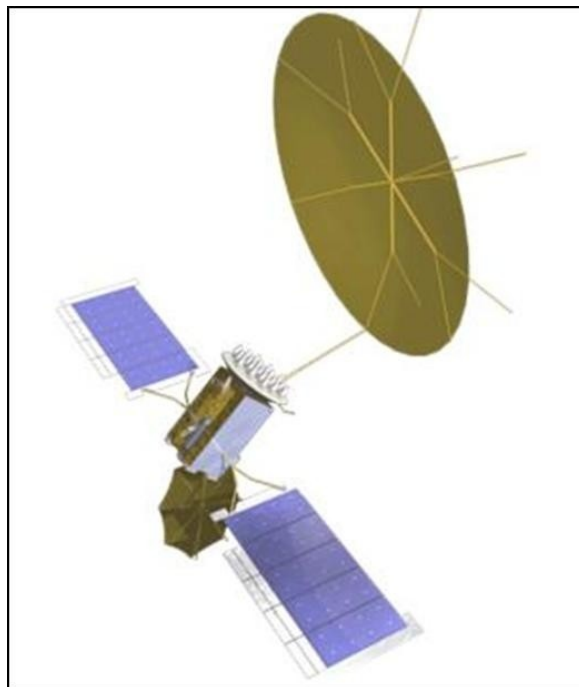




Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-345



Mobile User Objective System (MUOS)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs	3
Program Information	5
Responsible Office	5
References	5
Mission and Description	6
Executive Summary	7
Threshold Breaches	8
Schedule	9
Performance	11
Track to Budget	14
Cost and Funding	15
Low Rate Initial Production	26
Foreign Military Sales	27
Nuclear Costs	27
Unit Cost	28
Cost Variance	31
Contracts	34
Deliveries and Expenditures	36
Operating and Support Cost	37

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

Mobile User Objective System (MUOS) (MUOS)

DoD Component

Navy

Responsible Office

Mr. Wayne Curles
Program Executive Office (Space Systems)
4301 Pacific Highway
San Diego, CA 92110-3127

Phone: 619-524-7839

Fax: 619-524-7861

DSN Phone: 524-7839

DSN Fax:

Date Assigned: June 28, 2007

wallace.curles@navy.mil

References

SAR Baseline (Development Estimate)

Under Secretary of the Air Force (USecAF) Approved Acquisition Program Baseline (APB) dated December 28, 2004

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 15, 2008

Mission and Description

Mobile User Objective System (MUOS) is a narrowband Military Satellite Communications (MILSATCOM) system that supports a worldwide, multi-Service population of mobile and fixed-site terminal users in the Ultra High Frequency (UHF) band, providing increased communications capabilities to smaller terminals while still supporting interoperability to legacy terminals.

MUOS adapts a commercial third generation Wideband Code Division Multiple Access (WCDMA) cellular phone network architecture and combines it with geosynchronous satellites (in place of cell towers) to provide a new and more capable UHF MILSATCOM system. The constellation of four operational satellites and ground network control will provide greater than 10 times the system capacity of the current UHF Follow-On (UFO) constellation.

MUOS includes the satellite constellation, a ground control and network management system, and a new waveform for user terminals. The space portion is comprised of a constellation of four geosynchronous satellites, plus one on-orbit spare. The ground system includes the transport, network management, satellite control, and associated infrastructure to both fly the satellites and manage the users' communications. MUOS is designed to support users that require greater mobility, higher data rates, and improved operational availability. The new waveform is termed the MUOS Common Air Interface (CAI), a Software Communications Architecture compliant modulation technique for the Joint Tactical Radio System (JTRS) terminals. MUOS delivered the first version of the MUOS CAI, Waveform v1.1, to the JTRS Information Repository, for access by terminal developers, in January 2008 and the second Waveform v1.2 in June 2009. Subsequent deliveries are being coordinated to meet porting dates for the JTRS Handheld, Manpack, Small Form Fit (HMS) Manpack integration of the MUOS waveform. The first MUOS satellite is scheduled to provide an On-Orbit Capability (OOC) in 2011 and achieve Full Operational Capability (FOC) in 2015.

The flow of information between users when MUOS is operational will be much different than today's systems. Users will communicate with the satellite via UHF WCDMA links and the satellites will relay this to one of four interconnected ground sites located in Hawaii, Norfolk, Sicily, and Australia via a Ka-band feederlink. These facilities identify the destination of the communications, and route the information to the appropriate ground site for Ka-band uplink to the satellite and UHF WCDMA downlink to the correct users. The network management facility, located in Hawaii, will feature a government-controlled, priority-based resource management capability that will be adaptable and responsive to changing operational communications requirements. Additionally, MUOS will provide access to select Defense Information System Network services, a voice and data capability that has not been available to UHF MILSATCOM users on prior systems. For satellite telemetry, tracking, and commanding, MUOS will utilize existing control centers operated by the Naval Satellite Operations Center Headquarters at Point Mugu, California, and their detachment at Schriever Air Force Base, Colorado Springs, Colorado.

When MUOS is fielded, it will serve a mixed terminal population. Some users will have terminals only able to support the legacy waveforms while other users will have newer terminals able to support the MUOS CAI. In anticipation of this, each MUOS satellite carries a legacy payload similar to that flown on UFO-11. These legacy payloads will continue to support legacy terminals, allowing for a more gradual transition to the MUOS WCDMA waveform.

Executive Summary

The program completed its Build Approval review on February 22, 2008. The Build Approval Acquisition Program Baseline (APB) was approved on March 15, 2008. The Build Approval review authorized the MUOS program to enter Phase D (Build and Operations) and to procure Satellite #3, Long-Lead Material (LLM) for Satellite #4, the Launch Vehicle (LV) for the second satellite, and to continue to work toward production and launch of the first two satellites and deployment/activation of the supporting ground systems.

The Follow-on Buy Decision Review was conducted December 2, 2008. Full approval was not granted per the Acquisition, Technology, and Logistics (AT&L) memorandum dated May 11, 2009. The Overarching Integrated Product Team (OIPT) review on October 13, 2009, led to a "paper" Defense Acquisition Executive (DAE) review. An Acquisition Decision Memorandum (ADM) was signed December 22, 2009 which granted the program approval to acquire Satellite #4, LV #2, and LLM necessary for Satellite #5.

The MUOS satellite production schedule has experienced delays due to several technical issues. Based on the findings from a National Review Team (NRT) and OIPT/DAE Reviews, the MUOS program was re-structured in December 2009 to support a December 2011 On-Orbit Capability (OOC), a 21-month delay from the original (2004) contracted date of March 2010.

In September 2008, the Senate Appropriations Committee – Defense (SAC-D) reduced the Weapons Procurement, Navy (WPN) funding for LV #2 by \$163.5M in Fiscal Year (FY) 2009 due to an assumption of a schedule slip. The MUOS program revised the plan by funding LV #2 with FY 2010 funding originally slated for LV #3. The procurement of LV #2 must be exercised in FY 2010 to support the MUOS launch in FY 2012. Funding in FY 2011 and FY 2012 will be used for subsequent LVs #3 and #4.

Per the ADM, the Navy was directed to submit an Above Threshold Reprogramming (ATR) to fully fund Research, Development, Test & Evaluation, Navy (RDT&E,N) to the Director, Cost and Program Evaluation (D, CAPE) cost assessment of \$433 million in FY 2010.

Additionally, a revised APB is in process as a result of the ADM. This SAR reflects APB Threshold Breaches for Schedule and Cost.

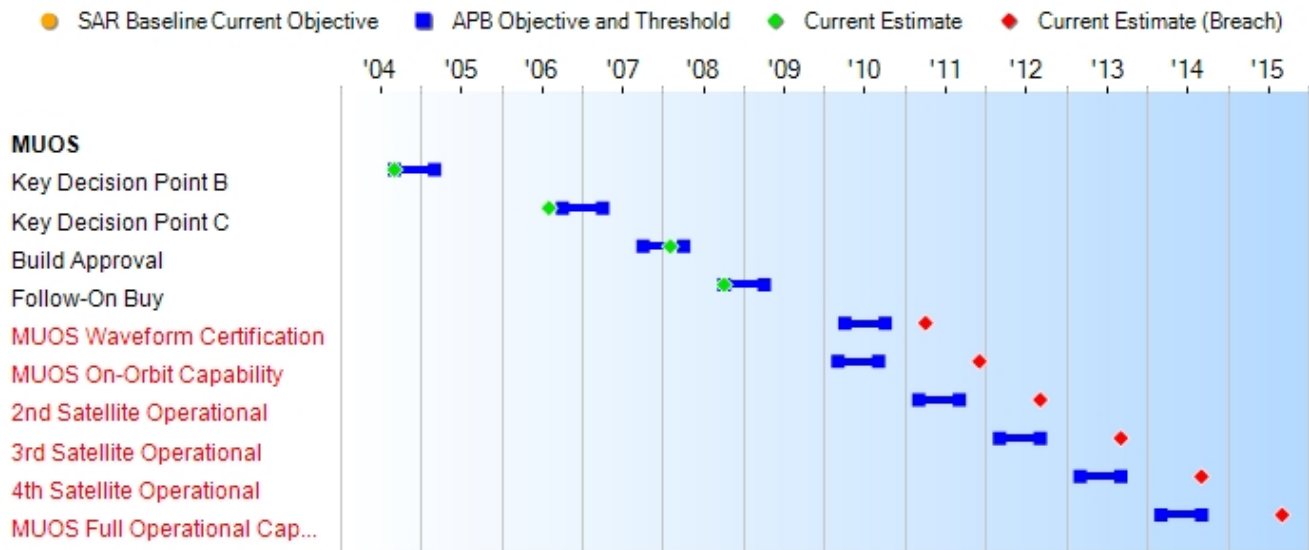
The MUOS program will return to the OIPT for a program review no later than April 2010 and an additional program review no later than September 15, 2010 to obtain approval to acquire Satellite #5 and LVs #3, #4, and #5.

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

Threshold Breaches

APB Breaches		Explanation of Breach	
Schedule	<input checked="" type="checkbox"/>	A Program Deviation Report (PDR) and revised Acquisition Program Baseline (APB) is in process as a result of the Acquisition Decision Memorandum (ADM) that was signed December 22, 2009.	
Performance	<input type="checkbox"/>		
Cost	RDT&E	<input checked="" type="checkbox"/>	A schedule breach exists for the MUOS Waveform Certification due to development delays, which is needed to comply with Unified INFOSEC (Information Security) Criteria (UIC).
	Procurement	<input type="checkbox"/>	
	MILCON	<input type="checkbox"/>	
	Acq O&M	<input type="checkbox"/>	
O&S Cost	<input type="checkbox"/>	The schedule for MUOS On-Orbit Capability (OOC) and follow on satellite operational capabilities breach the current APB threshold based on the Program Manager's overall assessment of the contractor's ability to execute on schedule.	
Unit Cost	<input type="checkbox"/>		
PAUC	<input type="checkbox"/>		
APUC	<input type="checkbox"/>		
Nunn-McCurdy Breaches			
Current UCR Baseline		The Overarching Integrated Product Team (OIPT) review of the program in October 2009 and the ADM in December 2009 directed Navy leadership to fund to the Director, Cost Assessment and Program Estimation (D, CAPE) estimate. The current Research, Development, Test & Evaluation, Navy (RDT&E,N) cost estimate breaches the current APB threshold due to the D, CAPE independent estimate of August 2009 which reflected additional funding required in FY 2011, FY 2012 and FY 2013. As referenced in the Executive Summary, an Above Threshold Reprogramming (ATR) is in process for FY 2010.	
PAUC	None		
APUC	None		
Original UCR Baseline			
PAUC	None		
APUC	None		

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Current Estimate
Key Decision Point B	Sep 2004	Sep 2004	Mar 2005	Sep 2004
Key Decision Point C	Oct 2006	Oct 2006	Apr 2007	Aug 2006
Build Approval	Oct 2007	Oct 2007	Apr 2008	Feb 2008
Follow-On Buy	Oct 2008	Oct 2008	Apr 2009	Oct 2008
MUOS Waveform Certification	Oct 2008	Apr 2010	Oct 2010	Apr 2011¹ (Ch-1)
MUOS On-Orbit Capability	Mar 2010	Mar 2010	Sep 2010	Dec 2011¹ (Ch-2)
2nd Satellite Operational	Mar 2011	Mar 2011	Sep 2011	Sep 2012¹ (Ch-3)
3rd Satellite Operational	Mar 2012	Mar 2012	Sep 2012	Sep 2013¹ (Ch-4)
4th Satellite Operational	Mar 2013	Mar 2013	Sep 2013	Sep 2014¹ (Ch-4)
MUOS Full Operational Capability	Mar 2014	Mar 2014	Sep 2014	Sep 2015¹ (Ch-5)

¹ APB Breach

Change Explanations

(Ch-1) The MUOS Waveform Certification is delayed as the development team works to comply with Unified INFOSEC (Information Security) Criteria (UIC), Security Requirements for Joint Tactical Radio System (JTRS), Revision 2, dated December 2, 2005. In the current Acquisition Program Baseline (APB) in routing, this milestone is being renamed MUOS Waveform Version 2.3 National Security Agency (NSA), Information Assurance (IA) Assessment. The milestone name is changed because the term MUOS Waveform Version 2.3 NSA IA Assessment precisely describes this milestone for the MUOS Common Air Interface (CAI) software package. Certifications are applicable to a terminal with the software loaded, which is not the case in this instance as only the software package is being assessed.

(Ch-2) MUOS On-Orbit Capability (OOC) refers to one satellite with satellite/network control ground station. MUOS initial OOC was delayed due to component-level technical issues and testing anomalies.

(Ch-3) MUOS Satellite #2 operational milestone also includes installation of remaining ground infrastructure. MUOS Satellite #2 is delayed due to technical issues from Satellite #1 and the constraint to maintain separation between satellite launches.

(Ch-4) Satellites #3 and #4 are delayed due to schedule and technical issues of the first two satellites.

(Ch-5) MUOS Full Operational Capability (FOC) refers to Satellite #5 being launched and ready to support operations. MUOS FOC is delayed as a direct result of the planned one year separation between launches starting with Satellite #2.

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Coverage				
24 hours/day at all lats/longs	24 hours/day communications services at all latitudes and longitudes	24 hours/day communications services from 65 degrees North to 65 degrees South latitude at all longitudes	TBD	24 hours/day communications services from 65 degrees North to 65 degrees South latitude at all longitudes
Capacity				
5,991 simultaneous worldwide and 1,506 simultaneous theater accesses	300% worldwide simultaneous accesses (5,991 at 117.6 Mbps) associated with the CMTW scenario	1,997 worldwide simultaneous accesses (39.2 Mbps) with 502 simultaneous theater accesses (3 Mbps)	TBD	1,997 worldwide simultaneous accesses (39.2 Mbps) with 502 simultaneous theater accesses (3 Mbps)
Access and Control				
Resources dynamically configured < 5 minutes; and priority-based access or request queued within 3 seconds	Resources planned, allocated, prioritized, and dynamically configured or reconfigured in less than 5 minutes for all networks; and priority-based access is provided or the request is queued and feedback provided to the user within 3 seconds 90% of the time and 6 seconds 99% of the time	Resources planned, allocated, prioritized, and dynamically configured or reconfigured within 15 minutes and for selected high priority networks within 5 minutes; and priority-based access is provided or the request is queued and feedback provided to the user within 6 seconds 90% of the time and 10 seconds 99% of the time	TBD	Resources planned, allocated, prioritized, and dynamically configured or reconfigured within 15 minutes and for selected high priority networks within 5 minutes; and priority-based access is provided or the request is queued and feedback provided to the user within 6 seconds 90% of the time and 10 seconds 99% of the time
Interoperability				
Interoperability supported for Unified Commands, JTF components, Allies, coalitions, and non-DOD agencies ; and satisfy all IERs	N/A	N/A	N/A	N/A ¹

(Ch-1)

Net Ready				
N/A	Fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views	Fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views	TBD	Fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an Interim Approval to Operate (IATO) by the Designated Approval Authority (DAA), and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views
Types of Service				
Support an asymmetrical multi-cast communications topology	Threshold plus support an asymmetrical multicast communications topology	Support synchronous and asynchronous broadcast, point-to-point, and netted communications topologies	TBD	Support synchronous and asynchronous broadcast, point-to-point, and netted communications topologies
Communications on the Move				
Support	Support communicat-	Support communicat-	TBD	Support communications

(Ch-2)

communications on the move in all environments	ions on the move when and where needed in all environments while engaged in combat operations	ions on the move when and where needed in all environments while engaged in combat operations		on the move when and where needed in all environments while engaged in combat operations
Availability				
Operational link availability = 99%; constellation availability = 90%	Provide an operational link availability of at least 99% averaged over any year of operation and a constellation availability over the required length of service of at least 90%	Provide an operational link availability of at least 97% averaged over any year of operation and a constellation availability over the required length of service of at least 70%	TBD	Provide an operational link availability of at least 97% averaged over any year of operation and a constellation availability over the required length of service of at least 70%

¹ APB Breach

Requirements Reference

July 2001 Operational Requirement Document (ORD) as modified by the September 23, 2003 Joint Requirements Oversight Council-Memorandum (JROC-M, 187-03).

Change Explanations

(Ch-1) Interoperability has been replaced by Net Ready
 (Ch-2) Net Ready replaces Interoperability

Acronyms and Abbreviations

- % - percent
- < - less than
- ATO - Approval to Operate
- CMTW - Combined Major Theater War
- DAA - Designated Approval Authority
- DISR - DOD Informational Technology Standards Region
- DOD - Department of Defense
- GIG - Global Information Grid
- IATO - Interim Approval to Operate
- IER - Information Exchange Requirement
- IT - Information Technology
- JTF - Joint Task Force
- KIPs - Key Interface Profiles
- Mbps - megabits per second
- N/A - not applicable
- NCOW RM - Net-Centric Operations and Warfare Reference Model
- TBD - to be determined
- TV-1 - Technical View 1

Track to Budget

General Notes

Current Estimates in this SAR submission differ from the corresponding amount in the FY2011 President's Budget (PB11). The difference is explained by the fact that PB11, as submitted, reflects the MUOS, Ultra High Frequency (UHF) Augmentation (formerly Hosted Payload) and updates to the UHF Follow-On (UFO) Telemetry, Tracking and Control (TT&C). UHF Augmentation and the UFO TT&C amounts are not part of the MUOS program and therefore, are not reported in this SAR.

RDT&E

Appn	BA	PE
Navy	1319 07	0303109N
	Project	Name
	X2472	Satellite Communications (SPACE)/Mobile User Objective System (Shared)

Procurement

Appn	BA	PE
Navy	1507 02	0303109N
	Line Item	Name
	243300	Fleet Satellite Communications Follow-On (Shared)

MILCON

Appn	BA	PE
Navy	1205 01	0301376N
	Project	Name
	P131	Facilities Restoration & Mod - Communication (Shared)

Acq O&M

Appn	BA	PE
Navy	1804 04	0303109N
	Project	Name
	6M	Satellite Communications (SPACE) (Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2004 \$M			BY 2004 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Production Objective	Current Estimate
RDT&E	3114.0	3245.2	3569.7	3597.5 ¹	3341.2	3636.2	4036.6
Procurement	2591.0	2460.3	2706.3	2264.4	3104.1	3104.1	2789.9
Flyaway	--	--	--	2264.4	--	--	2789.9
Recurring	--	--	--	2264.4	--	--	2789.9
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	30.7	33.8	30.8	0.0	34.5	34.6
Acq O&M	33.0	32.7	36.0	25.7	35.8	35.8	27.4
Total	5738.0	5768.9	N/A	5918.4	6481.1	6810.6	6888.5

¹ APB Breach

Cost Notes

A Program Deviation Report (PDR) and revised Acquisition Program Baseline (APB) is in process as a result of the Acquisition Decision Memorandum (ADM) that was signed December 22, 2009. This SAR reflects APB threshold breaches for schedule and cost.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Production	Current Estimate
RDT&E		2	2
Procurement		4	4
Total		6	6

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	2769.8	353.5	405.7	245.6	126.0	0.0	0.0	136.0	4036.6
Procurement	543.0	509.9	505.7	208.3	206.1	25.7	11.7	779.5	2789.9
MILCON	34.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6
Acq O&M	22.9	4.5	0.0	0.0	0.0	0.0	0.0	0.0	27.4
PB 2011 Total	3370.3	867.9	911.4	453.9	332.1	25.7	11.7	915.5	6888.5
PB 2009 Total	3556.7	887.4	768.8	328.9	115.6	64.1	44.7	915.5	6681.7
Delta	-186.4	-19.5	142.6	125.0	216.5	-38.4	-33.0	0.0	206.8

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	1	1	1	0	0	0	0	1	4
PB 2011 Total	2	1	1	1	0	0	0	0	1	6
PB 2009 Total	2	1	1	1	0	0	0	0	1	6
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	--	--	--	--	--	--	8.6
2001	--	--	--	--	--	--	27.1
2002	--	--	--	--	--	--	32.5
2003	--	--	--	--	--	--	67.0
2004	--	--	--	--	--	--	84.4
2005	--	--	--	--	--	--	375.2
2006	--	--	--	--	--	--	449.5
2007	--	--	--	--	--	--	637.2
2008	--	--	--	--	--	--	591.3
2009	--	--	--	--	--	--	497.0
2010	--	--	--	--	--	--	353.5
2011	--	--	--	--	--	--	405.7
2012	--	--	--	--	--	--	245.6
2013	--	--	--	--	--	--	126.0
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	5.2
2017	--	--	--	--	--	--	5.2
2018	--	--	--	--	--	--	5.2
2019	--	--	--	--	--	--	18.8
2020	--	--	--	--	--	--	74.9
2021	--	--	--	--	--	--	5.2
2022	--	--	--	--	--	--	5.2
2023	--	--	--	--	--	--	5.2
2024	--	--	--	--	--	--	11.1
Subtotal	2	--	--	--	--	--	4036.6

Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2004 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	--	--	--	--	--	--	9.0
2001	--	--	--	--	--	--	28.0
2002	--	--	--	--	--	--	33.2
2003	--	--	--	--	--	--	67.5
2004	--	--	--	--	--	--	82.7
2005	--	--	--	--	--	--	358.3
2006	--	--	--	--	--	--	416.3
2007	--	--	--	--	--	--	576.1
2008	--	--	--	--	--	--	525.0
2009	--	--	--	--	--	--	436.1
2010	--	--	--	--	--	--	306.9
2011	--	--	--	--	--	--	347.3
2012	--	--	--	--	--	--	206.8
2013	--	--	--	--	--	--	104.3
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	4.1
2017	--	--	--	--	--	--	4.0
2018	--	--	--	--	--	--	4.0
2019	--	--	--	--	--	--	14.1
2020	--	--	--	--	--	--	55.1
2021	--	--	--	--	--	--	3.8
2022	--	--	--	--	--	--	3.7
2023	--	--	--	--	--	--	3.6
2024	--	--	--	--	--	--	7.6
Subtotal	2	--	--	--	--	--	3597.5

Annual Funding 1507 Procurement Weapons Procurement, Navy								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2008	--	203.7	--	--	203.7	--	203.7	
2009	1	339.3	--	--	339.3	--	339.3	
2010	1	509.9	--	--	509.9	--	509.9	
2011	1	505.7	--	--	505.7	--	505.7	
2012	--	208.3	--	--	208.3	--	208.3	
2013	--	206.1	--	--	206.1	--	206.1	
2014	--	25.7	--	--	25.7	--	25.7	
2015	--	11.7	--	--	11.7	--	11.7	
2016	--	--	--	--	--	--	--	
2017	--	--	--	--	--	--	--	
2018	--	--	--	--	--	--	--	
2019	--	--	--	--	--	--	--	
2020	--	53.9	--	--	53.9	--	53.9	
2021	1	463.6	--	--	463.6	--	463.6	
2022	--	262.0	--	--	262.0	--	262.0	
Subtotal	4	2789.9	--	--	2789.9	--	2789.9	

Annual Funding 1507 Procurement Weapons Procurement, Navy								
Fiscal Year	Quantity	BY 2004 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2008	--	179.2	--	--	179.2	--	179.2	
2009	1	294.9	--	--	294.9	--	294.9	
2010	1	437.5	--	--	437.5	--	437.5	
2011	1	427.3	--	--	427.3	--	427.3	
2012	--	173.1	--	--	173.1	--	173.1	
2013	--	168.4	--	--	168.4	--	168.4	
2014	--	20.7	--	--	20.7	--	20.7	
2015	--	9.2	--	--	9.2	--	9.2	
2016	--	--	--	--	--	--	--	
2017	--	--	--	--	--	--	--	
2018	--	--	--	--	--	--	--	
2019	--	--	--	--	--	--	--	
2020	--	39.1	--	--	39.1	--	39.1	
2021	1	331.0	--	--	331.0	--	331.0	
2022	--	184.0	--	--	184.0	--	184.0	
Subtotal	4	2264.4	--	--	2264.4	--	2264.4	

Cost Quantity Information		
1507 Procurement Weapons Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2004 \$M
2008	--	--
2009	1	447.8
2010	1	436.5
2011	1	627.7
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	1	752.4
2022	--	--
Subtotal	4	2264.4

Annual Funding 1205 MILCON Military Construction, Navy and Marine Corps	
Fiscal Year	TY \$M
	Total Program
2007	26.1
2008	8.5
Subtotal	34.6

Annual Funding 1205 MILCON Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2004 \$M
	Total Program
2007	23.3
2008	7.5
<hr/>	
Subtotal	30.8

Annual Funding 1804 Acq O&M Operation and Maintenance, Navy	
Fiscal Year	TY \$M
	Total Program
2002	4.2
2003	4.6
2004	4.5
2005	--
2006	--
2007	--
2008	4.6
2009	5.0
2010	4.5
Subtotal	27.4

Annual Funding 1804 Acq O&M Operation and Maintenance, Navy	
Fiscal Year	BY 2004 \$M
	Total Program
2002	4.3
2003	4.6
2004	4.4
2005	--
2006	--
2007	--
2008	4.1
2009	4.4
2010	3.9
Subtotal	25.7

Low Rate Initial Production

There is no Low Rate Initial Production for this program.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

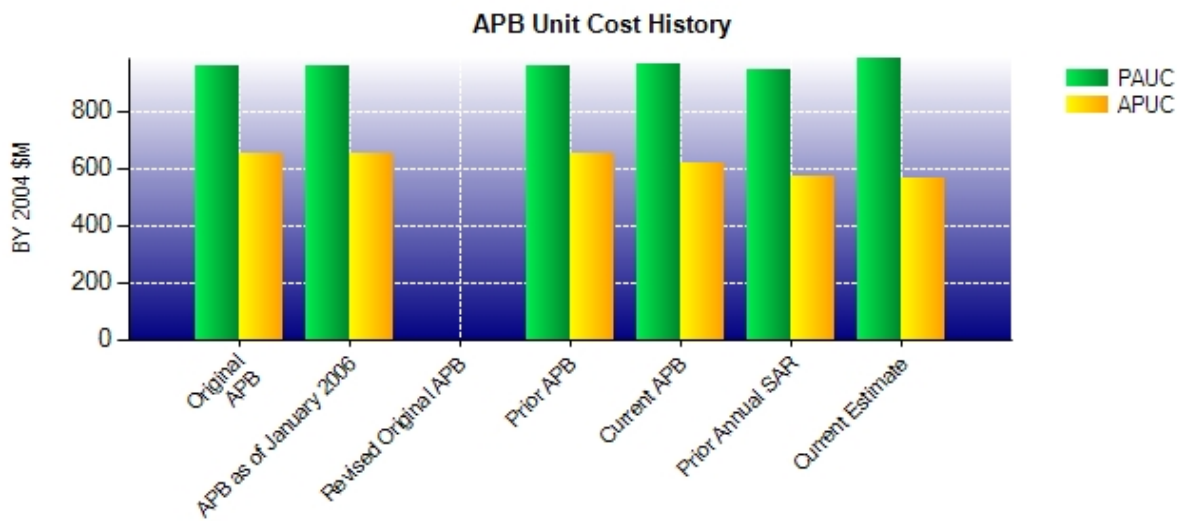
Unit Cost Report

Item	BY 2004 \$M	BY 2004 \$M	% Change
	Current UCR Baseline (Mar 2008 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	5768.9	5918.4	
Quantity	6	6	
Unit Cost	961.483	986.400	+2.59
Average Procurement Unit Cost			
Cost	2460.3	2264.4	
Quantity	4	4	
Unit Cost	615.075	566.100	-7.96

Item	BY 2004 \$M	BY 2004 \$M	% Change
	Original UCR Baseline (Dec 2004 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	5738.0	5918.4	
Quantity	6	6	
Unit Cost	956.333	986.400	+3.14
Average Procurement Unit Cost			
Cost	2591.0	2264.4	
Quantity	4	4	
Unit Cost	647.750	566.100	-12.61

PAUC reflects the sum of six satellites, six launches, the entire ground segment, and the associated support, divided by the total quantity of six. APUC reflects the sum of four satellites and six launches, divided by a procurement quantity of four.

Unit Cost History



Item	Date	BY 2004 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Dec 2004	956.333	647.750	1080.183	776.025
APB as of January 2006	Dec 2004	956.333	647.750	1080.183	776.025
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jan 2007	956.333	647.750	1080.183	776.025
Current APB	Mar 2008	961.483	615.075	1135.100	776.025
Prior Annual SAR	Dec 2007	944.500	573.400	1113.617	722.700
Current Estimate	Dec 2009	986.400	566.100	1148.083	697.475

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1080.183	26.617	0.000	2.750	0.000	38.533	0.000	0.000	67.900	1148.083

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
776.025	12.275	0.000	4.125	0.000	-94.950	0.000	0.000	-78.550	697.475

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	Sep 2004	N/A	Sep 2004
Milestone C	N/A	Oct 2007	N/A	Aug 2006
IOC	N/A	Mar 2010	N/A	N/A
Total Cost (TY \$M)	N/A	6481.1	N/A	6888.5
Total Quantity	N/A	6	N/A	6
PAUC	N/A	1080.183	N/A	1148.083

Milestone (MS) B and C dates reflect National Security Space Acquisition Policy (NSSAP) 03-01 dates for Key Decision Point B and C, not MS B and C as specified in DoD 5000.

Initial Operational Capability (IOC) is synonymous with the term On-Orbit Capability which is referenced by the MUOS Program.

Cost Variance

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	3341.2	3104.1	--	35.8	6481.1
Previous Changes					
Economic	+134.1	+129.3	+0.4	+0.4	+264.2
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+252.4	-342.6	+34.1	-7.5	-63.6
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+386.5	-213.3	+34.5	-7.1	+200.6
Current Changes					
Economic	-24.2	-80.2	--	-0.1	-104.5
Quantity	--	--	--	--	--
Schedule	--	+16.5	--	--	+16.5
Engineering	--	--	--	--	--
Estimating	+333.1	-37.2	+0.1	-1.2	+294.8
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+308.9	-100.9	+0.1	-1.3	+206.8
Adjustments	--	--	--	--	--
Total Changes	+695.4	-314.2	+34.6	-8.4	+407.4
Current Estimate	4036.6	2789.9	34.6	27.4	6888.5

Summary BY 2004 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	3114.0	2591.0	--	33.0	5738.0
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+201.8	-297.4	+30.7	-6.1	-71.0
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+201.8	-297.4	+30.7	-6.1	-71.0
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	+5.0	--	--	+5.0
Engineering	--	--	--	--	--
Estimating	+281.7	-34.2	+0.1	-1.2	+246.4
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+281.7	-29.2	+0.1	-1.2	+251.4
Adjustments	--	--	--	--	--
Total Changes	+483.5	-326.6	+30.8	-7.3	+180.4
Current Estimate	3597.5	2264.4	30.8	25.7	5918.4

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-24.2
Adjustment for current and prior escalation. (Estimating)	+6.1	+7.1
President's Budget 2010 (PB10) funding adjustment to align program funds to D, CAPE estimate, approved December 2008. (FY 2013, FY 2014, FY 2015). (Estimating)	-73.5	-89.8
President's Budget 2011 (PB11) reflects direction for MUOS to fund to Director, Cost and Program Evaluation (D, CAPE) estimate, approved December 2009 (FY 2011, FY 2012, FY 2013) (Estimating)	+362.7	+430.3
Miscellaneous budget adjustments (Realignments, Purchase Inflation Adjust, etc.). (Estimating)	-13.6	-14.5
RDT&E Subtotal	+281.7	+308.9

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-80.2
Delay procurement of Launch Vehicles #2-#5 by one year due to program schedule delays. (Schedule)	+5.0	+16.5
Adjustment for current and prior escalation. (Estimating)	+14.7	+17.0
PB10 budget reductions to align funds to higher priority programs. (Estimating)	-57.3	-70.8
Miscellaneous budget adjustments (Realignments, Purchase Inflation Adjust, etc.). (Estimating)	+8.4	+16.6
Procurement Subtotal	-29.2	-100.9

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Miscellaneous funding adjustment. (Estimating)	+0.1	+0.1
MILCON Subtotal	+0.1	+0.1

Acq O&M	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
PB10 budget reductions to align funds to higher priority programs. (Estimating)	-0.7	-0.6
Miscellaneous budget adjustments (Realignments, Purchase Inflation Adjust, etc.). (Estimating)	-0.6	-0.7
Acq O&M Subtotal	-1.2	-1.3

Contracts

Contract Identification	
Appropriation:	RDT&E
Contract Name:	MUOS RRDD AOS Contract - CLIN 1
Contractor:	Lockheed Martin (LMSSC)
Contractor Location:	Sunnyvale, CA 94089
Contract Number:	N00039-04-C-2009
Contract Type:	Cost Plus Award Fee (CPAF), Cost Plus Incentive Fee (CPIF)
Award Date:	September 24, 2004
Definitization Date:	September 24, 2004

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2097.9	N/A	2	3151.0	N/A	2	3151.0	3491.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2009)	-15.7	0.0
Previous Cumulative Variances	-197.5	-26.6
Net Change	+181.8	+26.6

Cost and Schedule Variance Explanations

General Contract Variance Explanation

The net positive cost and schedule variances reflect the completion of two Over-Target-Baseline (OTB)/Over-Target-Schedule (OTS) events. The cost variance continues to be driven by schedule degradation and technical issues.

Notes

The change in Target Price from \$2,097.9M to \$3,151.0M is due to Engineering Change Proposals (ECP), Undefined Contract Action (UCA) funding, and the implementation of a major rebaseline to incorporate National Review Team (NRT) recommendations.

Contract Identification

Appropriation: Procurement
Contract Name: MUOS RRDD AOS Contract - CLIN 3
Contractor: Lockheed Martin (LMSSC)
Contractor Location: Sunnyvale, CA 94088
Contract Number: N00039-04-C-2009/3
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: September 24, 2004
Definitization Date: September 24, 2004

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
279.0	298.5	1	296.3	332.9	1	332.9	332.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2009)	+4.4	-1.3
Previous Cumulative Variances	--	--
Net Change	+4.4	-1.3

Cost and Schedule Variance Explanations

General Contract Variance Explanation

MUOS is reporting this contract line item for the first time in the SAR. The net changes, although minor, are driven by legacy payload technical issues.

Notes

This is not a new contract but a previous contract line item that was exercised on the MUOS contract N00039-04-C-2009. The change in Target Price from \$279.0M to \$296.3M is due to an Engineering Change Proposal (ECP).

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	4	0.00%
Total Program Quantity Delivered	0	0	6	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	6888.5	Years Appropriated	11
Expended to Date	3155.5	Percent Years Appropriated	44.00%
Percent Expended	45.81%	Appropriated to Date	4238.2
Total Funding Years	25	Percent Appropriated	61.53%

Operating and Support Cost

Assumptions and Ground Rules

The MUOS Operations and Support (O&S) date of estimate is October 2009.

MUOS O&S costs are equivalent to the program's Operations and Maintenance-funded costs for FY2011 through FY2024 (14 years of service life) for six satellites.

The previous system to MUOS is the Ultra High Frequency (UHF) Follow-On (UFO) satellite communications program. Comparisons of O&S costs for UFO are not provided as the two systems did not use the same cost elements for calculation of their respective O&S costs and the scope of support is entirely different.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2004 \$M			
Cost Element	MUOS Cost Per Satellite	UFO (Antecedent) Cost Per Satellite	
Mission Pay & Allowance	0.000		--
Unit Level Consumption	0.000		--
Intermediate Maintenance	0.000		--
Depot Maintenance	0.039		--
Contractor Support	1.119		--
Sustaining Support	0.857		--
Indirect	0.000		--
Other	0.064		--
Total	2.079		--

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	MUOS		UFO (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	158.9	174.8	174.5	N/A
Then Year	223.9	N/A	232.9	N/A

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2004 \$M):