



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-385



Joint Tactical Radio System Handheld, Manpack, and Small Form Fit Radios (JTRS HMS)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

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

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

Program Information

Program Name

Joint Tactical Radio System (JTRS) Handheld, Manpack, and Small Form Fit (HMS) (HMS)

DoD Component

DOD

Joint Participants

US Army; US Navy; US Marine Corps; US Air Force

Army is the lead acquisition component per SECDEF Memo dated August 31, 2009.

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Assigned: July 22, 2009

References

SAR Baseline (Development Estimate)

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated May 19, 2004

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 16, 2008

Mission and Description

The Joint Tactical Radio System (JTRS) Handheld, Manpack and Small Form Fit (HMS) program is an Acquisition Category 1D program developing the materiel solution to provide Software Communications Architecture (SCA) compliant radios to Warfighters. The JTRS HMS program meets the radio requirements for soldiers and small platforms (such as missiles and ground sensors). JTRS HMS Increment 1 is structured as a single program of record with two phases. Phase 1 will develop Small Form Fit (SFF) SFF-A (1 and 2 Channel), SFF-D and SFF-C(v)1 (AN/PRC-154 Rifleman Radio) for use in a sensitive but unclassified environment (Type 2). Phase 2 will develop the 2 Channel Manpack (MP), SFF-B, SFF-J and 2 Channel Handheld (HH) for use in a classified environment (Type 1). JTRS HMS radios are designed to host SCA compliant software waveforms and applications. Phase 1 radios will host the Soldier Radio Waveform (SRW). Phase 2 will host the Soldier Radio Waveform (SRW), Ultra High Frequency (UHF), High Frequency (HF), Satellite Communications (SATCOM), Single Channel Ground to Air Radio System (SINCGARS) waveforms, Enhanced Position Location and Reporting System (EPLRS) and Mobile User Objective System (MUOS). JTRS HMS will provide new networking capability to the individual Soldiers and Marines and also continue to provide legacy radio interoperability. JTRS HMS will support the Net Centric Transport goal of traffic convergence on a single Internet Protocol (IP) internetwork by running JTRS networking services with the SRW. JTRS HMS provides the Warfighter with a software reprogrammable, networkable multi-mode system (of systems) capable of simultaneous voice, data and video communications. The program encompasses specific requirements to support the US Army, US Navy, US Marine Corps, US Air Force and the Special Operations Command (SOCOM) communication needs.

Executive Summary

The JTRS HMS Program achieved a successful Milestone (MS) B decision on April 26, 2004, to begin the development of the JTRS HMS radios. Following full and open competition, a single Cost-Plus-Award Fee (CPAF) contract was awarded on July 16, 2004. Since the previous SAR, a new Acquisition Program Baseline (APB) was established. This APB was signed by the Milestone Decision Authority (MDA) on January 12, 2008, and reflects the restructure of the program in accordance with the March 31, 2006, Acquisition Decision Memorandum (ADM). The contract is structured to address Increment 1 as a single program of record with two phases.

In the first quarter Fiscal Year (FY) 2008, OSD provided guidance to initiate Mobile-User Objective System (MUOS) capability to be hosted on the 2 Channel Manpack (MP) radio. This effort is being coordinated with the satellite and waveform efforts in order to synchronize the delivery of this capability to the warfighter. The MUOS capability will be achieved through the development of a MUOS High Power Amplifier (HPA) for the Manpack. The MDA directed the program to terminate the SFF-I and for OASD (Network and Information Integration) (NII) and OUSD (AT&L) with the JPEO Joint Staff and Services to evaluate the 2 Channel Handheld (2 Channel HH) in an ADM signed September 5, 2008. NII recommended deferral of development of the 2 Channel HH until technology could meet the warfighter requirements. The Services are currently assessing the appropriate timeframe to restart development of the 2 Channel HH. Additionally, the program phases have been restructured to align all Type 2 radios in Phase 1 and Type 1 radios, which have more complex security requirements, in Phase 2. The AN/PRC-154 Rifleman Radio (RR), a variant developed from the original SFF-C, for use in a sensitive but unclassified environment (Type 2) is now reflected as part of the program. The SFF-C evolved from a Land Warrior specific embedded radio to a radio capable of both embedded and stand-alone operation in accordance with changing user requirements. This stand-alone capability is the SFF-C(v)1, AN/PRC-154, as codified in the Rifleman Radio Capability Production Document (CPD).

For Increment 1, Phase 1, the program successfully completed Operational Test Readiness Review (OTRR) in February 2008, Type 2 Design Readiness Review (DRR) in April 2008, and Operational Environment (OE) 4.2 development that enabled SRW 0.5 functionality in October 2008. Phase 1 completed the Contractor's Development Test (CDT) in March 2009, the initial Government Development Test (GDT) in April 2009, the AN/PRC-154 RR Limited User Test (LUT) in April 2009, and the Formal Qualification Test (FQT) for SRW 1.0c Type 2 Soldier System Domain Single Tier in December 2009. In an effort to address the Limited User Test (LUT) deficiencies documented in the Army Test and Evaluation Command (ATEC) Operational Test Assessment (OTA) Milestone Assessment Report (OMAR) of September 2009, the PMO has incorporated several modifications to the LUT Radio to improve its performance, reliability and sustainability. The post LUT modifications will be subject to a verification of correction of deficiencies to validate the improvements. In order to capture these improvements to the LUT Radio, the HMS program was not able to meet its Acquisition Program Baseline Threshold Milestone (MS) C date of February 2010. A Program Deviation Report for the Phase 1 MS C schedule breach from the current APB has been submitted. The program is currently completing the Phase 1 demonstration phase and preparing for a MS C decision in the fourth quarter of FY2010 on the stand-alone RR. The SFF variants go through MS C with the platforms in which they are embedded. In May 2009, the SFF-A finished final integration into the Early Infantry Brigade Combat Team (E-IBCT) platforms in support of their Increment 1 Limited User Test (LUT) in August 2009. The Increment 1 E-IBCT MS C Defense Acquisition Board (DAB) met in December 2009 resulting in an ADM approving low rate initial production for one E-IBCT. The SFF-D is slated for integration in the Unmanned Aerial Vehicle (UAV) Class I Block 1 in PEO Integration (PEO-I) Increment II. The UAV Class I Block 0 was part of the recent PEO-I MS C. The SFF-D underwent a radio selection test in January 2010 with the Small Unmanned Ground Vehicle (SUGV).

For Increment 1, Phase 2, the program successfully completed Critical Information Assurance Technical Interchange Meeting in August 2009 and Type 1 Design Readiness Review (DRR) in September 2009. Phase 2 development entered CDT in October 2009. Operational Environment (OE) 5.0 software code and unit test completed in November 2009. Final OE 5.0 FQT implementing Type 1 INFOSEC is projected for third quarter FY2010 to support a Phase 2 Performance Verification Test (PVT). Phase 2 is scheduled for a MS C decision in the second quarter of FY2011. In addition, MUOS specific efforts included the System Requirements Review (SRR) conducted in September 2008 and the Software Specification Review (SSR) conducted in August 2009. Hardware and software development continues in preparation for MUOS waveform porting with the MUOS High Power Amplifier (HPA) in FY2011.

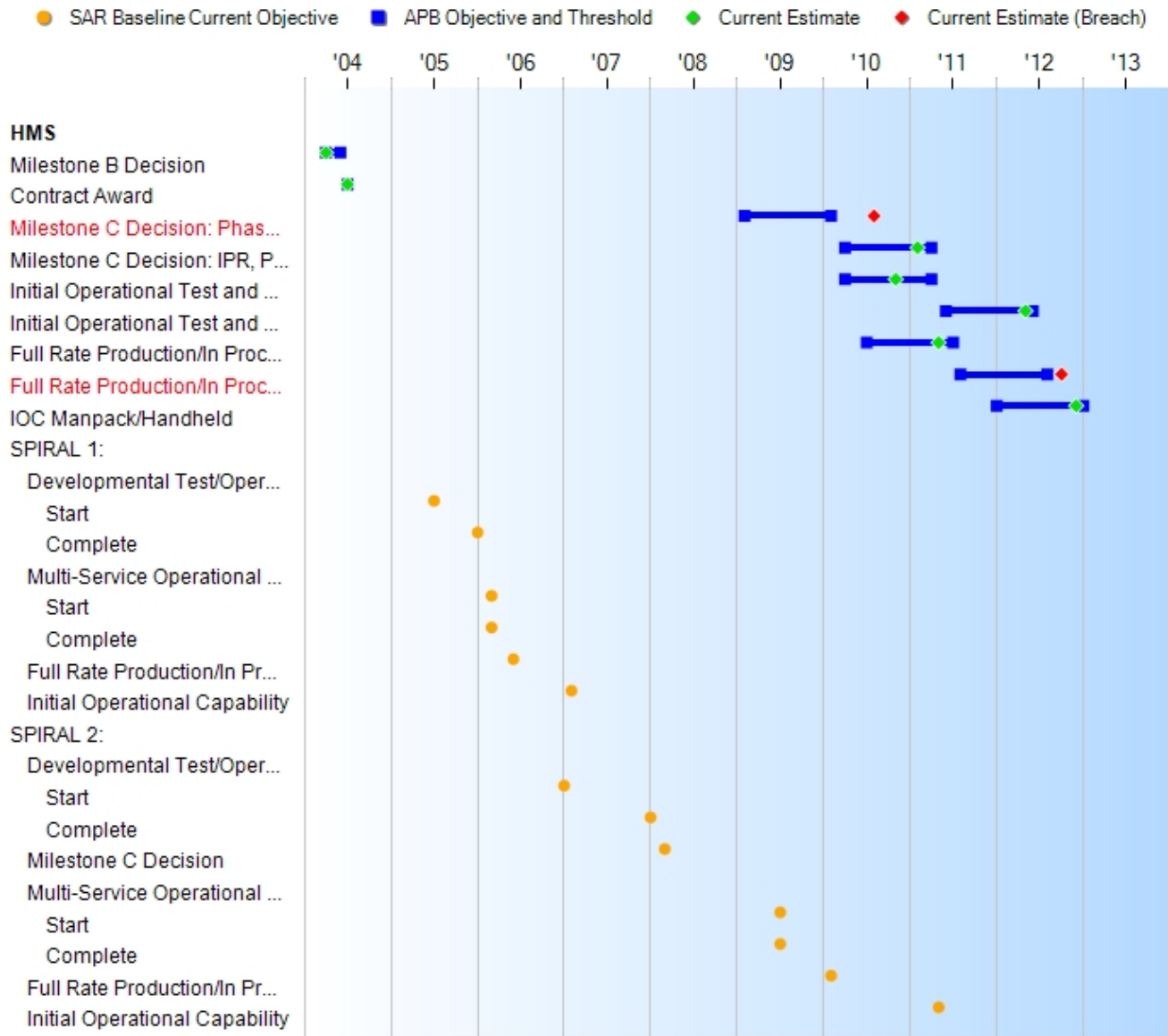
The program continues to deliver developmental radios. As of December 2009, the JTRS HMS contractor delivered 329 Engineering Developmental Models (EDMs) (213 SFF-A, 12 SFF-C, 21 SFF-D, and 83 AN/PRC-154 RR sets) and 303 pre-Engineering Development Models (pre-EDMs) (209 SFF-A, 70 SFF-C, 2 SFF-D, and 22 Manpack Technology Demonstrators).

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

Threshold Breaches

| APB Breaches | | Explanation of Breach |
|------------------------------|-------------------------------------|--|
| Schedule | <input checked="" type="checkbox"/> | <p>Schedule Breach</p> <p>Schedule slips are due to software and hardware integration challenges. Following the April 2009 Limited User Test (LUT), there were on-going software development deficiencies that needed to be corrected and verified in subsequent operational tests.</p> <p>A Program Deviation Report (PDR) for the Phase 1 Milestone C and Phase 2 Full Rate Production (FRP) schedule breaches, from the current APB, is currently in staffing at the Army level and will be submitted to the Under Secretary of Defense, (Acquisition, Technology & Logistics) (AT&L).</p> |
| Performance | <input type="checkbox"/> | |
| Cost | <input type="checkbox"/> | |
| RDT&E | <input type="checkbox"/> | |
| Procurement | <input checked="" type="checkbox"/> | |
| MILCON | <input type="checkbox"/> | <p>Cost Breach</p> <p>There is an increase in quantity requirements as part of the JTRS HMS Increment 1 reset. This has caused the Total Procurement required to increase.</p> <p>A PDR for the procurement threshold breach is in staffing at the Army level and will be submitted to the Under Secretary of Defense (AT&L).</p> |
| Acq O&M | <input type="checkbox"/> | |
| O&S Cost | <input checked="" type="checkbox"/> | |
| Unit Cost | <input type="checkbox"/> | |
| PAUC | <input type="checkbox"/> | <p>Nunn-McCurdy Breaches</p> |
| APUC | <input type="checkbox"/> | |
| Current UCR Baseline | | |
| PAUC | None | |
| APUC | None | |
| Original UCR Baseline | | |
| PAUC | None | |
| APUC | None | |

Schedule



| Schedule Events | | | | |
|--|-----------------------------------|---|----------|------------------------------------|
| Events | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate |
| Milestone B Decision | Apr 2004 | Apr 2004 | Jun 2004 | Apr 2004 |
| Contract Award | Jul 2004 | Jul 2004 | Jul 2004 | Jul 2004 |
| Milestone C Decision: Phase 1 SFF-A (1 and 2 Channel) | N/A | Feb 2009 | Feb 2010 | Aug 2010¹ (Ch-1) |
| Milestone C Decision: IPR, Phase 2 (Manpack, Handheld, SFF-B, SFF-C, SFF-D, SFF-I, SFF-J) | N/A | Apr 2010 | Apr 2011 | Feb 2011 (Ch-2) |
| Initial Operational Test and Evaluation: Phase 1 SFF-A (1 and 2 Channel)) | N/A | Apr 2010 | Apr 2011 | Nov 2010 (Ch-3) |
| Initial Operational Test and Evaluation: Phase 2 (SFF, Manpack, Handheld, SFF-B, SFF C, | N/A | Jun 2011 | Jun 2012 | May 2012 (Ch-4) |
| Full Rate Production/In Process Reviews: Phase 1 SFF-A (1 and 2 Channel) | N/A | Jul 2010 | Jul 2011 | May 2011 (Ch-5) |
| Full Rate Production/In Process Reviews: Phase 2 (Manpack, Handheld, SFF-B, SFF-C, SFF-D SFF-I, SFF-J) | N/A | Aug 2011 | Aug 2012 | Oct 2012¹ (Ch-6) |
| IOC Manpack/Handheld | N/A | Jan 2012 | Jan 2013 | Dec 2012 (Ch-7) |
| SPIRAL 1: | | | | |
| Developmental Test/Operational Test | | | | |
| Start | Jul 2005 | N/A | N/A | N/A |
| Complete | Jan 2006 | N/A | N/A | N/A |
| Multi-Service Operational Test and Evaluation | | | | |
| Start | Mar 2006 | N/A | N/A | N/A |
| Complete | Mar 2006 | N/A | N/A | N/A |
| Full Rate Production/In Process Review (Manpack only) | Jun 2006 | N/A | N/A | N/A |
| Initial Operational Capability | Feb 2007 | N/A | N/A | N/A |
| SPIRAL 2: | | | | |
| Developmental Test/Operational Test | | | | |
| Start | Jan 2007 | N/A | N/A | N/A |
| Complete | Jan 2008 | N/A | N/A | N/A |
| Milestone C Decision | Mar 2008 | N/A | N/A | N/A |
| Multi-Service Operational Test and Evaluation | | | | |
| Start | Jul 2009 | N/A | N/A | N/A |
| Complete | Jul 2009 | N/A | N/A | N/A |
| Full Rate Production/In Process Review (All Form Fit) | Feb 2010 | N/A | N/A | N/A |
| Initial Operational Capability | May 2011 | N/A | N/A | N/A |

¹ APB Breach

Change Explanations

(Ch-1) Milestone C (MS C) (Phase 1) Current Estimate moved from FEB 2009 to AUG 2010 to allow for correction of deficiencies identified at the Limited User Test.

(Ch-2) MS C (Phase 2) Current Estimate moved from APR 2010 to FEB 2011 based on software and hardware integration challenges.

(Ch-3) Initial Operational Test and Evaluation (IOT&E) (Phase 1) Current Estimate moved from APR 2010 to NOV 2010 based on delay in availability of waveform, hardware availability and requirements for additional reliability data.

(Ch-4) IOT&E (Phase 2) Current Estimate moved from JUN 2011 to MAY 2012 based on delay in availability of waveform and hardware availability.

(Ch-5) Full Rate Production In Process Review (FRP IPR) (Phase 1) Current Estimate moved from JUL 2010 to MAY 2011 based on software and hardware integration challenges.

(Ch-6) FRP IPR (Phase 2) Current Estimate moved from AUG 2011 to OCT 2012 based on software and hardware integration challenges.

(Ch-7) IOC for Manpack/Handheld moved from JAN 2012 to DEC 2012 based on definitized schedule in current CPD.

Notes

Current estimate milestones identified with "N/A" have been deleted from the current APB.

A Program Deviation Report (PDR) for the Phase 1 Milestone C schedule breach from the current Acquisition Program Baseline (APB) is in staffing at the Army level and will be submitted to the Under Secretary of Defense (Acquisition, Technology & Logistics).

Acronyms and Abbreviations

IOC - Initial Operational Capability

SFF - Small Form Fit

Performance

| Performance Characteristics | | | | | |
|--|--|--|------------------|--|--------|
| SAR Baseline Development Estimate | Current APB Development Objective/Threshold | Demonstrated Performance | Current Estimate | | |
| Internal growth capability | | | | | |
| Open System Architecture IAW JTA; Modular, Scaleable, Flexible Form Factors | Open System Architecture in accordance with DISR, Modular, Scaleable, Flexible Form Factors | Open System Architecture in accordance with DISR; Modular, Scaleable, Flexible Form Factors | TBD | Open System Architecture in accordance with DISR, Modular, Scalable, Flexible Form Factors | |
| JTRS Set Modes/Capabilities and Configuration and Reconfiguration via Software | | | | | |
| By operators in their operational environment | By operators in their operational environment | By operators in their operational environment | TBD | By operators in their operational environment | |
| Operational Availability A(o) | | | | | |
| 0.99 (Channel | 0.99 (Channel) | 0.96 (Channel | TBD | 0.96 (Channel) | (Ch-1) |
| Operation on designated no. of channels at the same time. All JTRS sets will include GPS except some of Small Form Fit Sets | | | | | |
| Spiral 2: | | | | | |
| Hand-Held | | | | | |
| 3 Channel | 1 and 3 Channel | 2 Channel | TBD | 2 Channel | (Ch-2) |
| Man Pack | | | | | |
| 4 Channel | 4 Channel | 2 Channel | TBD | 2 Channel | (Ch-3) |
| Small Form Fit | | | | | |
| 3 Channel | 1 and 3 Channel | 1 and 2 Channel | TBD | 1 and 2 Channel | (Ch-4) |
| Spiral 1: | | | | | |
| Man Pack | | | | | |
| 4 Channel | N/A | N/A | TBD | N/A ¹ | |
| Multi-channel routing and retransmission | | | | | |
| Objective waveforms that are same in mode (voice, data or video) and use like data rates and operate at permissible security | Objective waveforms that are same in mode (voice, data or video) and use like data rates and operate at permissible security classification levels | KPP waveforms that are same in mode (voice, data or video) and use like data rates and operate at permissible security classification levels | TBD | KPP waveforms that are same in mode (voice, data or video) and use like data rates and operate at permissible security classification levels | (Ch-5) |

| | | | | |
|--|---|---|-----|--|
| classification levels | | | | |
| Scaleable Networking Services | | | | |
| Maritime/Fix-ed Domain | All Domains | All Domains | TBD | All Domains |
| Network Extension/Coverage | | | | |
| Across organization boundaries | Across organization boundaries | Across organization boundaries | TBD | Across organization boundaries |
| JTRS System Network Interoperability | | | | |
| Inter-operate with Allied/Coalition and commercial networks: satisfy 100 % of top-level IERS | 100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements in the Joint Integrated architecture | 100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise-level or critical in the Joint Integrated architecture | TBD | 100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise-level or critical in the Joint Integrated architecture |
| Net Ready (NR) capability | | | | |
| N/A | The system must 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 TV1 2) DISR mandated GIG KIPs identified in the KIP declaration (Table 31) 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA 5) Operationally effective information exchanges; | The system must 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 TV1 2) DISR mandated GIG KIPs identified in the KIP declaration (Table 31) 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA 5) Operationally effective information exchanges; and mission | TBD | The system must 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 TV1 2) DISR mandated GIG KIPs identified in the KIP declaration (Table 31) 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA 5) Operationally effective information exchanges; and mission critical performance and |

(Ch-6)

| | | | | |
|--|---|---|--|--|
| | 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 | critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views | | information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views |
|--|---|---|--|--|

Support Critical Waveforms

| | | | | |
|-----|--|--|-----|---|
| N/A | WF # 14 -VHF FM WF# 17 – VHF/UHF FM LMR (APCO 25) WF # 19 – UHF AM/FM PSK Military Tactical WF #27 – MUOS-CAI WF #28 – Cellular Radio and PCS WF # 30 – Mobile Satellite Service (MSS) WF #32 – Bowman Waveform WF #33 - Range Instrumentat-ion Waveform (RIW) | WF #1 -SINGARS ESIP (MP, HH, SFF-B/I/J only) WF #3 - UHF DAMA SATCOM (MP only) WF #4 - EPLRS (MP, HH, SFF-B/I only) WF #5 - SRW (all HMS sets) WF # 7 - UHF SATCOM (MP only) WF # 9 - HF Single Sideband w/ALE (MP only) | TBD | WF #1 - SINGARS ESIP (MP, HH, SFF-B/J only) WF #3 - UHF DAMA SATCOM (MP only) WF #4 - EPLRS (MP, HH, SFF-B only) WF #5 - SRW (all HMS sets) WF #7 - UHF SATCOM (MP only) WF #9 - HF Single Sideband w/ALE (MP only) WF #27 - MUOS (MP only) |
|-----|--|--|-----|---|

(Ch-7)

Support critical waveforms

Spiral 1:

Man Pack

| | | | | |
|--|-----|-----|-----|------------------|
| WF's 1, 2, 3, 4, 5, 6, 7, 9, 13, 14, 15, 16, 17, 18, 19, 22, 25, 27, 28, 30 and 31 | N/A | N/A | N/A | N/A ¹ |
|--|-----|-----|-----|------------------|

Spiral 2:

Hand-Held

| | | | | |
|---|-----|-----|-----|------------------|
| WF's 1, 2, 4, 5, 9, 14, 16, 17, 25, 26, 27 and 28 | N/A | N/A | N/A | N/A ¹ |
|---|-----|-----|-----|------------------|

Man Pack

| | | | | |
|--|-----|-----|-----|------------------|
| WF's 1, 2, 3, 4, 5, 6, 7, 9, 13, 14, 15, 16, 17, 18, 19, 22, 25, 27, 28, 30 and 31 | N/A | N/A | N/A | N/A ¹ |
|--|-----|-----|-----|------------------|

Small Form Fit

| | | | | |
|------------------------------------|-----|-----|-----|------------------|
| WF's 1, 2, 4, 5, 17, 25, 27 and 28 | N/A | N/A | N/A | N/A ¹ |
|------------------------------------|-----|-----|-----|------------------|

¹ APB Breach

Requirements Reference

Defense Acquisition Executive (DAE) Approved Program Acquisition Baseline (APB) dated January 16, 2008

Change Explanations

(Ch-1) A(o) changed from 0.99 (Channel) to 0.96 (Channel) based on current development.

(Ch-2) Handheld number of channels changed from '1 and 3 Channel' to '2 Channel' based on current development, which will have only a 2 Channel Handheld variant.

(Ch-3) Manpack number of channels changed from '4 Channel' to '2 Channel' based on current development, which will have only a 2 Channel Manpack variant.

(Ch-4) Small Form Fit number of channels changed from '1 and 3 Channel' to '1 and 2 Channel' based on current development, which will have only 1 and 2 Channels for the Small Form Fit variants.

(Ch-5) Multi-channel routing and retransmission changed to reflect only KPP waveforms. No objective waveforms are being used.

(Ch-6) Network Interoperability changed to correct current estimate.

(Ch-7) Waveforms changed from Objective waveforms to Threshold waveforms based on current development, which reflects only KPP waveforms. Added WF #27 MUOS (for MP only).

Notes

Increment 1 JTRS Handheld, Manpack, and Small Form Fit (HMS) Performance Requirements for Increment 1 are based on Joint Requirements Oversight Council Memorandum (JROCM) 131-06 dated June 29, 2006, and JROCM 171-06 dated August 28, 2006. The JROCM 131-06 mandated the Net Ready (NR) KPP and JROCM 171-06 approved the Operational Requirements Document (ORD) Version 3.2.1 NR KPP language as required by Chairman of the Joint Chiefs of Staff (CJCSI) 6212.01D dated March 8, 2006.

Waveforms:

WF1 - Single Channel Ground and Airborne Radio System (SINCGARS) Enhanced SINCGARS Improvement Program (ESIP) (Very High Frequency-Frequency Modulation (VHF-FM) Military Tactical Anti-jam (AJ))

WF2 - HAVE QUICK II

WF3 - Ultra High Frequency (UHF) Satellite Communications (SATCOM) Military (181-182-183 Demand Assigned Multiple Access (DAMA))

WF4 - Enhanced Position Location Reporting System (EPLRS)

WF5 - Wideband Networking Waveform (WNW)

WF6 - Link 16/Tactical Digital Information Link (TADIL)-J

WF7 - UHF SATCOM Military Protocol (184)

WF9 - HF Single Side Band (SSB) with Automatic Link Establishment (ALE)

WF13 - HF Air Traffic Control (ATC) Data Link

WF14 - VHF-FM Military Tactical

WF15 - VHF-Amplitude Modulation (AM) Air Traffic Control (ATC) (8.33KHz)

WF16 - VHF-AM ATC (25KHz)

WF17 - VHF/UHF FM Land Mobile Radio (FM LMR)

WF18 - VHF ATC Data Link Next Generation Communication (NEXCOM)

WF19 - UHF AM/FM Phase Shift Keyed (PSK) Military Tactical

WF22 - Second generation Anti-jam Tactical UHF Radio for North Atlantic Treaty Organization (NATO) (SATURN) (UHF PSK AJ NATO)

WF25 - Soldier Radio and Wireless Local Area Network (WLAN) and Advanced Capability
WF26 - Collection of Broadcasts from Remote Assets (COBRA)
WF27 - Mobile User Objective System (MUOS)-Common Air Interface (CAI)
WF28 - Cellular Radio & Personal Communications Service (PCS)
WF30 - Mobile Satellite Service (MSS)
WF31 - Integrated Broadcast Service (IBS) - M
WF32 - Bowman (VHF, UHF & HF) Waveform
WF33 - Range Instrumentation Waveform (RIW)

The JTRS EPLRS waveform code base is not Unified INFOSEC Criteria (UIC) 2005 compliant as a result of 2700+ National Security Agency (NSA) Information Assurance assessment findings in the Legacy EPLRS waveform software reused for JTRS EPLRS waveform development. The Program is awaiting Network and Information Integration (NII) decision regarding the preferred path forward for fixing the Legacy EPLRS Waveform Information Assurance (IA) deficiencies in either the Army Legacy EPLRS waveform baseline, the JTRS EPLRS waveform baseline, or both.

In first quarter Fiscal Year (FY) 2008, OSD provided guidance to initiate MUOS capability effort. In order to add this capability, General Dynamics was contracted to develop a MUOS full duplex modem and High Power Amplifier for the half duplex 2 Channel Manpack radio currently under development. This effort is being coordinated with the satellite and waveform efforts in order to synchronize the delivery of this capability to the warfighter.

Acronyms and Abbreviations

ATO - Approval to Operate
DAA - Designated Approval Authority
DISR - Department of Defense Information Technology Standards Registry
DOD - Department of Defense
GIG - Global Information Grid
GPS - Global Positioning System
IATO - Interim Approval to Operate
IERS - Information Exchange Requirements
IT - Information Technology
JTRS - Joint Tactical Radio System
KIP - Key Interface Profiles
KPP - Key Performance Parameter
NCOW - Net-Centric Operations and Warfare
NCOW RM - Net-Centric Operations and Warfare Reference Model
WF - Waveform

Track to Budget

RDT&E

| Appn | BA | PE | |
|-----------|----------------|-----------------------------|----------|
| Army | 2040 | 05 | 0604280A |
| | Project | Name | |
| | 162 | Project 162 (Shared) | |
| Air Force | 3600 | 05 | 0604280F |
| | Project | Name | |
| | 5068 | Project 5068 (Shared) | |
| Navy | 1319 | 05 | 0604280N |
| | Project | Name | |
| | 3075 | Project 3075 | |
| Army | 2040 | 05 | 0604805A |
| | Project | Name | |
| | 615 | Project 615 (Shared) (Sunk) | |
| | 61A | Project 61A (Sunk) | |

Notes

PE# 0604805A Projects 615 and 61A represent sunk costs.

Procurement

| Appn | BA | PE | |
|-----------|------------------------------|--------------------------------|----------|
| Navy | 1810 | 05 | 0204163N |
| | Line Item | Name | |
| | 3057 | Navy (Shared) | |
| Navy | 1109 | 04 | 0206313M |
| | Line Item | Name | |
| | 4633 | Marine Corps (Shared) | |
| | Notes: (Marine Corps) | | |
| Army | 2035 | 02 | 0310700A |
| | Line Item | Name | |
| | B90210 | JTRS HMS | |
| Army | 2035 | 03 | |
| | Line Item | Name | |
| | R80501 | Ground Soldier System (Shared) | |
| Air Force | 3080 | 03 | 0207423F |
| | Line Item | Name | |
| | 8371 | Air Force (Shared) | |

Cost and Funding

Cost Summary

| Total Acquisition Cost | | | | | | | |
|------------------------|-----------------------------------|---|--------|---------------------|-----------------------------------|-----------------------------------|------------------|
| Appropriation | BY 2004 \$M | | | BY 2004 \$M | TY \$M | | |
| | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate | SAR Baseline Development Estimate | Current APB Development Objective | Current Estimate |
| RDT&E | 465.0 | 729.8 | 802.8 | 776.6 | 489.0 | 820.5 | 866.0 |
| Procurement | 8104.0 | 1935.6 | 2129.2 | 3370.6 ¹ | 10228.0 | 2619.9 | 4374.4 |
| Flyaway | -- | -- | -- | 2364.4 | -- | -- | 3038.3 |
| Recurring | -- | -- | -- | 2348.8 | -- | -- | 3019.4 |
| Non Recurring | -- | -- | -- | 15.6 | -- | -- | 18.9 |
| Support | -- | -- | -- | 1006.2 | -- | -- | 1336.1 |
| Other Support | -- | -- | -- | 797.0 | -- | -- | 1066.4 |
| Initial Spares | -- | -- | -- | 209.2 | -- | -- | 269.7 |
| 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 | 8569.0 | 2665.4 | N/A | 4147.2 | 10717.0 | 3440.4 | 5240.4 |

¹ APB Breach

| Total Quantity | | | |
|----------------|-----------------------------------|-------------------------|------------------|
| Quantity | SAR Baseline Development Estimate | Current APB Development | Current Estimate |
| RDT&E | 1060 | 410 | 410 |
| Procurement | 327614 | 95551 | 215551 |
| Total | 328674 | 95961 | 215961 |

Quantity Notes

Unit of measure is an HMS radio, which includes multiple variants (Handheld, Manpack, or various Small Form Fits).

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 | 653.1 | 132.4 | 70.1 | 3.9 | 6.2 | 0.3 | 0.0 | 0.0 | 866.0 |
| Procurement | 0.0 | 50.5 | 174.0 | 330.5 | 421.8 | 411.4 | 394.7 | 2591.5 | 4374.4 |
| MILCON | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PB 2011 Total | 653.1 | 182.9 | 244.1 | 334.4 | 428.0 | 411.7 | 394.7 | 2591.5 | 5240.4 |
| PB 2009 Total | 711.7 | 116.4 | 115.9 | 484.0 | 464.7 | 279.1 | 229.8 | 965.3 | 3366.9 |
| Delta | -58.6 | 66.5 | 128.2 | -149.6 | -36.7 | 132.6 | 164.9 | 1626.2 | 1873.5 |

Funding Notes

The Joint Tactical Radio System (JTRS) Common Research, Development, Test, and Evaluation (RDT&E) funding was consolidated under one Navy Program Element (PE 0604280N) in Fiscal Years (FY) 2007-2011 to consolidate execution under one Military Department (MILDEP). For all budget out years (currently FY2012-2015), each MILDEP provides funding for one third of all JTRS common development efforts. As a result, the Army, Air Force and Navy JTRS RDT&E Budgets (PEs 0604280A/0604280F/0604280N respectively) capture the entire JTRS Development funding profile through FY2015. Increases in funding reflect the changes to a moderate risk schedule which added additional schedule for development and necessitated additional funding. Increases in procurement funding are based on quantity increases.

A PDR for the procurement threshold breach is in staffing at the Army level and will be submitted to the Under Secretary of Defense (AT&L).

| 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 | 410 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 410 |
| Production | 0 | 0 | 3702 | 4186 | 10896 | 13949 | 13789 | 13486 | 155543 | 215551 |
| PB 2011 Total | 410 | 0 | 3702 | 4186 | 10896 | 13949 | 13789 | 13486 | 155543 | 215961 |
| PB 2009 Total | 410 | 174 | 880 | 3699 | 14782 | 12538 | 8821 | 7958 | 46699 | 95961 |
| Delta | 0 | -174 | 2822 | 487 | -3886 | 1411 | 4968 | 5528 | 108844 | 120000 |

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 |
| 2007 | -- | -- | -- | -- | -- | -- | 132.9 |
| 2008 | -- | -- | -- | -- | -- | -- | 150.6 |
| 2009 | -- | -- | -- | -- | -- | -- | 127.0 |
| 2010 | -- | -- | -- | -- | -- | -- | 132.4 |
| 2011 | -- | -- | -- | -- | -- | -- | 69.3 |
| 2012 | -- | -- | -- | -- | -- | -- | 1.2 |
| 2013 | -- | -- | -- | -- | -- | -- | 2.0 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 252 | -- | -- | -- | -- | -- | 615.5 |

| 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 |
| 2007 | -- | -- | -- | -- | -- | -- | 120.1 |
| 2008 | -- | -- | -- | -- | -- | -- | 133.7 |
| 2009 | -- | -- | -- | -- | -- | -- | 111.4 |
| 2010 | -- | -- | -- | -- | -- | -- | 114.9 |
| 2011 | -- | -- | -- | -- | -- | -- | 59.3 |
| 2012 | -- | -- | -- | -- | -- | -- | 1.0 |
| 2013 | -- | -- | -- | -- | -- | -- | 1.7 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 252 | -- | -- | -- | -- | -- | 542.2 |

| Annual Funding | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 2040 RDT&E Research, Development, Test, and Evaluation, Army | | | | | | | |
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2004 | -- | -- | -- | -- | -- | -- | 21.9 |
| 2005 | -- | -- | -- | -- | -- | -- | 96.1 |
| 2006 | -- | -- | -- | -- | -- | -- | 124.6 |
| 2007 | -- | -- | -- | -- | -- | -- | -- |
| 2008 | -- | -- | -- | -- | -- | -- | -- |
| 2009 | -- | -- | -- | -- | -- | -- | -- |
| 2010 | -- | -- | -- | -- | -- | -- | -- |
| 2011 | -- | -- | -- | -- | -- | -- | 0.8 |
| 2012 | -- | -- | -- | -- | -- | -- | 1.4 |
| 2013 | -- | -- | -- | -- | -- | -- | 2.1 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 139 | -- | -- | -- | -- | -- | 247.0 |

| Annual Funding | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 2040 RDT&E Research, Development, Test, and Evaluation, Army | | | | | | | |
| Fiscal Year | Quantity | BY 2004 \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2004 | -- | -- | -- | -- | -- | -- | 21.4 |
| 2005 | -- | -- | -- | -- | -- | -- | 91.3 |
| 2006 | -- | -- | -- | -- | -- | -- | 115.1 |
| 2007 | -- | -- | -- | -- | -- | -- | -- |
| 2008 | -- | -- | -- | -- | -- | -- | -- |
| 2009 | -- | -- | -- | -- | -- | -- | -- |
| 2010 | -- | -- | -- | -- | -- | -- | -- |
| 2011 | -- | -- | -- | -- | -- | -- | 0.7 |
| 2012 | -- | -- | -- | -- | -- | -- | 1.2 |
| 2013 | -- | -- | -- | -- | -- | -- | 1.7 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 139 | -- | -- | -- | -- | -- | 231.5 |

| Annual Funding | | | | | | | |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 3600 RDT&E Research, Development, Test, and Evaluation, Air Force | | | | | | | |
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2012 | -- | -- | -- | -- | -- | -- | 1.3 |
| 2013 | -- | -- | -- | -- | -- | -- | 2.1 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 19 | -- | -- | -- | -- | -- | 3.5 |

| Annual Funding 3600 RDT&E Research, Development, Test, and Evaluation, Air Force | | | | | | | |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| Fiscal Year | Quantity | BY 2004 \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2012 | -- | -- | -- | -- | -- | -- | 1.1 |
| 2013 | -- | -- | -- | -- | -- | -- | 1.7 |
| 2014 | -- | -- | -- | -- | -- | -- | 0.1 |
| Subtotal | 19 | -- | -- | -- | -- | -- | 2.9 |

| Annual Funding | | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 1109 Procurement Procurement, Marine Corps | | | | | | | | |
| Fiscal Year | Quantity | TY \$M | | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program | |
| 2011 | 50 | 3.1 | -- | -- | 3.1 | 1.2 | 4.3 | |
| 2012 | 362 | 18.5 | -- | -- | 18.5 | 1.7 | 20.2 | |
| 2013 | 362 | 17.0 | -- | -- | 17.0 | 2.7 | 19.7 | |
| 2014 | 362 | 16.2 | -- | -- | 16.2 | 4.3 | 20.5 | |
| 2015 | 362 | 15.9 | -- | -- | 15.9 | 4.0 | 19.9 | |
| 2016 | 200 | 4.9 | -- | -- | 4.9 | 3.0 | 7.9 | |
| 2017 | 1796 | 42.1 | -- | -- | 42.1 | 3.0 | 45.1 | |
| 2018 | 1796 | 41.3 | -- | -- | 41.3 | 5.5 | 46.8 | |
| 2019 | 1796 | 41.1 | -- | -- | 41.1 | 5.1 | 46.2 | |
| 2020 | 1796 | 41.3 | -- | -- | 41.3 | 7.9 | 49.2 | |
| Subtotal | 8882 | 241.4 | -- | -- | 241.4 | 38.4 | 279.8 | |

| Annual Funding | | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 1109 Procurement Procurement, Marine Corps | | | | | | | | |
| Fiscal Year | Quantity | BY 2004 \$M | | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program | |
| 2011 | 50 | 2.6 | -- | -- | 2.6 | 1.0 | 3.6 | |
| 2012 | 362 | 15.4 | -- | -- | 15.4 | 1.4 | 16.8 | |
| 2013 | 362 | 13.9 | -- | -- | 13.9 | 2.2 | 16.1 | |
| 2014 | 362 | 13.0 | -- | -- | 13.0 | 3.5 | 16.5 | |
| 2015 | 362 | 12.6 | -- | -- | 12.6 | 3.1 | 15.7 | |
| 2016 | 200 | 3.8 | -- | -- | 3.8 | 2.3 | 6.1 | |
| 2017 | 1796 | 32.2 | -- | -- | 32.2 | 2.3 | 34.5 | |
| 2018 | 1796 | 31.0 | -- | -- | 31.0 | 4.2 | 35.2 | |
| 2019 | 1796 | 30.4 | -- | -- | 30.4 | 3.7 | 34.1 | |
| 2020 | 1796 | 30.0 | -- | -- | 30.0 | 5.7 | 35.7 | |
| Subtotal | 8882 | 184.9 | -- | -- | 184.9 | 29.4 | 214.3 | |

| Annual Funding 1810 Procurement Other 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 | |
| 2011 | 255 | 15.5 | -- | -- | 15.5 | 5.1 | 20.6 | |
| 2012 | 300 | 15.4 | -- | -- | 15.4 | 2.3 | 17.7 | |
| 2013 | 335 | 15.7 | -- | -- | 15.7 | 2.6 | 18.3 | |
| 2014 | 350 | 15.7 | -- | -- | 15.7 | 3.0 | 18.7 | |
| 2015 | 237 | 10.4 | -- | -- | 10.4 | 3.1 | 13.5 | |
| Subtotal | 1477 | 72.7 | -- | -- | 72.7 | 16.1 | 88.8 | |

| Annual Funding 1810 Procurement Other 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 | |
| 2011 | 255 | 13.1 | -- | -- | 13.1 | 4.3 | 17.4 | |
| 2012 | 300 | 12.8 | -- | -- | 12.8 | 1.9 | 14.7 | |
| 2013 | 335 | 12.9 | -- | -- | 12.9 | 2.1 | 15.0 | |
| 2014 | 350 | 12.6 | -- | -- | 12.6 | 2.4 | 15.0 | |
| 2015 | 237 | 8.2 | -- | -- | 8.2 | 2.5 | 10.7 | |
| Subtotal | 1477 | 59.6 | -- | -- | 59.6 | 13.2 | 72.8 | |

| Annual Funding 2035 Procurement Other Procurement, Army | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2010 | 3702 | 29.9 | -- | 3.2 | 33.1 | 17.4 | 50.5 |
| 2011 | 2980 | 45.3 | -- | 6.3 | 51.6 | 31.5 | 83.1 |
| 2012 | 8562 | 147.1 | -- | -- | 147.1 | 37.1 | 184.2 |
| 2013 | 11105 | 210.9 | -- | 2.9 | 213.8 | 52.7 | 266.5 |
| 2014 | 12095 | 233.8 | -- | -- | 233.8 | 77.8 | 311.6 |
| 2015 | 12352 | 249.9 | -- | -- | 249.9 | 79.1 | 329.0 |
| 2016 | 22121 | 268.9 | -- | 6.5 | 275.4 | 98.8 | 374.2 |
| 2017 | 16450 | 227.8 | -- | -- | 227.8 | 103.2 | 331.0 |
| 2018 | 16484 | 238.7 | -- | -- | 238.7 | 107.2 | 345.9 |
| 2019 | 14545 | 118.7 | -- | -- | 118.7 | 114.4 | 233.1 |
| 2020 | 14119 | 102.1 | -- | -- | 102.1 | 73.9 | 176.0 |
| 2021 | 14231 | 105.2 | -- | -- | 105.2 | 74.4 | 179.6 |
| 2022 | 14126 | 103.6 | -- | -- | 103.6 | 73.7 | 177.3 |
| 2023 | 13144 | 83.8 | -- | -- | 83.8 | 52.9 | 136.7 |
| 2024 | 10394 | 65.3 | -- | -- | 65.3 | 52.3 | 117.6 |
| 2025 | 3169 | 14.6 | -- | -- | 14.6 | 39.6 | 54.2 |
| 2026 | 3169 | 14.8 | -- | -- | 14.8 | 37.3 | 52.1 |
| 2027 | 1447 | 9.6 | -- | -- | 9.6 | 38.1 | 47.7 |
| 2028 | 317 | 6.2 | -- | -- | 6.2 | 22.2 | 28.4 |
| Subtotal | 194512 | 2276.2 | -- | 18.9 | 2295.1 | 1183.6 | 3478.7 |

| Annual Funding 2035 Procurement Other Procurement, Army | | | | | | | |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| Fiscal Year | Quantity | BY 2004 \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2010 | 3702 | 25.8 | -- | 2.8 | 28.6 | 14.9 | 43.5 |
| 2011 | 2980 | 38.4 | -- | 5.3 | 43.7 | 26.7 | 70.4 |
| 2012 | 8562 | 122.6 | -- | -- | 122.6 | 31.0 | 153.6 |
| 2013 | 11105 | 172.9 | -- | 2.4 | 175.3 | 43.2 | 218.5 |
| 2014 | 12095 | 188.4 | -- | -- | 188.4 | 62.8 | 251.2 |
| 2015 | 12352 | 198.1 | -- | -- | 198.1 | 62.6 | 260.7 |
| 2016 | 22121 | 209.6 | -- | 5.1 | 214.7 | 76.9 | 291.6 |
| 2017 | 16450 | 174.6 | -- | -- | 174.6 | 79.0 | 253.6 |
| 2018 | 16484 | 179.9 | -- | -- | 179.9 | 80.7 | 260.6 |
| 2019 | 14545 | 87.9 | -- | -- | 87.9 | 84.8 | 172.7 |
| 2020 | 14119 | 74.4 | -- | -- | 74.4 | 53.8 | 128.2 |
| 2021 | 14231 | 75.4 | -- | -- | 75.4 | 53.2 | 128.6 |
| 2022 | 14126 | 73.0 | -- | -- | 73.0 | 51.9 | 124.9 |
| 2023 | 13144 | 58.0 | -- | -- | 58.0 | 36.7 | 94.7 |
| 2024 | 10394 | 44.5 | -- | -- | 44.5 | 35.6 | 80.1 |
| 2025 | 3169 | 9.8 | -- | -- | 9.8 | 26.5 | 36.3 |
| 2026 | 3169 | 9.7 | -- | -- | 9.7 | 24.6 | 34.3 |
| 2027 | 1447 | 6.2 | -- | -- | 6.2 | 24.7 | 30.9 |
| 2028 | 317 | 3.9 | -- | -- | 3.9 | 14.2 | 18.1 |
| Subtotal | 194512 | 1753.1 | -- | 15.6 | 1768.7 | 883.8 | 2652.5 |

| Annual Funding 3080 Procurement Other Procurement, Air Force | | | | | | | | |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| Fiscal Year | Quantity | TY \$M | | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program | |
| 2011 | 901 | 50.5 | -- | -- | 50.5 | 15.5 | 66.0 | |
| 2012 | 1672 | 95.7 | -- | -- | 95.7 | 12.7 | 108.4 | |
| 2013 | 2147 | 101.9 | -- | -- | 101.9 | 15.4 | 117.3 | |
| 2014 | 982 | 46.5 | -- | -- | 46.5 | 14.1 | 60.6 | |
| 2015 | 535 | 23.1 | -- | -- | 23.1 | 9.2 | 32.3 | |
| 2016 | 815 | 28.5 | -- | -- | 28.5 | 9.2 | 37.7 | |
| 2017 | 2201 | 50.7 | -- | -- | 50.7 | 6.1 | 56.8 | |
| 2018 | 460 | 10.4 | -- | -- | 10.4 | 6.6 | 17.0 | |
| 2019 | 736 | 16.6 | -- | -- | 16.6 | 4.4 | 21.0 | |
| 2020 | 231 | 5.2 | -- | -- | 5.2 | 4.8 | 10.0 | |
| Subtotal | 10680 | 429.1 | -- | -- | 429.1 | 98.0 | 527.1 | |

| Annual Funding | | | | | | | | |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3080 Procurement Other Procurement, Air Force | | | | | | | | |
| Fiscal Year | Quantity | BY 2004 \$M | | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program | |
| 2011 | 901 | 43.3 | -- | -- | 43.3 | 13.3 | 56.6 | |
| 2012 | 1672 | 80.8 | -- | -- | 80.8 | 10.7 | 91.5 | |
| 2013 | 2147 | 84.6 | -- | -- | 84.6 | 12.8 | 97.4 | |
| 2014 | 982 | 38.0 | -- | -- | 38.0 | 11.5 | 49.5 | |
| 2015 | 535 | 18.5 | -- | -- | 18.5 | 7.4 | 25.9 | |
| 2016 | 815 | 22.5 | -- | -- | 22.5 | 7.3 | 29.8 | |
| 2017 | 2201 | 39.3 | -- | -- | 39.3 | 4.8 | 44.1 | |
| 2018 | 460 | 7.9 | -- | -- | 7.9 | 5.1 | 13.0 | |
| 2019 | 736 | 12.5 | -- | -- | 12.5 | 3.3 | 15.8 | |
| 2020 | 231 | 3.8 | -- | -- | 3.8 | 3.6 | 7.4 | |
| Subtotal | 10680 | 351.2 | -- | -- | 351.2 | 79.8 | 431.0 | |

Low Rate Initial Production

At the Milestone B, LRIP of not to exceed 10 percent of the Full Rate Production was approved. Specific quantity amounts will be identified at the Milestone C.

Foreign Military Sales

None

Nuclear Costs

None

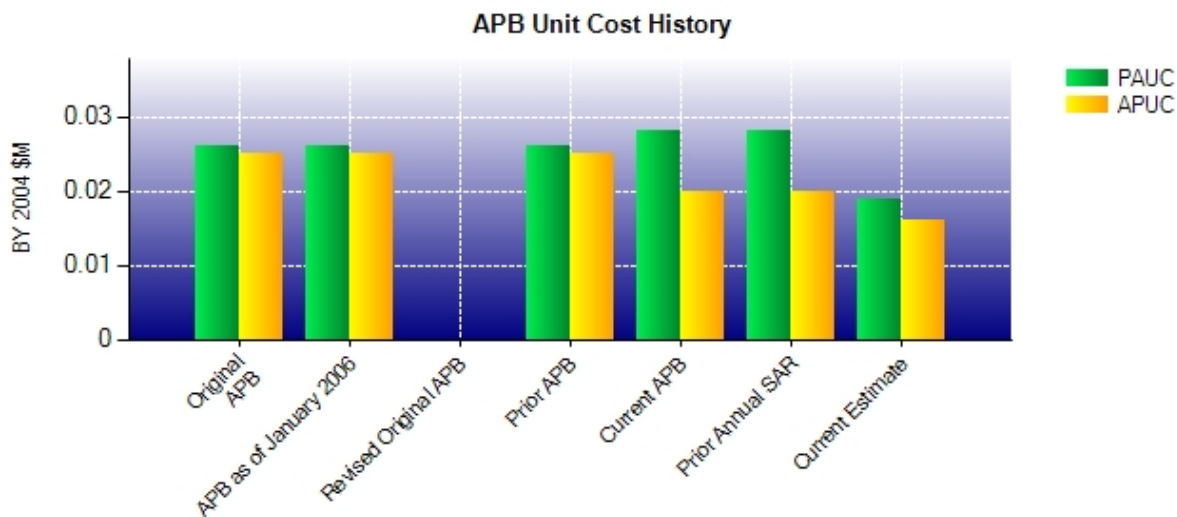
Unit Cost

Unit Cost Report

| Item | BY 2004 \$M | BY 2004 \$M | % Change |
|--------------------------------------|---|------------------------------------|----------|
| | Current UCR Baseline (Jan 2008 APB) | Current Estimate (Dec 2009 SAR) | |
| Program Acquisition Unit Cost | | | |
| Cost | 2665.4 | 4147.2 | |
| Quantity | 95961 | 215961 | |
| Item | 0.028 | 0.019 | -32.14 |
| Average Procurement Unit Cost | | | |
| Cost | 1935.6 | 3370.6 | |
| Quantity | 95551 | 215551 | |
| Unit Cost | 0.020 | 0.016 | -20.00 |

| Item | BY 2004 \$M | BY 2004 \$M | % Change |
|--------------------------------------|--|------------------------------------|----------|
| | Original UCR Baseline (May 2004 APB) | Current Estimate (Dec 2009 SAR) | |
| Program Acquisition Unit Cost | | | |
| Cost | 8569.0 | 4147.2 | |
| Quantity | 329574 | 215961 | |
| Unit Cost | 0.026 | 0.019 | -26.92 |
| Average Procurement Unit Cost | | | |
| Cost | 8104.0 | 3370.6 | |
| Quantity | 328514 | 215551 | |
| Unit Cost | 0.025 | 0.016 | -36.00 |

Unit Cost History



| Item | Date | BY 2004 \$M | | TY \$M | |
|------------------------|----------|-------------|-------|--------|-------|
| | | PAUC | APUC | PAUC | APUC |
| Original APB | May 2004 | 0.026 | 0.025 | 0.033 | 0.031 |
| APB as of January 2006 | May 2004 | 0.026 | 0.025 | 0.033 | 0.031 |
| Revised Original APB | N/A | N/A | N/A | N/A | N/A |
| Prior APB | May 2004 | 0.026 | 0.025 | 0.033 | 0.031 |
| Current APB | Jan 2008 | 0.028 | 0.020 | 0.036 | 0.027 |
| Prior Annual SAR | Dec 2007 | 0.028 | 0.020 | 0.035 | 0.027 |
| Current Estimate | Dec 2009 | 0.019 | 0.016 | 0.024 | 0.020 |

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 | |
| 0.033 | 0.003 | 0.006 | 0.003 | 0.000 | -0.021 | 0.000 | 0.000 | -0.009 | 0.024 |

| Current SAR Baseline to Current Estimate (TY \$M) | | | | | | | | | |
|---|---------|-------|-------|-------|--------|-------|-------|--------|-----------------------|
| Initial APUC Development Estimate | Changes | | | | | | | | APUC Current Estimate |
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 0.031 | 0.003 | 0.006 | 0.003 | 0.000 | -0.023 | 0.000 | 0.000 | -0.011 | 0.020 |

| 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 | Apr 2004 | N/A | Apr 2004 |
| Milestone C | N/A | Mar 2008 | N/A | Feb 2011 |
| IOC | N/A | May 2011 | N/A | N/A |
| Total Cost (TY \$M) | N/A | 10717.0 | N/A | 5240.4 |
| Total Quantity | N/A | 329574 | N/A | 215961 |
| PAUC | N/A | 0.033 | N/A | 0.024 |

Cost Variance

| Summary TY \$M | | | | |
|-------------------------------------|--------|-------------|--------|---------|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 489.0 | 10228.0 | -- | 10717.0 |
| Previous Changes | | | | |
| Economic | +15.8 | +633.0 | -- | +648.8 |
| Quantity | -- | -5444.4 | -- | -5444.4 |
| Schedule | -- | +334.5 | -- | +334.5 |
| Engineering | -- | -- | -- | -- |
| Estimating | +315.7 | -2332.2 | -- | -2016.5 |
| Other | -- | -- | -- | -- |
| Support | -- | -872.5 | -- | -872.5 |
| Subtotal | +331.5 | -7681.6 | -- | -7350.1 |
| Current Changes | | | | |
| Economic | -2.8 | -88.8 | -- | -91.6 |
| Quantity | -- | +3506.6 | -- | +3506.6 |
| Schedule | -- | +252.1 | -- | +252.1 |
| Engineering | -- | -- | -- | -- |
| Estimating | +48.3 | -2621.7 | -- | -2573.4 |
| Other | -- | -- | -- | -- |
| Support | -- | +779.8 | -- | +779.8 |
| Subtotal | +45.5 | +1828.0 | -- | +1873.5 |
| Total Changes | +377.0 | -5853.6 | -- | -5476.6 |
| Current Estimate | 866.0 | 4374.4 | -- | 5240.4 |

| Summary BY 2004 \$M | | | | |
|-------------------------------------|--------|-------------|--------|---------|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 465.0 | 8104.0 | -- | 8569.0 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -3902.6 | -- | -3902.6 |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | +271.7 | -1638.7 | -- | -1367.0 |
| Other | -- | -- | -- | -- |
| Support | -- | -627.6 | -- | -627.6 |
| Subtotal | +271.7 | -6168.9 | -- | -5897.2 |
| Current Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | +2529.3 | -- | +2529.3 |
| Schedule | -- | +219.5 | -- | +219.5 |
| Engineering | -- | -- | -- | -- |
| Estimating | +39.9 | -1890.7 | -- | -1850.8 |
| Other | -- | -- | -- | -- |
| Support | -- | +577.4 | -- | +577.4 |
| Subtotal | +39.9 | +1435.5 | -- | +1475.4 |
| Total Changes | +311.6 | -4733.4 | -- | -4421.8 |
| Current Estimate | 776.6 | 3370.6 | -- | 4147.2 |

Previous Estimate: December 2007

| RDT&E | \$M | |
|---|--------------|--------------|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | -2.8 |
| Adjustment for current and prior escalation. (Estimating) | +1.8 | +2.2 |
| Increased estimate due to reallocation of Air Force and Army funds and an FY11 plus up to address additional hardware requirements and Operational Environment development (Estimating) | +95.6 | +112.2 |
| Decreased estimate due to reallocation of funds to the Navy (Estimating) | -27.9 | -32.2 |
| Decreased estimate due to reallocation of funds to the Navy (Estimating) | -29.6 | -33.9 |
| RDT&E Subtotal | +39.9 | +45.5 |

| Procurement | \$M | |
|---|-----------|-----------|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | -88.8 |
| Stretch-out of procurement buy profile (Air Force). (Schedule) | 0.0 | +4.7 |
| Stretch-out of procurement buy profile (Navy). (Schedule) | 0.0 | +8.3 |
| Acceleration of procurement buy profile (Army). (Schedule) | 0.0 | -64.6 |
| Total Quantity variance resulting from an increase of 120000 radios from 74512 to 194512 (Army). (Subtotal) | +1218.6 | +1692.8 |
| Quantity variance resulting from an increase of 120000 radios from 74512 to 194512 (Army). (Quantity) | (+2529.3) | (+3506.6) |
| Allocation to Estimating resulting from Quantity change. (Estimating) (QR) | (-1530.2) | (-2117.5) |
| Allocation to Schedule resulting from Quantity change. (Schedule) (QR) | (+219.5) | (+303.7) |
| Adjustment for current and prior escalation. (Estimating) | +0.4 | +0.2 |
| Increased estimate due to maturation of program; estimate based on Engineering Development Model (EDM) actuals and engineering buildups vice analogy (Estimating) | +50.5 | +67.7 |
| Increased estimate due to maturation of program; estimate based on EDM actuals and engineering buildups vice analogy (Estimating) | +26.0 | +31.7 |
| Decreased estimate due to maturation of program; estimate based on EDM actuals and engineering buildups vice analogy (Estimating) | -559.2 | -753.1 |
| Increased estimate due to maturation of program; estimate based on EDM actuals and engineering buildups vice analogy (Estimating) | +121.8 | +149.3 |
| Adjustment for current and prior escalation. (Support) | -0.1 | +0.1 |
| Increase in Other Support, including Data, Training, and Modifications, due to revised estimating assumptions (Navy). (Support) | +7.3 | +10.6 |
| Decrease in Initial Spares due to revised estimating assumptions (Navy). (Support) | -8.0 | -10.0 |
| Increase in Other Support, including Data, Training, and Modifications, due to revised estimating assumptions (Navy). (Support) | +4.9 | +6.1 |
| Increase in Initial Spares due to revised estimating assumptions (Navy). (Support) | +0.6 | +0.3 |
| Increase in Other Support (Army). (Support) (QR) | +452.9 | +622.2 |
| Increase in Initial Spares due to an increase in quantities and revised estimating assumptions (Army). (Support) (QR) | +90.3 | +113.7 |
| Increase in Other Support, including Data, Training, and Modifications, due to revised estimating assumptions (Air Force). (Support) | +32.6 | +40.7 |

| | | |
|---|---------|---------|
| Decrease in Initial Spares due to revised estimating assumptions (Air Force). (Support) | -3.1 | -3.9 |
| Procurement Subtotal | +1435.5 | +1828.0 |
| (QR) Quantity Related | | |

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: Development
Contractor: GENERAL DYNAMICS C4 SYSTEMS, INC.
Contractor Location: SCOTTSDALE, AZ 85257
Contract Number: W15P7T-04-C-E405
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: July 16, 2004
Definitization Date: July 16, 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 |
| 295.6 | N/A | 0 | 580.5 | N/A | 410 | 672.9 | 672.9 |

| Contract Variance | | |
|---|---------------|-------------------|
| Item | Cost Variance | Schedule Variance |
| Cumulative Variances To Date (1/1/2010) | -73.4 | -10.7 |
| Previous Cumulative Variances | -29.7 | -4.9 |
| Net Change | -43.7 | -5.8 |

Cost and Schedule Variance Explanations

General Contract Variance Explanation

The unfavorable net Cost and Schedule Variances are due to complexity significantly greater than planned and several unforeseen design changes.

Notes

In 2006, the Joint Tactical Radio System (JTRS) Handheld, Manpack, and Small Form Fit (HMS) program was restructured, resulting in cost and schedule above the original baseline. Since then, the baseline has been further increased by the addition of Mobile-User Objective System, Small Form Fit (MUOS, SFF)-C(v)1, and the realignment of tasks due to Waveform delays.

Deliveries and Expenditures

| Deliveries | | | | |
|----------------------------------|-----------------|----------------|----------------|-------------------|
| Delivered to Date | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development | 472 | 329 | 410 | 80.24% |
| Production | 0 | 0 | 215551 | 0.00% |
| Total Program Quantity Delivered | 472 | 329 | 215961 | 0.15% |

| Expended and Appropriated (TY \$M) | | | |
|------------------------------------|--------|----------------------------|--------|
| Total Acquisition Cost | 5240.4 | Years Appropriated | 7 |
| Expended to Date | 507.6 | Percent Years Appropriated | 28.00% |
| Percent Expended | 9.69% | Appropriated to Date | 836.0 |
| Total Funding Years | 25 | Percent Appropriated | 15.95% |

The program continues to deliver developmental radios. As of December 2009, the JTRS HMS contractor delivered 329 Engineering Development Models (EDMs) (213 SFF-A , 12 SFF-C, 21 SFF-D, and 83 AN/PRC-154 RR sets) and 303 pre-Engineering Development Models (pre-EDMs) (209 SFF-A, 70 SFF-C, two SFF-D, and 22 Manpack Technology Demonstrators).

Operating and Support Cost

Assumptions and Ground Rules

1. Cost estimate and quantities reflect approved JTRS HMS Acquisition Program Baseline signed January 16, 2008.
2. Costs estimated in accordance with Department of the Army Cost Analysis Manual, May 2001.
3. OSD Inflation Guidance dated February 2010 was applied.
4. JTRS HMS Cost Analysis Requirements Document (CARD) updated January 2009 is used as the basis of the estimate.
5. Lead-time between the start of production and the start of fielding is assumed to be six months.
6. Handheld and Manpack radios will operate on rechargeable batteries. Batteries have a life of 3 years and battery chargers have a life of 5 years.
7. System life is estimated at 20 years.
8. There is no antecedent program.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

| Unitized O&S Costs BY2004 \$M | | |
|-------------------------------|---|----------------------------|
| Cost Element | HMS Average Annual Cost (All Radios) | No Antecedent (Antecedent) |
| Mission Pay & Allowance | -- | -- |
| Unit Level Consumption | 1174.000 | -- |
| Intermediate Maintenance | 35.100 | -- |
| Depot Maintenance | 0.000 | -- |
| Contractor Support | -- | -- |
| Sustaining Support | 0.800 | -- |
| Indirect | -- | -- |
| Other | 62.800 | -- |
| Total | 1272.700 | -- |

Unitized Cost Comments:

None

| Item | Total O&S Cost \$M | | | |
|------------------|---|------------------|----------------------------|-----|
| | HMS | | No Antecedent (Antecedent) | |
| | Current Development APB Objective/Threshold | Current Estimate | | |
| Base Year | 5022.3 | 5524.6 | 25454.4¹ | N/A |
| Then Year | 8158.6 | N/A | 38794.8 | N/A |

¹ APB O&S Cost Breach

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

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