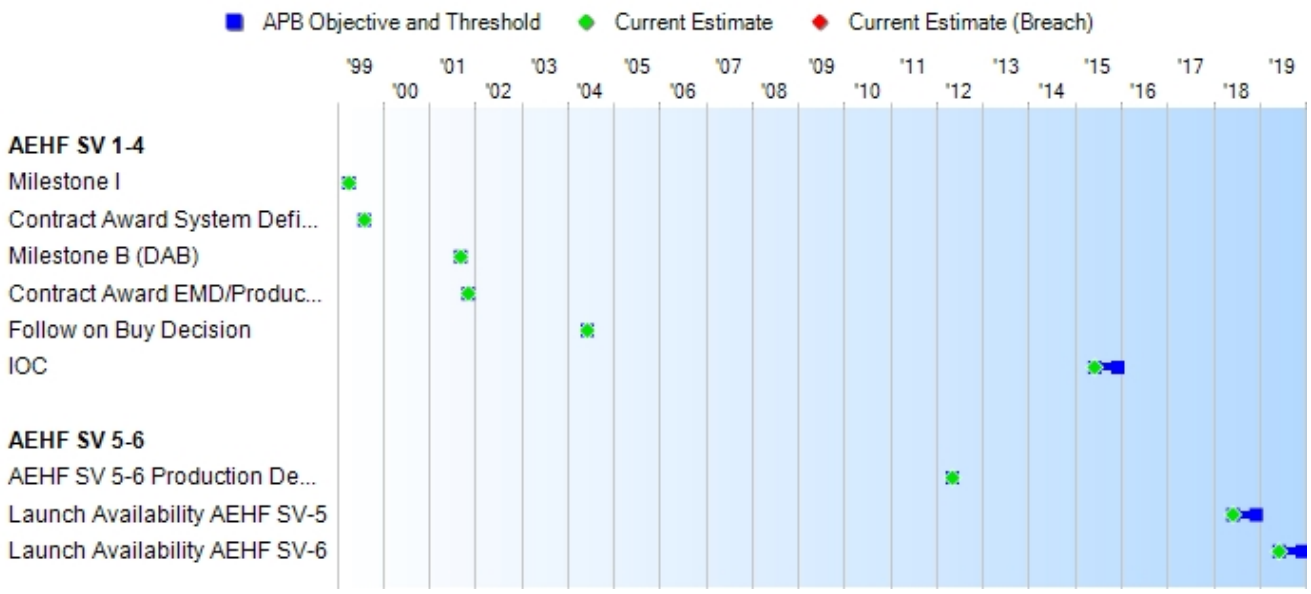
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

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



AEHF SV 1-4				
Milestones	**SAR Baseline Prod Est**	**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	JUN 2015

Change Explanations

None

Memo

The IOC milestone is defined in the AEHF Operational Requirements Document dated October 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.

The AEHF Increment 7.5 software is required to enter Multi-service Operational Test and Evaluation and must meet the AEHF SV 1-4 conditions for a successful IOC date of June 2015.

Acronyms and Abbreviations

DAB - Defense Acquisition Board
EMD - Engineering and Manufacturing Development
SV - Space Vehicle

AEHF SV 5-6

Milestones	SAR Baseline Prod Est	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

Memo

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

Acronyms and Abbreviations

SV - Space Vehicle

Performance

AEHF SV 1-4					
Characteristics	**SAR Baseline Prod Est**	**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	TBD	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	TBD	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
Access and Control	Provide users ability to plan, control, & reconfigure their	Provide users ability to plan, control, & reconfigure their	Provide users ability to plan, control, & reconfigure their	TBD	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	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	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		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
Interoperability					
AEHF Interoperability	Support joint interoperable warfighter communications among all military branches EHF terminals	Support joint interoperable warfighter communications among all military branches EHF terminals	Support joint interoperable warfighter communications among all military branches EHF terminals	TBD	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	TBD	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 Source

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

Change Explanations

None

Acronyms and Abbreviations

CMTW - Combined Major Theater Warfare
EHF - Extremely High Frequency
Gbps - Giga bytes per second
LDR - Low Data Rate
Mbps - Mega bytes per second
MDR - Medium Data Rate
Milstar - Military Strategic and Tactical Relay
NCGS - Nuclear Criteria Group Secretariat

AEHF SV 5-6					
Characteristics	**SAR Baseline Prod Est**	**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	TBD	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	TBD	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
Access and Control	Provide users ability to plan, control, & reconfigure their apportioned resources; critical	Provide users ability to plan, control, & reconfigure their apportioned resources; critical	Provide users ability to plan, control, & reconfigure their apportioned resources; critical	TBD	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	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	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		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
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	TBD	Support joint interop-erable war-fighter communicat-ions 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	TBD	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 Source

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

Change Explanations

None

Acronyms and Abbreviations

CMTW - Combined Major Theater Warfare
EHF - Extremely High Frequency
Gbps - Giga bytes per second
LDR - Low Data Rate
Mbps - Mega bytes per second
MDR - Medium Data Rate
Milstar - Military Strategic and tactical Relay
NCGS - Nuclear Criteria Group Secretariat

Track to Budget

AEHF SV 1-4

General Memo

AEHF Space Vehicles (SV) 1-4 reflects the following:
Procurement is associated with AEHF SV 3 and 4
RDT&E is associated with AEHF SV 1 and 2, Mission Control Segment, and Interim Contractor Support.

RDT&E

Appn	BA	PE		
Air Force	3600	0603430F		
	Project	**Name**		
	644050	AEHF Military Satellite Communications (MILSATCOM) (Space)		(Sunk)
Air Force	3600	0605431F		
	Project	**Name**		
	657103	AEHF MILSATCOM (Space)		

Procurement

Appn	BA	PE		
Air Force	3020	0303604F		
	Line Item	**Name**		
	ADV555	Advanced EHF		

AEHF SV 5-6

RDT&E

Appn	BA	PE		
Air Force	3600	0603430F		
	Project	**Name**		
	644050	AEHF MILSATCOM (Space)		(Sunk)
	Notes:	FY 2011 only		
	64A030	Evolved AEHF MILSATCOM (EAM)	(Shared)	(Sunk)
	Notes:	FY 2013 only		
Air Force	3600	0605431F		
	Project	**Name**		

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

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

Cost and Funding

Cost Summary - Total Program

Total Acquisition Cost and Quantity - Total Program

	BY2002 $M			BY2002 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	5282.8	6489.3	--	6747.6	5542.2	7117.8	7465.9
Procurement	3233.0	5311.1	--	4576.8	4031.7	6565.5	5695.2
Flyaway	--	--	--	4576.8	--	--	5695.2
Recurring	--	--	--	4576.8	--	--	5695.2
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	11324.4	9573.9	13683.3	13161.1

Cost and Funding

Cost Summary - AEHF SV 1-4

Total Acquisition Cost and Quantity - AEHF SV 1-4

	BY2002 $M			BY2002 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	5223.7	6430.2	7073.2	6693.1	5468.4	7044.0	7397.1
Procurement	577.0	2655.1	2920.6	2500.9	617.3	3151.1	2974.3
Flyaway	--	--	--	2500.9	--	--	2974.3
Recurring	--	--	--	2500.9	--	--	2974.3
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	5800.7	9085.3	N/A	9194.0	6085.7	10195.1	10371.4

Confidence Level for Current APB Cost 50% -
The Independent Cost Estimate (ICE) that supports the AEHF SV 1-4, 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.

Quantity	SAR Baseline Prod Est	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 and Quantity - AEHF SV 5-6

Appropriation	BY2002 $M			BY2002 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	59.1	59.1	65.0	54.5	73.8	73.8	68.8
Procurement	2656.0	2656.0	2921.6	2075.9	3414.4	3414.4	2720.9
Flyaway	--	--	--	2075.9	--	--	2720.9
Recurring	--	--	--	2075.9	--	--	2720.9
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	2130.4	3488.2	3488.2	2789.7

Confidence Level for Current APB Cost 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.

The AEHF SV 5-6 current estimate reflects the ceiling price on SV 5/6 FPIF contract, including potential engineering change orders

Quantity	SAR Baseline Prod Est	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 and Quantity Summary - Total Program
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	6965.4	203.1	212.0	63.9	21.5	0.0	0.0	0.0	7465.9
Procurement	3940.5	328.3	298.9	335.7	656.5	57.8	29.8	47.7	5695.2
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 2015 Total	10905.9	531.4	510.9	399.6	678.0	57.8	29.8	47.7	13161.1
PB 2014 Total	11023.3	582.9	458.3	436.6	753.5	58.2	30.0	47.7	13390.5
Delta	-117.4	-51.5	52.6	-37.0	-75.5	-0.4	-0.2	0.0	-229.4

Cost and Funding

Funding Summary - AEHF SV 1-4

Appropriation and Quantity Summary - AEHF SV 1-4
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	6936.6	183.1	192.0	63.9	21.5	0.0	0.0	0.0	7397.1
Procurement	2746.2	37.4	67.9	93.1	29.7	0.0	0.0	0.0	2974.3
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 2015 Total	9682.8	220.5	259.9	157.0	51.2	0.0	0.0	0.0	10371.4
PB 2014 Total	9727.4	247.9	202.7	142.1	63.5	29.1	0.0	0.0	10412.7
Delta	-44.6	-27.4	57.2	14.9	-12.3	-29.1	0.0	0.0	-41.3

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	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 2015 Total	2	2	0	0	0	0	0	0	0	4
PB 2014 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 and Quantity Summary - AEHF SV 5-6
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	28.8	20.0	20.0	0.0	0.0	0.0	0.0	0.0	68.8
Procurement	1194.3	290.9	231.0	242.6	626.8	57.8	29.8	47.7	2720.9
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 2015 Total	1223.1	310.9	251.0	242.6	626.8	57.8	29.8	47.7	2789.7
PB 2014 Total	1295.9	335.0	255.6	294.5	690.0	29.1	30.0	47.7	2977.8
Delta	-72.8	-24.1	-4.6	-51.9	-63.2	28.7	-0.2	0.0	-188.1

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	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 2015 Total	0	2	0	0	0	0	0	0	0	2
PB 2014 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 TY$ - AEHF SV 1-4
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
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	--	--	--	--	--	--	283.5
2013	--	--	--	--	--	--	138.2
2014	--	--	--	--	--	--	183.1
2015	--	--	--	--	--	--	192.0
2016	--	--	--	--	--	--	63.9
2017	--	--	--	--	--	--	21.5
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**7397.1**

Annual Funding BY$ - AEHF SV 1-4
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
1995	--	--	--	--	--	--	25.0
1996	--	--	--	--	--	--	33.0
1997	--	--	--	--	--	--	33.9
1998	--	--	--	--	--	--	35.7
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	91.4
2001	--	--	--	--	--	--	230.5
2002	--	--	--	--	--	--	491.1
2003	--	--	--	--	--	--	815.2
2004	--	--	--	--	--	--	833.7
2005	--	--	--	--	--	--	607.5
2006	--	--	--	--	--	--	585.6
2007	--	--	--	--	--	--	528.0
2008	--	--	--	--	--	--	569.2
2009	--	--	--	--	--	--	375.6
2010	--	--	--	--	--	--	384.0
2011	--	--	--	--	--	--	301.3
2012	--	--	--	--	--	--	230.1
2013	--	--	--	--	--	--	110.2
2014	--	--	--	--	--	--	143.6
2015	--	--	--	--	--	--	147.9
2016	--	--	--	--	--	--	48.3
2017	--	--	--	--	--	--	15.9
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**6693.1**

The RDT&E APPN funding profile identified in this SAR includes $270.5M in International Partners (IP) 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	($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	($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

Annual Funding TY$ - AEHF SV 1-4
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
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	--	17.6	--	--	17.6	--	17.6
2013	--	41.7	--	--	41.7	--	41.7
2014	--	37.4	--	--	37.4	--	37.4
2015	--	67.9	--	--	67.9	--	67.9
2016	--	93.1	--	--	93.1	--	93.1
2017	--	29.7	--	--	29.7	--	29.7
Subtotal	**2**	**2974.3**	**--**	**--**	**2974.3**	**--**	**2974.3**

Annual Funding BY$ - AEHF SV 1-4
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2005	--	72.0	--	--	72.0	--	72.0
2006	1	467.3	--	--	467.3	--	467.3
2007	--	--	--	--	--	--	--
2008	--	121.3	--	--	121.3	--	121.3
2009	--	153.2	--	--	153.2	--	153.2
2010	1	1446.1	--	--	1446.1	--	1446.1
2011	--	24.3	--	--	24.3	--	24.3
2012	--	14.1	--	--	14.1	--	14.1
2013	--	32.6	--	--	32.6	--	32.6
2014	--	28.7	--	--	28.7	--	28.7
2015	--	51.1	--	--	51.1	--	51.1
2016	--	68.7	--	--	68.7	--	68.7
2017	--	21.5	--	--	21.5	--	21.5
Subtotal	**2**	**2500.9**	**--**	**--**	**2500.9**	**--**	**2500.9**

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	1642.9
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
Subtotal	**2**	**2500.9**

Annual Funding By Appropriation - AEHF SV 5-6

Annual Funding TY$ - AEHF SV 5-6
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2011	--	--	--	--	--	--	13.8
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	15.0
2014	--	--	--	--	--	--	20.0
2015	--	--	--	--	--	--	20.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**68.8**

Annual Funding BY$ - AEHF SV 5-6
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2011	--	--	--	--	--	--	11.4
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	12.0
2014	--	--	--	--	--	--	15.7
2015	--	--	--	--	--	--	15.4
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**54.5**

Annual Funding TY$ - AEHF SV 5-6
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2011	--	227.2	--	--	227.2	--	227.2
2012	2	532.3	--	--	532.3	--	532.3
2013	--	434.8	--	--	434.8	--	434.8
2014	--	290.9	--	--	290.9	--	290.9
2015	--	231.0	--	--	231.0	--	231.0
2016	--	242.6	--	--	242.6	--	242.6
2017	--	626.8	--	--	626.8	--	626.8
2018	--	57.8	--	--	57.8	--	57.8
2019	--	29.8	--	--	29.8	--	29.8
2020	--	31.7	--	--	31.7	--	31.7
2021	--	16.0	--	--	16.0	--	16.0
Subtotal	**2**	**2720.9**	**--**	**--**	**2720.9**	**--**	**2720.9**

Annual Funding BY$ - AEHF SV 5-6
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2011	--	185.5	--	--	185.5	--	185.5
2012	2	427.1	--	--	427.1	--	427.1
2013	--	339.5	--	--	339.5	--	339.5
2014	--	223.2	--	--	223.2	--	223.2
2015	--	173.9	--	--	173.9	--	173.9
2016	--	179.1	--	--	179.1	--	179.1
2017	--	453.6	--	--	453.6	--	453.6
2018	--	41.0	--	--	41.0	--	41.0
2019	--	20.7	--	--	20.7	--	20.7
2020	--	21.6	--	--	21.6	--	21.6
2021	--	10.7	--	--	10.7	--	10.7
Subtotal	**2**	**2075.9**	**--**	**--**	**2075.9**	**--**	**2075.9**

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	2075.9
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
Subtotal	**2**	**2075.9**

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	Memo
United Kingdom	9/9/2003		84.0	
Netherlands	11/8/2002		39.8	
Canada	11/16/1999		146.2	

The AEHF program has no FMS; all sales in the table are International Partner (IP) cooperation.

The IP's access the antennas and a portion of the capacity on the AEHF satellites.

NOTE: The total IP O&S contribution is $114.3M. 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

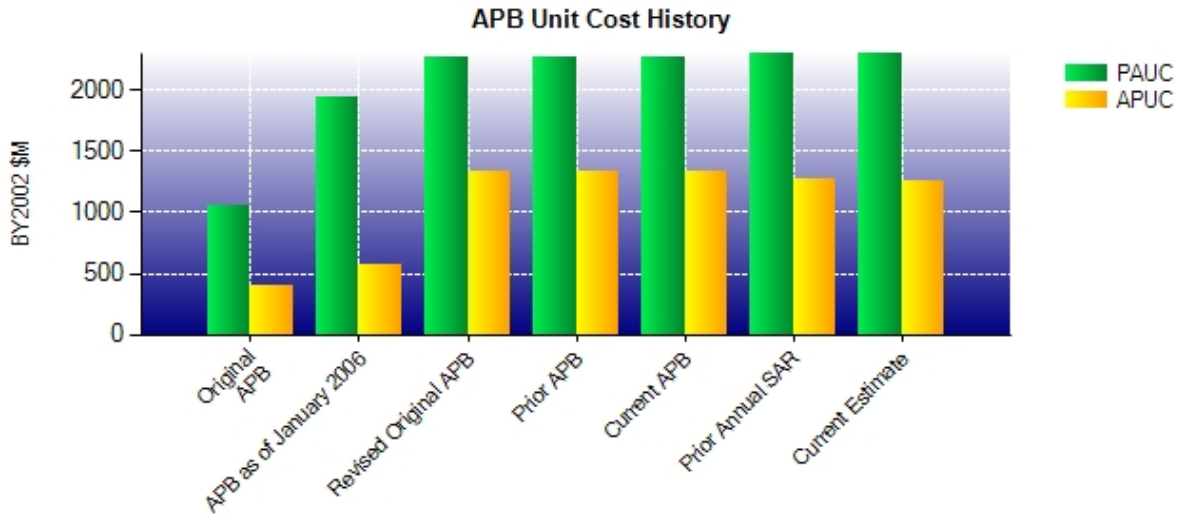
Unit Cost Report

Unit Cost	BY2002 $M Current UCR Baseline (MAR 2014 APB)	BY2002 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	9085.3	9194.0	
Quantity	4	4	
Unit Cost	2271.325	2298.500	+1.20
Average Procurement Unit Cost (APUC)			
Cost	2655.1	2500.9	
Quantity	2	2	
Unit Cost	1327.550	1250.450	-5.81

Unit Cost	BY2002 $M Revised Original UCR Baseline (JUN 2011 APB)	BY2002 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	9085.3	9194.0	
Quantity	4	4	
Unit Cost	2271.325	2298.500	+1.20
Average Procurement Unit Cost (APUC)			
Cost	2655.1	2500.9	
Quantity	2	2	
Unit Cost	1327.550	1250.450	-5.81

AEHF SV 1-4

Unit Cost History



		BY2002 $M		TY $M	
	Date	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	JUN 2011	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 2012	2303.775	1272.850	2603.175	1519.850
Current Estimate	DEC 2013	2298.500	1250.450	2592.850	1487.150

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	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 Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2028.567	43.300	-270.642	316.800	22.025	452.800	0.000	0.000	564.283	2592.850

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	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 Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
617.300	26.050	164.350	-30.900	0.000	710.350	0.000	0.000	869.850	1487.150

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	JUN 2015
Total Cost (TY $M)	2690.6	5645.3	6085.7	10371.4
Total Quantity	2	5	3	4
Prog. Acq. Unit Cost (PAUC)	1345.300	1129.060	2028.567	2592.850

AEHF SV 5-6

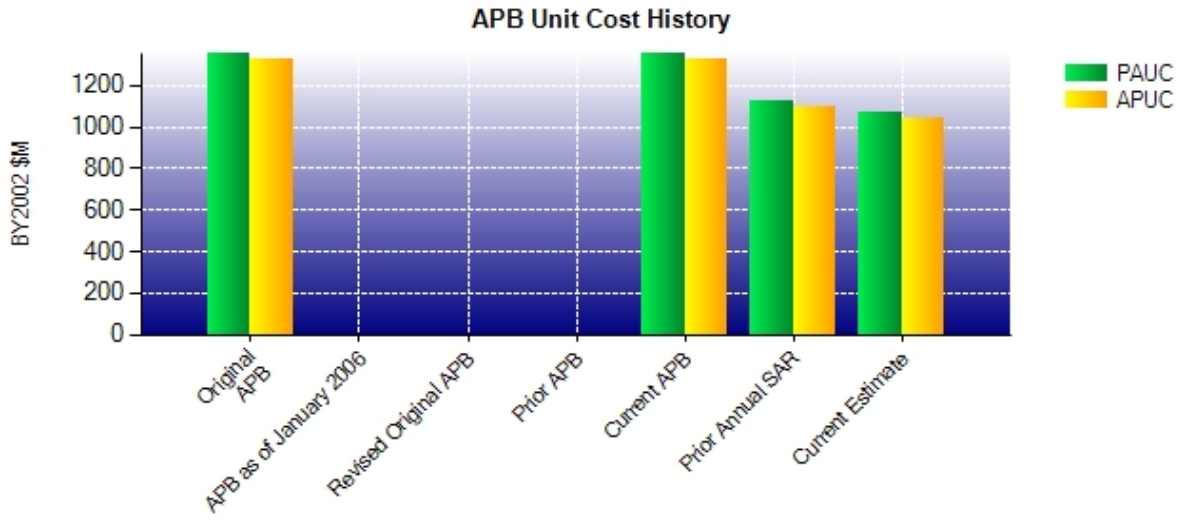
Unit Cost Report

	BY2002 $M	BY2002 $M	
Unit Cost	**Current UCR Baseline (OCT 2012 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	2715.1	2130.4	
Quantity	2	2	
Unit Cost	1357.550	1065.200	-21.54
Average Procurement Unit Cost (APUC)			
Cost	2656.0	2075.9	
Quantity	2	2	
Unit Cost	1328.000	1037.950	-21.84

	BY2002 $M	BY2002 $M	
Unit Cost	**Original UCR Baseline (OCT 2012 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	2715.1	2130.4	
Quantity	2	2	
Unit Cost	1357.550	1065.200	-21.54
Average Procurement Unit Cost (APUC)			
Cost	2656.0	2075.9	
Quantity	2	2	
Unit Cost	1328.000	1037.950	-21.84

AEHF SV 5-6

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	OCT 2012	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 2012	1127.900	1099.150	1488.900	1452.250
Current Estimate	DEC 2013	1065.200	1037.950	1394.850	1360.450

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1744.100	42.600	0.000	0.000	0.000	-391.850	0.000	0.000	-349.250	1394.850

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1707.200	42.150	0.000	0.000	0.000	-388.900	0.000	0.000	-346.750	1360.450

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	2789.7
Total Quantity	N/A	N/A	2	2
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	1744.100	1394.850

Cost Variance

AEHF SV 1-4

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	5468.4	617.3	--	6085.7
Previous Changes				
Economic	+128.5	+57.0	--	+185.5
Quantity	--	+946.0	--	+946.0
Schedule	+1329.0	-61.8	--	+1267.2
Engineering	+88.1	--	--	+88.1
Estimating	+359.0	+1481.2	--	+1840.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1904.6	+2422.4	--	+4327.0
Current Changes				
Economic	-7.4	-4.9	--	-12.3
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+31.5	-60.5	--	-29.0
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+24.1	-65.4	--	-41.3
Total Changes	+1928.7	+2357.0	--	+4285.7
CE - Cost Variance	7397.1	2974.3	--	10371.4
CE - Cost & Funding	7397.1	2974.3	--	10371.4

Summary Base Year 2002 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	5223.7	577.0	--	5800.7
Previous Changes				
Economic	--	--	--	--
Quantity	--	+784.9	--	+784.9
Schedule	+1091.3	--	--	+1091.3
Engineering	+77.0	--	--	+77.0
Estimating	+277.4	+1183.8	--	+1461.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1445.7	+1968.7	--	+3414.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+23.7	-44.8	--	-21.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+23.7	-44.8	--	-21.1
Total Changes	+1469.4	+1923.9	--	+3393.3
CE - Cost Variance	6693.1	2500.9	--	9194.0
CE - Cost & Funding	6693.1	2500.9	--	9194.0

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-7.4
Reduced estimate to reflect prior/current year reductions (budgetary reduction for Small Business Innovative Research). (Estimating)	-12.6	-16.0
Revised estimate due to technical issues associated with Mission Control Segment (MCS) software that resulted in a six-month delay of IOC. (Estimating)	+44.2	+57.4
Adjustment for current and prior escalation. (Estimating)	+4.0	+5.0
Reduced estimate to reflect FY 2013 sequestration reduction; resulted in elimination of Delta IV Compatibility Study. (Estimating)	-11.9	-14.9
RDT&E Subtotal	+23.7	+24.1

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-4.9
Reduced estimate to reflect prior year congressional reductions. (Estimating)	-0.2	-0.2
Revised estimate to reallocate program support between subprograms to better align with program requirements. (Estimating)	-44.7	-61.8
Revised estimate to rephase funding between subprograms to align with AEHF 4 launch operation requirements. (Estimating)	-1.1	0.0
Adjustment for current and prior escalation. (Estimating)	+2.5	+3.1
Reduced estimate to reflect FY 2012 sequestration reduction. (Estimating)	-1.3	-1.6
Procurement Subtotal	-44.8	-65.4

Cost Variance

AEHF SV 5-6

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	73.8	3414.4	--	3488.2
Previous Changes				
Economic	+1.6	+106.1	--	+107.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-2.1	-616.0	--	-618.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-0.5	-509.9	--	-510.4
Current Changes				
Economic	-0.7	-21.8	--	-22.5
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.8	-161.8	--	-165.6
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-4.5	-183.6	--	-188.1
Total Changes	-5.0	-693.5	--	-698.5
CE - Cost Variance	68.8	2720.9	--	2789.7
CE - Cost & Funding	68.8	2720.9	--	2789.7

Summary Base Year 2002 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	59.1	2656.0	--	2715.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-1.6	-457.7	--	-459.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-1.6	-457.7	--	-459.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.0	-122.4	--	-125.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-3.0	-122.4	--	-125.4
Total Changes	-4.6	-580.1	--	-584.7
CE - Cost Variance	54.5	2075.9	--	2130.4
CE - Cost & Funding	54.5	2075.9	--	2130.4

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-0.7
Reduced estimate to reflect prior year actuals. (Estimating)	-3.5	-4.5
Adjustment for current and prior escalation. (Estimating)	+0.3	+0.4
Inflation impact allocated to other program efforts. (Estimating)	+0.2	+0.3
RDT&E Subtotal	-3.0	-4.5

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-21.8
Reduced estimate to reflect prior/current year congressional reductions. (Estimating)	-63.3	-81.0
Reduced estimate to reflect program efficiencies for AEHF 5-6 production and launch operations; savings applied to higher Air Force needs. (Estimating)	-114.0	-153.9
Revised estimate to reallocate program support between subprograms to better align with program requirements. (Estimating)	+45.1	+62.1
Revised estimate to rephase funding between subprograms to align with AEHF 4 launch operation requirements. (Estimating)	+1.2	0.0
Adjustment for current and prior escalation. (Estimating)	+8.6	+11.0
Procurement Subtotal	-122.4	-183.6

Contracts

Appropriation: Procurement	
Contract Name	**SDD Contract**
Contractor	Lockheed Martin Corp.
Contractor Location	Sunnyvale, CA 94089
Contract Number, Type	F04701-02-C-0002/1, CPAF
Award Date	November 16, 2001
Definitization Date	August 15, 2002

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
573.7	N/A	1	1024.1	N/A	1	1182.5	1127.7

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 3 launch operations, additional thermal vacuum testing, an overrun on AEHF 3, addition of AEHF 4 Long Lead parts and various other Engineering Change Proposals.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2014)	+100.9	+1.9
Previous Cumulative Variances	+78.6	-0.6
Net Change	+22.3	+2.5

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to efficiencies in assembly, integration and test and system engineering and program management.

The favorable net change in the schedule variance is due to is due to performing ahead of schedule during orbit raising.

Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

This contract page was reported as contract F04701-02-C-0002, effort #2 in the Dec 2012 SAR. A new contract page was created in order to update the effort number to align with contractor reporting. In addition, the AEHF 4 Long Lead was added to this contract page to reconcile with contractor reporting. In the Dec 2012 SAR, AEHF 4 Long Lead was rolled into contract F04701-02-C-0002, effort #3 which also included AEHF 4 production.

This contract is for AEHF 3 and AEHF 4 Long Lead.

Appropriation: Procurement

Contract Name	**AEHF 4 Production and Launch, 5/6 Long Lead, KI-54**
Contractor	Lockheed Martin Corp.
Contractor Location	Sunnyvale, CA 94089
Contract Number, Type	F04701-02-C-0002/2, CPIF
Award Date	November 16, 2001
Definitization Date	August 15, 2002

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	1598.7	N/A	1	1610.8	1598.7

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 5-6 Long Lead, KI-54D cryptographic device and X37 integration and analysis.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2013)	+26.0	-3.6
Previous Cumulative Variances	+15.1	-5.4
Net Change	+10.9	+1.8

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to the transfer of AEHF 5/6 proposal preparation cost from AEHF 4 to the AEHF 5/6 contract.

The favorable net change in the schedule variance is due to schedule recovery on AEHF 4 payload activities.

Contract Comments

This contract page was reported as contract F04701-02-C-0002, effort #3 in the Dec 2012 SAR. The contract page for F04701-02-C-0002, effort #2 has been updated to reflect AEHF 4, AEHF 5/6 Long Lead, KI-54D and X37 in order to align with contractor reporting. In addition, the AEHF 4 Long Lead was removed from this contract page and added to F04701-02-C-0002, effort #1 in order to align with contractor reporting. In the Dec 2012 SAR, AEHF 4 Long Lead was combined with the AEHF 4 production contract page which was not reflective of contractor reporting.

Appropriation: Procurement

Contract Name	**AHEF 5/6 Long Lead Firm Fixed Price**
Contractor	Lockhee Martin Corp.
Contractor Location	1111 Lockheed Martin Way Sunnyvale, CA 94089
Contract Number, Type	F04701-02-C-0002/3, FFP
Award Date	November 16, 2001
Definitization Date	August 15, 2002

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
193.6	N/A	N/A	193.6	N/A	N/A	193.6	193.6

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Contract Comments

This is the first time this contract is being reported.

This contract page now reflects the Firm Fixed Price (FFP) portion of AEHF 5/6 Long Lead Parts. The Cost Plus Incentive Fee (CPIF) portion of the AEHF 5/6 Long Lead Parts is captured under F04701-02-C-0002, effort #2 and is reported in the contractor CPRs. In the Dec 2012 SAR, F04701-02-C-0002, effort #3 reflected AEHF 4 Long Lead, AEHF 4 Production, CPIF portion of AEHF 5/6 Long Lead, and KI-54. This effort is now part of F04701-02-C-0002, effort #1 and #2.

Appropriation: Procurement

Contract Name	**AEHF 5/6 Production and Launch**
Contractor	Lockheed Martin Corp.
Contractor Location	1111 Lockheed Martin Way Sunnyvale, CA 94089
Contract Number, Type	FA8808-12-C-0010/1, FPIF
Award Date	May 15, 2012
Definitization Date	October 31, 2013

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	1914.4	2001.6	2	1914.4	1914.4

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2014)	+21.2	+9.2
Previous Cumulative Variances	--	--
Net Change	+21.2	+9.2

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to payload manufacturing batch efficiencies, staffing efficiencies and resource sharing across all AEHF programs.

The favorable cumulative schedule variance is due to early starts/completions of bus activities in Telemetry, Tracking & Command, Electrical Power, Structures and Mechanisms and Attitude Control.

Contract Comments

This is the first time this contract is being reported.

This contract is for AEHF 5/6 Production.

Deliveries and Expenditures

AEHF SV 1-4

Delivered to Date	Plan 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	10371.4	Years Appropriated	20
Expended to Date	8683.2	Percent Years Appropriated	86.96%
Percent Expended	83.72%	Appropriated to Date	9903.3
Total Funding Years	23	Percent Appropriated	95.49%

The above data is current as of 3/20/2014.

AEHF SV 5-6

Delivered to Date	Plan 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	2789.7	Years Appropriated	4
Expended to Date	597.4	Percent Years Appropriated	36.36%
Percent Expended	21.41%	Appropriated to Date	1534.0
Total Funding Years	11	Percent Appropriated	54.99%

The above data is current as of 3/20/2014.

Operating and Support Cost

AEHF SV 1-4

Assumptions and Ground Rules

Cost Estimate Reference:
The December 2011 O&S program office estimate included AEHF SV 1-6 through FY 2030.

The Financial Management Procedures Document provides the specific details of the transfer of funds from the Ministry of Defence, Secretary of State for Defence of the United Kingdom of Great Britain and Northern Ireland, Minister of Defence, of the Kingdom of The Netherlands and Department of National Defence of Canada to the DoD in accordance with paragraph 5.2 of the Memorandum of Understanding between the Secretary of Defense on behalf of the DoD of the United States of America and the aforementioned Departments concerning O&S of Advanced EHF Military Satellite Communications (MILSATCOM).

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. The Military Satellite Communications (MILSATCOM) Directorate is working to develop a new sustainment contract to consolidate Protected Satellite Communications activities for AEHF and Milstar satellite systems.

Antecedent Information:
The Milstar 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 segment (5 satellites) and ground segment for FY 2009 - FY 2018.

These estimates were finalized April 15, 2003 with Air Force Space Command's budget request to Headquarters Air Force.

Unitized O&S Costs BY2002 $M		
Cost Element	**AEHF SV 1-4 Annual Average Cost for AEHF System**	**Milstar (Antecedent) Annual Average for 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

Unitized Cost Comments:
AEHF Annual Average for Constellation numbers above reflect costs for planning usage and monitoring health of the AEHF constellation. The formula used to generate the average annual cost:
(AEHF SV 1-4 O&S Cost + AEHF SV 5-6 O&S cost)/16 years

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	AEHF SV 1-4		AEHF SV 1-4	Milstar (Antecedent)
Base Year	1143.6	1258.0	1143.6	801.5
Then Year	1593.6	N/A	1593.6	899.8

Total O&S Costs Comments:
No change in total AEHF O&S costs from previous December 2012 AEHF SAR.

The MILSATCOM Directorate will develop a new cost model in FY 2014 to include updating total O&S costs. O&S costs data were gathered by a Tiger Team whose efforts were to consolidate both Protected Satellite Communications contract activities for AEHF and legacy Milstar satellite systems.

Disposal Costs:

Disposal costs are not included in the above estimate. The disposal estimate is to be determined.

AEHF SV 5-6

Assumptions and Ground Rules

Cost Estimate Reference:
The December 2011 O&S program office estimate included AEHF SV 1-6 through FY 2030.

The Financial Management Procedures Document provides the specific details of the transfer of funds from the Ministry of Defence, Secretary of State for Defence of the United Kingdom of Great Britain and Northern Ireland, Minister of Defence, of the Kingdom of The Netherlands and Department of National Defence of Canada to the DoD in accordance with paragraph 5.2 of the Memorandum of Understanding between the Secretary of Defense on behalf of the DoD of the United States of America and the aforementioned Departments concerning O&S of Advanced EHF Military Satellite Communications (MILSATCOM).

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Total	126.554	80.200

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AEHF Annual Average for Constellation numbers above reflect costs for planning usage and monitoring health of the AEHF constellation. The formula used to generate the average annual cost:
(AEHF SV 1-4 O&S Cost + AEHF SV 5-6 O&S cost)/16 years

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	AEHF SV 5-6		AEHF SV 5-6	Milstar (Antecedent)
Base Year	881.3	969.4	881.3	801.5
Then Year	1453.8	N/A	1453.8	899.8

Total O&S Costs Comments:

No change in total AEHF O&S costs from previous December 2011 AEHF SAR. New report format required breakout of AEHF SV 1-4 and AEHF SV 5-6 costs for comparison to APB Objective/Threshold values.

The MILSATCOM Directorate will develop a new cost model in FY 2014 to include updating total O&S costs. O&S costs data were gathered by a Tiger Team whose efforts were to consolidate both Protected Satellite Communications contract activities for AEHF and legacy Milstar satellite systems.

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