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Selected Acquisition Report (SAR)

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



Handheld, Manpack, and Small Form Fit Radios (HMS)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Sensitivity Originator

No originator info Available at this time.

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)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name

Handheld, Manpack, and Small Form Fit Radios (HMS)

DoD Component

Army

Joint Participants

US Navy; US Marine Corps; US Air Force

Program management and execution responsibility resides with the Department of the Army per the DAE ADM dated July 11, 2012.

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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 20, 2011

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 4, 2017

Mission and Description

The Handheld, Manpack, and Small Form Fit (HMS) radio program is a materiel solution providing software-defined radio systems that are tailorable and scalable to support the "fight tonight." HMS is an ACAT IC Program that encompasses specific requirements to support the U.S. Army, U.S. Marine Corps, U.S. Air Force, U.S. Navy, and U.S. Special Operations Command communication needs.

HMS provides voice and data communication to the expeditionary Warfighter with an on the move, at the halt, and stationary Line of Sight (LOS)/Beyond Line of Sight (BLOS) capability for both dismounted personnel and platforms. HMS radio systems are software reprogrammable, networkable, multi-mode systems capable of simultaneous voice and data communication.

HMS encompasses the handheld radios (one-channel Rifleman Radio (RR) and two-channel Leader Radio (LR)), Manpack (MP) radios, and Small Form Fit (SFF) radios. HMS radios will provide voice and support for data services such as text, to warfighters and tactical end user devices including handheld, embedded, and larger computing devices, as well as unmanned systems. The program office will continue with the ongoing competition to procure the newest generation of software-defined radios capable of running the threshold waveforms, to include Mobile User Objective System (MUOS) for MP and is structured to accept other advanced networking waveforms to reduce the complexity of Mobile Ad Hoc Networking waveforms, improve spectral efficiency, and seek Electronic Counter-Countermeasures improvements for operations in contested environments. HMS is structured as a single program of record.

The RR is a handheld radio that connects Soldiers at the lowest echelon of the Army network. It is a National Security Agency (NSA)-certified Type 1 radio used for transmission of up to SECRET information. The RR provides one-channel secure voice and data communications. It is the primary squad level communication system. The LR is a multiband, two-channel handheld radio to be used at the team, squad, and platoon level. The LR will simultaneously support Single Channel Ground and Airborne Radio System (SINCGARS) voice interoperability and other advanced networking waveform communications, in one radio with both handheld and mounted configurations.

The MP Radio is a NSA-certified Type 1 radio used for transmission of up to SECRET information. MP is capable of providing two simultaneous channels of secure voice and data communication using SINCGARS, Demand Assigned Multiple Access Satellite Communication, MUOS waveform, and other advanced networking waveforms. The MP provides range extension and connects Soldiers in the lower-tier network to the mid-tier network. It is interoperable with legacy waveforms and capable of route and retransmission. The MP provides networking waveforms connectivity, Networked LOS and BLOS voice and data communication and will serve in vehicular and man-packable configurations.

The SFF radios consist of two variants: SFF-B and SFF-D. The SFF-B is a two-channel embedded radio with Global Positioning System/Selective Availability Anti-Spoofing Module. It is a NSA-certified Type 1 radio used for transmission of up to SECRET information. SFF-B was originally designed to meet Nett Warrior Radio requirements and embedded into the Nett Warrior leader ensemble (platoon leader, platoon sergeant, squad leader, and team leader). The current focus for SFF-B is for use in Unmanned Aerial Vehicles (UAV). The SFF-D was NSA-certified to protect voice and data through the Sensitive but Unclassified level. It is one-channel, Type 2 encryption embedded into Class 1 UAVs and Small Unmanned Ground Vehicle.

Executive Summary

Program Highlights Since Last Report

The Generation (GEN) 2 Manpack (MP) Radios are working toward a planned Operational Test in FY 2020. The radios completed initial Field / Lab Based Risk Reduction (FBRR) / (LBRR) test events and risk reduction demonstrations at Network Integration Evaluation 18.2. On April 30, 2018, in accordance with an ADM signed April 13, 2018, HMS awarded LRIP delivery orders to procure 2,258 GEN 2 MP (1,129 per vendor).

On September 18, 2018, HMS on-ramped Leader Radio (LR) capabilities to the existing handheld Indefinite Delivery/Indefinite Quantity contracts for two vendors, Harris and Thales. In accordance with an ADM signed September 6, 2018, HMS awarded LRIP delivery orders to procure 3,080 LR (1,540 per vendor). LR LBRR began in July 2018 and is currently ongoing. LR FBRR is planned for 3rd Quarter FY 2019 and Operational Test is planned for 3rd Quarter FY 2020.

As a result of the fact-of-life changes HMS incurred with the validation of the two-channel LR requirement on April 18, 2017, the Rifleman Radio FRP schedule event will be reflected as TBD until such time that a revised APB is approved and the event is replaced by the LR FRP Decision Review currently planned for February 2021. A revised APB will be submitted for approval to re-baseline the program schedule and incorporate the new LR requirements at the next milestone decision.

The HMS radio program requirements are stable and funding is adequate to meet the cost baseline.

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

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
May 2004	Milestone B Decision - Joint Tactical Radio Systems (JTRS) Cluster 5 program Milestone Decision Review was held on April 26, 2004 and approved in May 2004 to proceed into System Development and Demonstration (SDD).
July 2004	SDD Contract Award - Awarded to General Dynamics C4 Systems in July 2004. A protest was filed, the Government Accountability Office rejected the protest, work resumed in October 2004.
February 2005	All JTRS programs were re-aligned under the Joint PEO (JPEO) JTRS.
November 2005	A DAB re-planning meeting was held to restructure the JTRS Enterprise. JTRS Cluster 5 was renamed JTRS HMS.
June 2011	Milestone C Decision - JTRS HMS Milestone Decision Review was held in May 2011 and final approval received in June.
November 2011	Initial Operational Test and Evaluation: LRIP Rifleman Radio schedule event completed.
May 2012	Follow-on Operational Test and Evaluation (FOT&E): Manpack with Mobile User Objective System (MUOS) schedule event completed.
July 2012	IOC: LRIP Rifleman Radio schedule event completed.
July 2012	In-Process Review: LRIP Manpack schedule event completed.
July 2012	ADM signed that transitioned program management and execution responsibility to the Department of the Army.
December 2012	The FRP decisions for Rifleman Radio and Manpack Radio slipped from 2012 to 2015 due to a decision to transition to a full and open competition multi-vendor acquisition strategy.
May 2014	Acquisition strategy approved to procure Non-Developmental Items (NDI) through two full and open competitions (Rifleman Radio and Manpack Radio) available to all potential industry partners.
August 2014	IOC: LRIP Manpack Radio schedule event completed.
April 2015	Handheld Radio Production Contract Awards - April 29, 2015
February 2016	Manpack Radio Production Contract Awards - February 26, 2016
June 2016	FOT&E: Manpack with MUOS schedule event completed during the Multi-Service Operational Test & Evaluation (MOT&E) held by Navy MUOS systems. The MOT&E used the Manpack AN/PRC-155 as the platform to test the MUOS waveform and served as the HMS program's FOT&E achieving completion of the APB schedule event on June 20, 2016 when the test report was received.
January 2017	APB Revision Approved - Change 1 to the HMS Production APB was approved on January 6, 2017. This revision corrected schedule events that were previously in APB threshold deviation.
March 2017	Acquisition strategy addendum approved to procure the two-channel, handheld Leader Radio through NDI full and open competition contracts available to all potential industry partners.
March 2017	ACAT IC Delegation received March 17, 2017 naming the Secretary of the Army as the MDA.
May 2017	Leader Radio Request for Proposal and Manpack Radio test asset delivery order were delayed as a result of anticipated threshold radio waveform adjustments stemming from the 2017 Army Network

	Review. These adjustments are necessary in order to reduce vulnerabilities and focus on solutions to address capability gaps relative to emerging threats.
September 2018	Leader Radio capability on-ramped to the existing Handheld Radio Production Contracts - September 18, 2018

Threshold Breaches

APB Breaches

Schedule		<input checked="" type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Explanation of Breach

The schedule deviations to the current APB were previously reported in the December 2016 and December 2017 SARs. HMS submitted Program Deviation Reports for the following:

The Rifleman Radio (RR) experienced a schedule deviation to its FRP decision as a result of a September 16, 2016 Army decision to pursue a two-channel handheld Leader Radio (LR) and defer the RR.

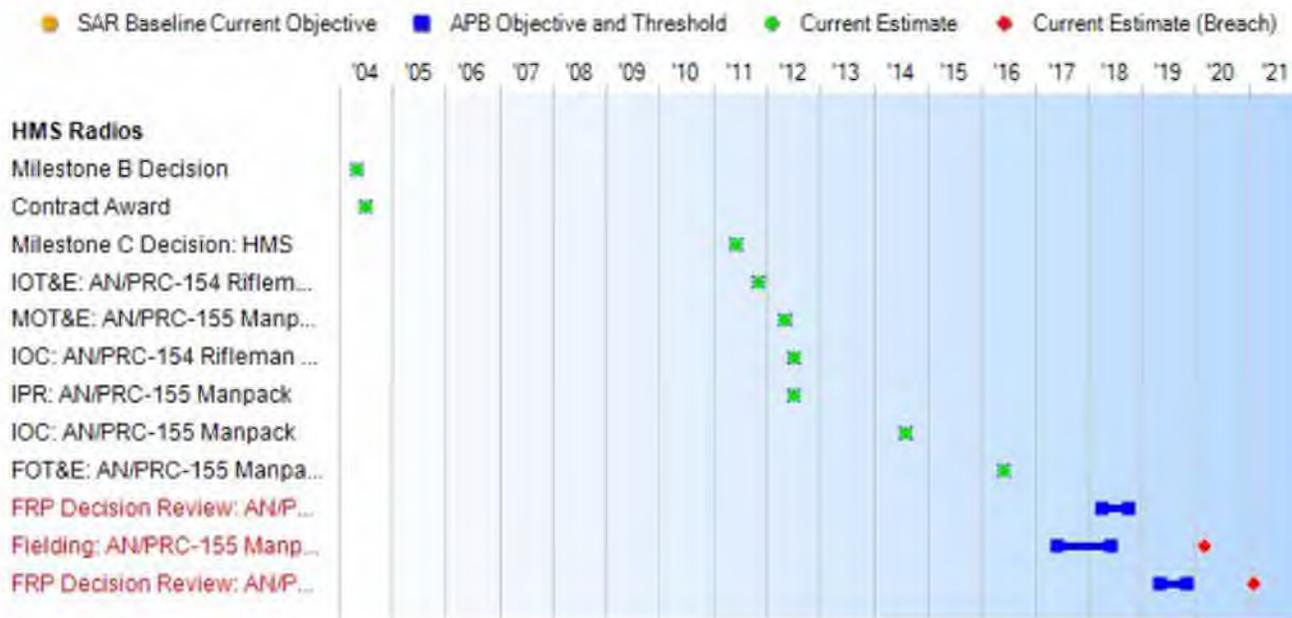
The Manpack (MP) radio experienced a schedule deviation to its Fielding of MP with Mobile User Objective System (MUOS) schedule event as a result of the Navy's MUOS Multi-Service Operational Test and Evaluation (MOT&E), deeming the MUOS waveform not effective and not suitable for operational use. The Navy planned a follow-on MOT&E 2B to evaluate corrective actions in July 2019. MP fielding with MUOS is now estimated to occur in the 2nd Quarter FY 2020.

The MP Radio experienced a schedule deviation to its FRP Decision as a result of anticipated threshold radio waveform adjustments stemming from the Army Network Modernization Strategy review. These adjustments are necessary in order to reduce vulnerabilities and focus on solutions to address capability gaps relative to emerging threats. FRP is estimated to occur in 2nd Quarter FY 2021.

Nunn-McCurdy Breaches

Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Current Estimate	Current Estimate
Milestone B Decision	Apr 2004	May 2004	May 2004	May 2004
Contract Award	Jul 2004	Jul 2004	Jul 2004	Jul 2004
Milestone C Decision: HMS	May 2011	Jun 2011	Jun 2011	Jun 2011
IOT&E: AN/PRC-154 Rifleman Radio	Nov 2011	Nov 2011	Nov 2011	Nov 2011
MOT&E: AN/PRC-155 Manpack	May 2012	May 2012	May 2012	May 2012
IOC: AN/PRC-154 Rifleman Radio	Jan 2012	Jul 2012	Jul 2012	Jul 2012
IPR: AN/PRC-155 Manpack	Feb 2012	Jul 2012	Jul 2012	Jul 2012
IOC: AN/PRC-155 Manpack	Mar 2013	Aug 2014	Aug 2014	Aug 2014
FOT&E: AN/PRC-155 Manpack with MUOS	Jun 2013	Jun 2016	Jun 2016	Jun 2016
FRP Decision Review: AN/PRC-154 Rifleman Radio	May 2012	Apr 2018	Oct 2018	TBD¹
Fielding: AN/PRC-155 Manpack with MUOS	Jun 2014	Jun 2017	Jun 2018	Mar 2020¹
FRP Decision Review: AN/PRC-155 Manpack	Dec 2012	May 2019	Nov 2019	Feb 2021¹

¹ APB Breach

Change Explanations

None

Notes

HMS procured the AN/PRC-154 RR, AN/PRC-154A RR and the AN/PRC-155 MP during LRIP. These nomenclatures will not be applicable to the FRP Decision Review events. The Full and Open Competition contracts for Generation 2 RR (awarded April 29, 2015) and Generation 2 MP (awarded February 26, 2016) allowed new vendors and/or products to enter the radio marketplace, each with a unique nomenclature.

Acronyms and Abbreviations

FOT&E - Follow-On Test and Evaluation
IOT&E - Initial Operational Test and Evaluation
IPR - In-Process Review
LR - Leader Radio
MOT&E - Multi-Service Operational Test and Evaluation
MP - Manpack
MUOS - Mobile User Objective System
RR - Rifleman Radio

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Intra-Squad Communication: AN/PRC-154 Rifleman Radio				
Voice	Voice	(T=O) Voice	Voice	Voice
Soldier Location: AN/PRC-154 Rifleman Radio				
Automatic PLI	Automatic PLI	(T=O) Automatic PLI	Automatic PLI	Automatic PLI
Net Ready (NR) Capability: AN/PRC-154 Rifleman Radio				
The capability, system, and/or service must fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting	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 TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	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 TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated	Threshold demonstrated at NIE 15.1	The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, except tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1

tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements

architecture views.

and implementation guidance of GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements.

Sustainment (Operational Availability (Ao)): AN/PRC-154 Rifleman Radio

0.99 (Channel)	0.99 (Channel)	0.96 (Channel)	0.999 (Channel)	0.999 (Channel)
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Voice and Data Communication: AN/PRC-155 Manpack

Must provide networked voice and data exchange to support timely tactical actions while dispersed across the battlefield.

Must provide networked voice and data exchange to support timely tactical actions while dispersed across the battlefield.

(T=O) Must provide networked voice and data exchange to support timely tactical actions while dispersed across the battlefield.

MP demonstrated networked voice and data exchange (i.e., mission command information) supporting timely tactical actions while dispersed across the battlefield using gateways.

Must provide networked voice and data exchange to support timely tactical actions while dispersed across the battlefield.

Net Ready (NR) Capability: AN/PRC-155 Manpack

The capability, system, and/or service must fully support execution of all operational

The capability, system, and/or service must fully support execution of all operational activities and

The capability, system, and/or service must fully support execution of joint critical operational activities

MP Radio was demonstrated at NIE 14.2 as meeting its Net Ready - KPP

The capability, system, and/or service must fully support execution of joint critical operational activities

activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality,

information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements

and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements

requirements, with the exception of a limited subset of information exchange requirements for SINCGARS voice and data, SATCOM voice, SRW / SINCGARS / SATCOM simultaneity, and route and retransmit operations.

and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, except tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements.

and nonrepudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements

Sustainment (Operational Availability (Ao)): AN/PRC-155 Manpack

0.99 (Channel)	0.99 (Channel)	0.96 (Channel)	0.86 (Channel)	0.97 (Channel)
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Multi-Channel Operations: AN/PRC-155 Manpack

To enable Warfighters to conduct combat missions across the battlefield, any channel of the MP must have ability to operate any of the waveforms listed as Objective in Table EE-2 of the CPD. The MP must also allow simultaneous operations using waveform combinations listed as Objective identified in Table EE-3.2 of the CPD. In addition the MP must have the ability to route and retransmit threshold waveforms listed as Objective in Table EE-4 of the CPD.

To enable Warfighters to conduct combat missions across the battlefield, any channel of the MP must have ability to operate any of the waveforms listed as Objective in Table EE-2 of the CPD. The MP must also allow simultaneous operations using waveform combinations listed in Table EE-3.2 of the CPD. In addition the MP must have the ability to route and retransmit threshold waveforms listed as Objective in Table EE-4 of the CPD.

To enable Warfighters to conduct combat missions across the battlefield, any channel of the MP must have ability to operate any of the waveforms listed as Thresholds in Table EE-2 of the CPD. The MP must also allow simultaneous operations using waveform combinations listed in Table EE-3 of the CPD. In addition the MP must have the ability to route and retransmit threshold waveforms listed in Table EE-4 of the CPD.

The radio enables Warfighters to conduct combat missions across the battlefield using the SRW, basic modes of SINCGARS and basic modes of UHF SATCOM. The MP has demonstrated simultaneous operations using combinations of these waveforms.

To enable Warfighters to conduct combat missions across the battlefield, any channel of the MP must have ability to operate any of the waveforms listed as Thresholds in Table EE-2 of the CPD. The MP must also allow simultaneous operations using waveform combinations identified in Table EE-3 of the CPD. In addition the MP must have the ability to route and retransmit threshold waveforms listed in Table EE-4 of the CPD.

Requirements Reference

Rifleman Radio CPD dated March 21, 2013 and Manpack CPD dated May 10, 2012

Change Explanations

None

Notes

In order to address Soldier and stakeholder concerns with regard to excessive heat and weight of the Generation 1 MP, HMS coordinated with the U.S. Army Natick Soldier Research, Development and Engineering Center to design an enhanced rucksack which improves the performance of the MP. The redesigned rucksack provides improved weight distribution and heat dissipation. This rucksack was certified for airborne operations through testing conducted by Army Test and Evaluation Command.

Acronyms and Abbreviations

ATO - Approval to Operate
DAA - Designated Approval Authority
DISR - Department of Defense Information Technology Standards Registry
DoDAF - Department of Defense Architecture Framework
GESP - Global Information Grid Enterprise Service Profile
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IEA - Information Environment Architecture
IP - Internet Protocol
KIP - Key Interface Profiles
MP - Manpack
NCOW RM - Net-Centric Operations and Warfare Reference Model
NIE - Network Integration Evaluation
NR - Net Ready
PLI - Position Location Information
SAASM - Selective Availability Anti-Spoofing Module
SATCOM - Satellite Communications
SINCGARS - Single Channel Ground and Airborne Radio System
SRW - Soldier Radio Waveform
TV - Technical View
UHF - Ultra High Frequency

Track to Budget

RDT&E

Appn	BA	PE		
Navy	1319	05	0604280N	
	Project		Name	
	3075		Joint Tactical Radio System (JTRS) / HMS JTRS	(Sunk)
Army	2040	05	0604280A	
	Project		Name	
	162		Joint Tactical Radio / Network Enterprise Domain (NED)	(Sunk)
	DZ5		Joint Tactical Radio	(Sunk)
Army	2040	05	0604805A	
	Project		Name	
	615		JTRS - Ground Domain Integration	(Sunk)
	61A		JTRS Cluster 5 Development	(Sunk)
Army	2040	05	0605042A	
	Project		Name	
	FA1		Manpack Radio	(Shared)
	FA2		Rifleman Radio	(Shared)

Procurement

Appn	BA	PE		
Navy	1109	04	0206313M	
	Line Item		Name	
	4633		Radio Systems	(Sunk)
Navy	1810	02	0204163N	
	Line Item		Name	
	3057		Communication Items Under \$5M	(Sunk)
Army	2035	02	0604280A	
	Line Item		Name	
	B90210		JTRS Cluster 5 (Handheld)	(Sunk)
	B90215		JTRS (Manpack)	(Sunk)
	B95006		Handheld Radio	
	B95007		Manpack Radio	
Army	2035	03	0604827A	
	Line Item		Name	
	R80501		Ground Soldier System	(Sunk)
Air Force	3080	03	0207423F	
	Line Item		Name	
	837100		Tactical C-E Equipment	(Shared) (Sunk)

Notes

B90000 is the parent for JTRS Cluster 5 (Handheld - B90210) and JTRS (Manpack - B90215).

B95004 is the parent for Handheld Radio (B95006) and Manpack Radio (B95007).

A Congressional mark was assessed against FY 2019 Procurement in the amount of \$53.090M and is therefore not included in the B95004 Army PE.

Acq O&M

Appn	BA	PE
Army	2020 04	0702806A
Subactivity Group	Name	
435	Acquisition and Management Support: Tactical Radios (Shared)	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2011 \$M			BY 2011 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1254.7	1257.0	1382.7	1260.7	1238.5	1238.5	1254.6
Procurement	6987.9	6952.9	7648.2	7199.9	7962.5	7962.5	9231.2
Flyaway	--	--	--	5487.7	--	--	7053.8
Recurring	--	--	--	5260.3	--	--	6792.5
Non Recurring	--	--	--	227.4	--	--	261.3
Support	--	--	--	1712.2	--	--	2177.4
Other Support	--	--	--	1524.7	--	--	1933.2
Initial Spares	--	--	--	187.5	--	--	244.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	72.2	0.0	0.0	95.6
Total	8242.6	8209.9	N/A	8532.8	9201.0	9201.0	10581.4

Current APB Cost Estimate Reference

HMS cost estimate is the 2011 MS C APB as reflected in the CAPE ICE dated October 20, 2011

Cost Notes

No additional programmatic risks were identified in the latest Program Office Estimate.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	582	582	833
Procurement	270369	270369	270369
Total	270951	270951	271202

Quantity Notes

Unit of measure is an HMS radio, which includes multiple variants (Rifleman Radio, Leader Radio, Manpack Radio, and various Small Form Fit).

Handheld Radios (Army) - 193,279:

Leader Radio Dismounted - 60,382

Leader Radio Mounted - 39,618

Rifleman Radio - 93,279

Manpack (Army) - 65,622:

Dismounted - 23,336

Single Vehicle Mounted - 24,549

Dual Vehicle Mounted - 17,737

Manpack (Other Services) - 7,442:

Dismounted - 3,357

Single Vehicle Mounted - 4,085

Small Form Fit-B - 950

Small Form Fit-D - 3,076

The quantity for Leader Radio above is reflected in the approved Rifleman Radio Increment 2 (Leader Radio) CPD and will be included in a forthcoming APB.

Cost and Funding**Funding Summary**

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	1165.2	3.7	35.7	10.0	10.0	10.0	10.0	10.0	1254.6
Procurement	1581.8	298.5	468.0	526.6	609.2	774.4	697.3	4275.4	9231.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	5.6	5.8	5.9	6.1	6.3	6.5	59.4	95.6
PB 2020 Total	2747.0	307.8	509.5	542.5	625.3	790.7	713.8	4344.8	10581.4
PB 2019 Total	2729.5	362.1	535.4	524.6	579.2	630.7	631.7	4404.0	10397.2
Delta	17.5	-54.3	-25.9	17.9	46.1	160.0	82.1	-59.2	184.2

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	833	0	0	0	0	0	0	0	0	833
Production	0	33614	3409	8932	12791	16514	20489	18165	156455	270369
PB 2020 Total	833	33614	3409	8932	12791	16514	20489	18165	156455	271202
PB 2019 Total	833	30708	8884	11767	10139	11232	12557	13362	171720	271202
Delta	0	2906	-5475	-2835	2652	5282	7932	4803	-15265	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
2007	--	--	--	--	--	--	132.9
2008	--	--	--	--	--	--	150.6
2009	--	--	--	--	--	--	127.1
2010	--	--	--	--	--	--	178.3
2011	--	--	--	--	--	--	66.1
2012	--	--	--	--	--	--	117.2
2013	--	--	--	--	--	--	83.5
Subtotal	271	--	--	--	--	--	855.7

Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	--	--	--	--	--	139.7
2008	--	--	--	--	--	--	155.5
2009	--	--	--	--	--	--	129.6
2010	--	--	--	--	--	--	179.1
2011	--	--	--	--	--	--	64.8
2012	--	--	--	--	--	--	113.1
2013	--	--	--	--	--	--	79.7
Subtotal	271	--	--	--	--	--	861.5

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	--	--	--	--	--	--	0.1
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	31.8
2015	--	--	--	--	--	--	9.5
2016	--	--	--	--	--	--	4.5
2017	--	--	--	--	--	--	11.4
2018	--	--	--	--	--	--	8.8
2019	--	--	--	--	--	--	3.7
2020	--	--	--	--	--	--	35.7
2021	--	--	--	--	--	--	10.0
2022	--	--	--	--	--	--	10.0
2023	--	--	--	--	--	--	10.0
2024	--	--	--	--	--	--	10.0
2025	--	--	--	--	--	--	10.0
Subtotal	562	--	--	--	--	--	398.9

Annual Funding 2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	24.9
2005	--	--	--	--	--	--	106.2
2006	--	--	--	--	--	--	133.9
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	0.8
2012	--	--	--	--	--	--	0.1
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	29.7
2015	--	--	--	--	--	--	8.7
2016	--	--	--	--	--	--	4.1
2017	--	--	--	--	--	--	10.1
2018	--	--	--	--	--	--	7.7
2019	--	--	--	--	--	--	3.2
2020	--	--	--	--	--	--	30.1
2021	--	--	--	--	--	--	8.3
2022	--	--	--	--	--	--	8.1
2023	--	--	--	--	--	--	7.9
2024	--	--	--	--	--	--	7.8
2025	--	--	--	--	--	--	7.6
Subtotal	562	--	--	--	--	--	399.2

RDT&E funding FY 2021 - FY 2024, as shown below, will be realigned to support emerging Army priorities, including air-to-ground communication:

(TY, \$M)

2021: \$40.3

2022: \$37.4

2023: \$16.2

2024: \$17.6

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	
2025	305	15.7	--	--	15.7	2.4	18.1	
2026	299	15.5	--	--	15.5	2.4	17.9	
2027	299	15.7	--	--	15.7	2.4	18.1	
2028	299	15.9	--	--	15.9	2.4	18.3	
2029	299	16.1	--	--	16.1	2.5	18.6	
2030	298	16.2	--	--	16.2	2.5	18.7	
2031	297	16.4	--	--	16.4	2.5	18.9	
2032	297	16.7	--	--	16.7	2.5	19.2	
Subtotal	2393	128.2	--	--	128.2	19.6	147.8	

Annual Funding 1109 Procurement Procurement, Marine Corps							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2025	305	11.9	--	--	11.9	1.8	13.7
2026	299	11.5	--	--	11.5	1.8	13.3
2027	299	11.4	--	--	11.4	1.8	13.2
2028	299	11.3	--	--	11.3	1.7	13.0
2029	299	11.2	--	--	11.2	1.8	13.0
2030	298	11.1	--	--	11.1	1.7	12.8
2031	297	11.0	--	--	11.0	1.7	12.7
2032	297	11.0	--	--	11.0	1.6	12.6
Subtotal	2393	90.4	--	--	90.4	13.9	104.3

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	
2012	50	3.4	--	--	3.4	--	3.4	
2013	--	--	--	--	--	--	--	
2014	--	--	--	--	--	--	--	
2015	--	--	--	--	--	--	--	
2016	--	--	--	--	--	--	--	
2017	--	--	--	--	--	--	--	
2018	--	--	--	--	--	--	--	
2019	--	--	--	--	--	--	--	
2020	--	--	--	--	--	--	--	
2021	--	--	--	--	--	--	--	
2022	--	--	--	--	--	--	--	
2023	--	--	--	--	--	--	--	
2024	--	--	--	--	--	--	--	
2025	25	1.3	--	--	1.3	0.2	1.5	
2026	25	1.3	--	--	1.3	0.2	1.5	
2027	25	1.3	--	--	1.3	0.2	1.5	
2028	25	1.3	--	--	1.3	0.2	1.5	
2029	25	1.3	--	--	1.3	0.3	1.6	
2030	25	1.4	--	--	1.4	0.3	1.7	
2031	25	1.4	--	--	1.4	0.3	1.7	
2032	25	1.4	--	--	1.4	0.2	1.6	
Subtotal	250	14.1	--	--	14.1	1.9	16.0	

Annual Funding 1810 Procurement Other Procurement, Navy							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	50	3.3	--	--	3.3	--	3.3
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--
2021	--	--	--	--	--	--	--
2022	--	--	--	--	--	--	--
2023	--	--	--	--	--	--	--
2024	--	--	--	--	--	--	--
2025	25	1.0	--	--	1.0	0.1	1.1
2026	25	1.0	--	--	1.0	0.1	1.1
2027	25	0.9	--	--	0.9	0.2	1.1
2028	25	0.9	--	--	0.9	0.2	1.1
2029	25	0.9	--	--	0.9	0.2	1.1
2030	25	1.0	--	--	1.0	0.2	1.2
2031	25	0.9	--	--	0.9	0.2	1.1
2032	25	0.9	--	--	0.9	0.2	1.1
Subtotal	250	10.8	--	--	10.8	1.4	12.2

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
2011	5297	33.3	--	6.9	40.2	0.1	40.3
2012	19858	357.6	--	6.0	363.6	85.4	449.0
2013	1500	144.0	--	0.2	144.2	60.6	204.8
2014	--	--	--	47.7	47.7	199.3	247.0
2015	200	1.4	--	--	1.4	19.3	20.7
2016	153	32.7	--	2.0	34.7	19.9	54.6
2017	202	62.7	--	65.7	128.4	18.3	146.7
2018	6354	332.2	--	6.0	338.2	77.1	415.3
2019	3409	181.5	--	50.0	231.5	67.0	298.5
2020	8932	331.2	--	35.0	366.2	101.8	468.0
2021	12791	390.5	--	10.2	400.7	125.9	526.6
2022	16514	448.6	--	31.6	480.2	129.0	609.2
2023	20489	630.8	--	--	630.8	143.6	774.4
2024	18165	560.5	--	--	560.5	136.8	697.3
2025	17985	566.6	--	--	566.6	130.7	697.3
2026	19066	328.0	--	--	328.0	111.0	439.0
2027	19065	329.3	--	--	329.3	115.1	444.4
2028	18590	309.6	--	--	309.6	113.6	423.2
2029	18589	313.2	--	--	313.2	112.9	426.1
2030	18589	317.2	--	--	317.2	113.4	430.6
2031	18588	321.5	--	--	321.5	114.7	436.2
2032	18591	326.1	--	--	326.1	113.8	439.9
Subtotal	262927	6318.5	--	261.3	6579.8	2109.3	8689.1

Annual Funding							
2035 Procurement Other Procurement, Army							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	5297	32.6	--	6.7	39.3	0.1	39.4
2012	19858	344.4	--	5.8	350.2	82.2	432.4
2013	1500	135.9	--	0.2	136.1	57.2	193.3
2014	--	--	--	44.3	44.3	185.0	229.3
2015	200	1.3	--	--	1.3	17.6	18.9
2016	153	29.5	--	1.8	31.3	18.0	49.3
2017	202	55.5	--	58.1	113.6	16.2	129.8
2018	6354	288.3	--	5.2	293.5	66.9	360.4
2019	3409	154.4	--	42.5	196.9	57.0	253.9
2020	8932	276.2	--	29.2	305.4	84.9	390.3
2021	12791	319.3	--	8.3	327.6	103.0	430.6
2022	16514	359.6	--	25.3	384.9	103.4	488.3
2023	20489	495.7	--	--	495.7	112.9	608.6
2024	18165	431.9	--	--	431.9	105.4	537.3
2025	17985	428.0	--	--	428.0	98.7	526.7
2026	19066	242.9	--	--	242.9	82.2	325.1
2027	19065	239.1	--	--	239.1	83.6	322.7
2028	18590	220.4	--	--	220.4	80.8	301.2
2029	18589	218.6	--	--	218.6	78.8	297.4
2030	18589	217.0	--	--	217.0	77.6	294.6
2031	18588	215.6	--	--	215.6	77.0	292.6
2032	18591	214.4	--	--	214.4	74.9	289.3
Subtotal	262927	4920.6	--	227.4	5148.0	1663.4	6811.4

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	
2025	601	39.6	--	--	39.6	5.6	45.2	
2026	600	40.0	--	--	40.0	5.6	45.6	
2027	600	40.6	--	--	40.6	5.7	46.3	
2028	600	41.1	--	--	41.1	5.7	46.8	
2029	600	41.7	--	--	41.7	5.9	47.6	
2030	600	42.3	--	--	42.3	6.0	48.3	
2031	599	42.9	--	--	42.9	6.0	48.9	
2032	599	43.5	--	--	43.5	6.1	49.6	
Subtotal	4799	331.7	--	--	331.7	46.6	378.3	

Annual Funding 3080 Procurement Other Procurement, Air Force								
Fiscal Year	Quantity	BY 2011 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2025	601	30.5	--	--	30.5	4.3	34.8	
2026	600	30.2	--	--	30.2	4.3	34.5	
2027	600	30.1	--	--	30.1	4.2	34.3	
2028	600	29.9	--	--	29.9	4.1	34.0	
2029	600	29.7	--	--	29.7	4.2	33.9	
2030	600	29.5	--	--	29.5	4.2	33.7	
2031	599	29.4	--	--	29.4	4.1	33.5	
2032	599	29.2	--	--	29.2	4.1	33.3	
Subtotal	4799	238.5	--	--	238.5	33.5	272.0	

Annual Funding		
2020 Acq O&M	Operation and Maintenance, Army	
Fiscal Year	TY \$M	
	Total Program	
2019	5.6	
2020	5.8	
2021	5.9	
2022	6.1	
2023	6.3	
2024	6.5	
2025	6.7	
2026	6.9	
2027	7.1	
2028	7.3	
2029	7.5	
2030	7.7	
2031	8.0	
2032	8.2	
Subtotal	95.6	

Annual Funding 2020 Acq O&M Operation and Maintenance, Army	
Fiscal Year	BY 2011 \$M
	Total Program
2019	4.8
2020	4.9
2021	4.9
2022	5.0
2023	5.0
2024	5.1
2025	5.1
2026	5.2
2027	5.2
2028	5.3
2029	5.3
2030	5.4
2031	5.5
2032	5.5
Subtotal	72.2

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/17/2011	9/6/2018
Approved Quantity	6350	33614
Reference	Milestone C ADM	LRIP ADM, 2014 Acquisition Strategy (AS), 2017 AS addendum, and 2018 ADMs
Start Year	2011	2011
End Year	2012	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity in order to meet operational needs while preparing for FRP Decision in FY 2021.

The Milestone C ADM signed on June 17, 2011 approved entry into Production and Deployment and authorized the Army to contract for an initial LRIP procurement of 6,250 Generation (GEN) 1 Rifleman Radios (RR) (AN/PRC-154) and 100 GEN 1 Manpack (MP) radios (AN/PRC-155). A follow-on ADM signed July 11, 2012 approved the procurement of an additional LRIP of 13,077 GEN 1 RR. An October 11, 2012 ADM authorized an additional LRIP procurement of up to 3,726 GEN 1 MP. A December 12, 2013 ADM authorized LRIP procurement of an additional 1,500 GEN 1 MP. In accordance with the program's May 1, 2014 approved Acquisition Strategy, HMS procured 200 GEN 2 RR (100 per vendor) and 153 GEN 2 MP (51 per vendor). Also in accordance with the program's May 1, 2014 approved Acquisition Strategy, an additional 202 GEN 2 MP were procured (101 per vendor) - the third vendor for GEN 2 MP was terminated for convenience in August of 2017. An April 12, 2018 ADM authorized an additional LRIP procurement of up to 2,258 GEN 2 MP. On July 10, 2018, HMS utilized Other Transactional Agreements to procure 296 Leader Radios (LR) (148 per vendor) in accordance with the Acquisition Strategy Addendum signed March 8, 2017. A September 6, 2018 ADM authorized an LRIP procurement of up to 3,800 LR.

In addition, the Government received all 2,052 LRIP Small Form Fit-B(v)1 Radios for Nett Warrior. Nett Warrior Radios are not a part of the HMS program and are procured for PEO Soldier; however, they are a part of the RR Army Acquisition Objective.

Foreign Military Sales

Notes

There are no FMS for this program.

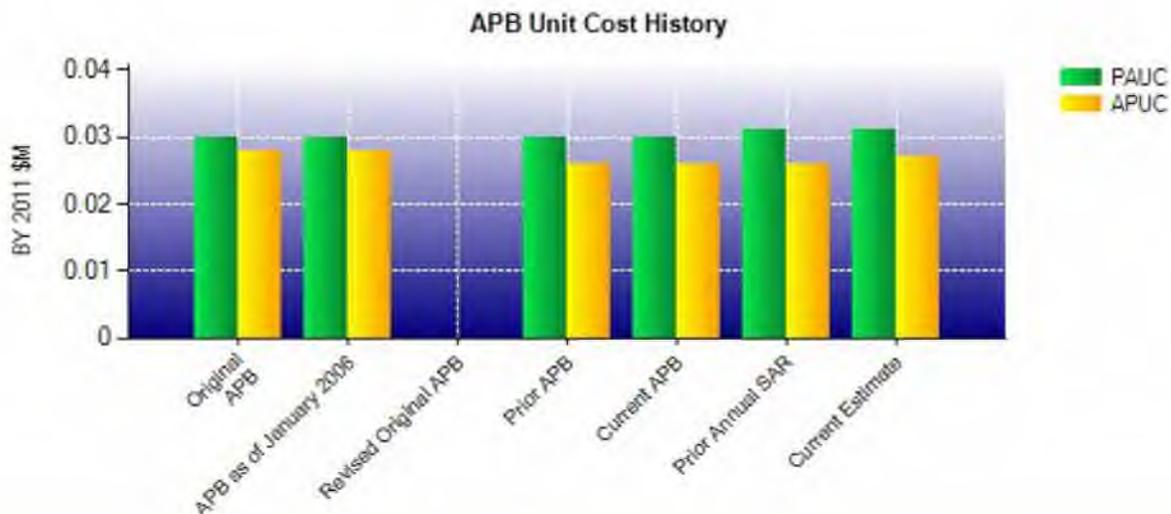
HMS Radio products are categorized as Major Defense Equipment under the International Traffic in Arms Regulations. Export of Significant Military Equipment, such as HMS radios, must be approved by the U.S. Department of State when embedded with Type 1 encryption. Coalition partners may purchase HMS radios via FMS or possibly, Direct Commercial Sales, once the HMS radios successfully complete operational test and satisfy all certification requirements. In all cases, export of HMS products is subject to the following considerations: a previous export for a legacy capability does not constitute automatic approval for that legacy capability instantiated due to embedded Type 1 encryption; all requests for sales will be adjudicated on a case-by-case basis and approved by the National Security Agency (NSA); Tactical Radios with waveforms installed must be certified by NSA; Tactical Radio waveforms, as individual products, are not authorized for sale or export (Sharing of the Link 16 waveform with the Multifunctional Information Distribution System (MIDS) participants per the MIDS Memorandum of Understanding is the only current exception to this rule); HMS variants may be available for foreign sales opportunities in the future.

Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 \$M	BY 2011 \$M	% Change
	Current UCR Baseline (Jan 2017 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	8209.9	8532.8	
Quantity	270951	271202	
Unit Cost	0.030	0.031	+3.33
Average Procurement Unit Cost			
Cost	6952.9	7199.9	
Quantity	270369	270369	
Unit Cost	0.026	0.027	+3.85
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 \$M	BY 2011 \$M	% Change
	Original UCR Baseline (May 2004 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	9889.2	8532.8	
Quantity	329574	271202	
Unit Cost	0.030	0.031	+3.33
Average Procurement Unit Cost			
Cost	9352.6	7199.9	
Quantity	328514	270369	
Unit Cost	0.028	0.027	-3.57



APB Unit Cost History					
Item	Date	BY 2011 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2004	0.030	0.028	0.033	0.031
APB as of January 2006	May 2004	0.030	0.028	0.033	0.031
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Oct 2011	0.030	0.026	0.034	0.029
Current APB	Jan 2017	0.030	0.026	0.034	0.029
Prior Annual SAR	Dec 2017	0.031	0.026	0.038	0.033
Current Estimate	Dec 2018	0.031	0.027	0.039	0.034

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.033	0.002	0.012	0.003	0.000	-0.018	0.000	0.002	0.001	0.034

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.034	0.000	0.000	0.005	0.000	-0.001	0.000	0.001	0.005	0.039

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.031	0.002	0.013	0.003	0.000	-0.022	0.000	0.002	-0.002	0.029

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.029	0.000	0.000	0.005	0.000	-0.001	0.000	0.001	0.005	0.034

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	Apr 2004	May 2004	
Milestone C	N/A	Mar 2008	May 2011	Jun 2011	
IOC	N/A	Feb 2007	Jan 2012	Jul 2012	
Total Cost (TY \$M)	N/A	10717.0	9201.0	10581.4	
Total Quantity	N/A	328674	270951	271202	
PAUC	N/A	0.033	0.034	0.039	

Cost Variance

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1238.5	7962.5	--	--	9201.0
Previous Changes					
Economic	-8.0	-54.2	--	--	-62.2
Quantity	--	--	--	--	--
Schedule	--	+1198.2	--	--	+1198.2
Engineering	--	--	--	--	--
Estimating	+31.2	-342.1	--	+119.7	-191.2
Other	--	--	--	--	--
Support	--	+251.4	--	--	+251.4
Subtotal	+23.2	+1053.3	--	+119.7	+1196.2
Current Changes					
Economic	+1.2	+78.5	--	+0.4	+80.1
Quantity	--	--	--	--	--
Schedule	--	+135.0	--	--	+135.0
Engineering	--	--	--	--	--
Estimating	-8.3	+42.0	--	-24.5	+9.2
Other	--	--	--	--	--
Support	--	-40.1	--	--	-40.1
Subtotal	-7.1	+215.4	--	-24.1	+184.2
Total Changes	+16.1	+1268.7	--	+95.6	+1380.4
CE - Cost Variance	1254.6	9231.2	--	95.6	10581.4
CE - Cost & Funding	1254.6	9231.2	--	95.6	10581.4

Summary BY 2011 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1254.7	6987.9	--	--	8242.6
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	+145.9	--	--	+145.9
Engineering	--	--	--	--	--
Estimating	+13.7	-102.8	--	+91.2	+2.1
Other	--	--	--	--	--
Support	--	+44.0	--	--	+44.0
Subtotal	+13.7	+87.1	--	+91.2	+192.0
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	+99.0	--	--	+99.0
Engineering	--	--	--	--	--
Estimating	-7.7	+64.0	--	-19.0	+37.3
Other	--	--	--	--	--
Support	--	-38.1	--	--	-38.1
Subtotal	-7.7	+124.9	--	-19.0	+98.2
Total Changes	+6.0	+212.0	--	+72.2	+290.2
CE - Cost Variance	1260.7	7199.9	--	72.2	8532.8
CE - Cost & Funding	1260.7	7199.9	--	72.2	8532.8

Previous Estimate: December 2017

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+1.2
Reduced funding to reflect Below Threshold Reprogramming and Congressional marks in FY 2017 - FY 2018 and funding adjustments in FY 2019. (Estimating)	-2.5	-2.8
Increased funding in FY 2020 to support combined Operational Test with Manpack and Leader Radio. (Estimating)	+21.5	+25.5
Adjusted funding in FY 2021 through FY 2025 to reflect new test strategy. (Estimating)	-31.8	-39.3
Increased funding in FY 2024 and FY 2025 to reflect new test strategy. (Estimating)	+15.4	+20.0
Adjustment for current and prior escalation. (Estimating)	-0.3	-0.3
Revised estimate due to changes in requirements resulting in a FY 2018 Congressional mark. (Estimating)	-9.9	-11.3
Revised estimate due to miscellaneous funding adjustments in FY 2019. (Estimating)	-0.1	-0.1
RDT&E Subtotal	-7.7	-7.1

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+78.5
Shift in procurement buy profile in FY 2018 based on actuals, and FY 2019 - FY 2025 to align with FY 2020 PB (Army). (Schedule)	0.0	-41.1
Additional schedule variance due to procurement buy profile stretch out in FY 2021 - FY 2032 (Army). (Schedule)	+99.0	+176.1
Revised estimate to reflect updated hardware unit costs (Marine Corps). (Estimating)	-8.2	-11.6
Revised estimate to reflect updated hardware unit costs (Navy). (Estimating)	-0.9	-0.9
Revised estimate to reflect updated hardware unit costs (Air Force). (Estimating)	-22.1	-30.7
Increase due to revised vehicle integration cost estimates and additional software efforts for Manpack and Leader Radio (Army). (Estimating)	+100.3	+90.8
Adjustment for current and prior escalation. (Estimating)	-5.1	-5.6
Adjustment for current and prior escalation. (Support)	-2.2	-2.7
Increase in Other Support to reflect current programmatic and fielding plans (Marine Corps). (Support)	+6.4	+9.1
Increase in Other Support to reflect current programmatic and fielding plans (Navy). (Support)	+0.3	+0.5
Increase in Other Support to reflect current programmatic and fielding plans (Air Force). (Support)	+16.6	+23.0
Decrease in Other Support to reflect current programmatic and fielding plans (Army). (Support)	-55.7	-66.6
Decrease in Initial Spares due to revised hardware estimates resulting from competition savings on Manpack contracts (Air Force). (Support)	-0.3	0.0
Decrease in Initial Spares due to refined hardware costs as a result of Leader Radio contract award (Army). (Support)	-3.2	-3.4
Procurement Subtotal	+124.9	+215.4

Acq O&M	\$M	
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Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.4
Reduced estimate to reflect revised programmatic manpower requirements (Army). (Estimating)	-19.0	-24.5
Acq O&M Subtotal	-19.0	-24.1

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: Thales - Handheld Radio Production Contract
Contractor: Thales Defense & Security, Inc.
Contractor Location: 22605 Gateway Center Dr.
 Clarksburg, MD 20871
Contract Number: W15P7T-15-D-0015/1
Contract Type: Firm Fixed Price (FFP), Indefinite Delivery Indefinite Quantity (IDIQ)
Award Date: April 29, 2015
Definitization Date: April 29, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2.3	N/A	0	78.1	N/A	1640	78.1	78.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the on-ramp and award of Leader Radio assets and services. This award procures radios, necessary ancillaries and documentation to support subsequent fielding activities.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/IDIQ) contract.

Notes

This is a FFP contract that is administered on an IDIQ basis as task orders are awarded.

Contract Identification

Appropriation: Procurement
Contract Name: Harris - Handheld Radio Production Contract
Contractor: Harris Corporation
Contractor Location: 1680 University Ave
 Rochester, NY 14610
Contract Number: W15P7T-15-D-0016/1
Contract Type: Firm Fixed Price (FFP), Indefinite Delivery Indefinite Quantity (IDIQ)
Award Date: April 29, 2015
Definitization Date: April 29, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2.0	N/A	0	64.9	N/A	1640	64.9	64.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the on-ramp and award of Leader Radio assets and services. This award procure radios, necessary ancillaries and documentation to support subsequent fielding activities.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/IDIQ) contract.

Notes

This is a FFP contract that is administered on an IDIQ basis as task orders are awarded.

Contract Identification

Appropriation: Procurement
Contract Name: Harris - Generation 2 Manpack Radio
Contractor: Harris Corporation
Contractor Location: 1680 University Avenue
 Rochester, NY 14610
Contract Number: W15P7T-16-D-0002/1
Contract Type: Firm Fixed Price (FFP), Indefinite Delivery Indefinite Quantity (IDIQ)
Award Date: February 26, 2016
Definitization Date: February 26, 2016

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1.4	N/A	0	111.8	N/A	1281	111.8	111.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of Delivery Orders 0002, 0003, and 0004. These awards procure radios, necessary ancillaries, and documentation to assess delayed performance thresholds and support subsequent fielding activities.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/IDIQ) contract.

Notes

This is a FFP contract that is administered on an IDIQ basis as task orders are awarded.

Contract Identification

Appropriation: Procurement
Contract Name: Rockwell Collins - Generation 2 Manpack Radio
Contractor: Rockwell Collins Inc.
Contractor Location: 400 Collins Road NE
 Cedar Rapids, IA 52498
Contract Number: W15P7T-16-D-0003/1
Contract Type: Firm Fixed Price (FFP), Indefinite Delivery Indefinite Quantity (IDIQ)
Award Date: February 26, 2016
Definitization Date: February 26, 2016

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4.3	N/A	0	115.1	N/A	1281	115.1	115.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of Delivery Orders 0002, 0003 and 0004. These awards procure radios, necessary ancillaries, and documentation to assess delayed performance thresholds and support subsequent fielding activities.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/IDIQ) contract.

Notes

This is a FFP contract that is administered on an IDIQ basis as task orders are awarded.

Contract Identification

Appropriation: Procurement
Contract Name: Generation 1 Manpack Radio Modification Contract
Contractor: General Dynamics Mission Systems, Inc.
Contractor Location: 8201 E McDowell Rd
 Scottsdale, AZ 05257
Contract Number: W15P7T-15-C-0002
Contract Type: Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP)
Award Date: March 25, 2015
Definitization Date: March 31, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
35.7	N/A	0	76.3	N/A	0	76.3	76.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of an extension to the initial contract.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (CPFF/FFP) contract.

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because the cost or incentive portion does not meet the threshold requirements for EVM reporting.

Notes

The Manpack Radio Generation 1 Modification Contract is used as an interim contract to provide hardware and software augmentations necessary to meet new requirements and mission essential updates, post production and prior to transition to sustainment.

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

Contract Identification

Appropriation: Procurement
Contract Name: Generation 1 Rifleman Radio Modification Contract
Contractor: General Dynamics Mission Systems, Inc.
Contractor Location: 8201 E McDowell Rd
 Scottsdale, AZ 85257
Contract Number: W15P7T-15-C-0005
Contract Type: Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP)
Award Date: March 26, 2015
Definitization Date: April 01, 2015

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
34.6	N/A	0	40.1	N/A	0	40.1	40.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of an extension to the initial contract.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (CPFF/FFP) contract.

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because the cost or incentive portion does not meet the threshold requirements for EVM reporting.

Notes

The Rifleman Radio Generation 1 Modification Contract is used as an interim contract to provide hardware and software augmentations necessary to meet new requirements and mission essential updates, post production and prior to transition to sustainment.

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

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	833	833	833	100.00%
Production	28895	28746	270369	10.63%
Total Program Quantity Delivered	29728	29579	271202	10.91%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	10581.4	Years Appropriated	16
Expended to Date	2854.9	Percent Years Appropriated	55.17%
Percent Expended	26.98%	Appropriated to Date	3054.8
Total Funding Years	29	Percent Appropriated	28.87%

The above data is current as of March 11, 2019.

Notes

As of March 11, 2019, the Government received 19,327 Generation (GEN) 1 Rifleman Radios (RR) and 5,326 GEN 1 Manpack radios. The Government received 200 GEN 2 RR (100 from each vendor) and 153 GEN 2 MP (51 from each vendor). The Government received 202 GEN 2 MP (101 from each remaining vendor). The Government ordered an additional 2,258 GEN 2 MP (1,129 per vendor) with 642 delivered to date. The Government ordered 296 Leader Radios (LR) (148 per vendor) with 168 delivered to date. The Government ordered an additional 3,800 LR with 676 delivered to date.

In addition, the Government received all 2,052 GEN 1 SFF-B(v)1 Radios for Nett Warrior. Note: Nett Warrior Radios are not a part of the HMS program and are procured for PEO Soldier; however, they are a part of the RR Army Acquisition Objective.

LR deliveries are behind schedule mainly due to a re-prioritization by the program office between a Defense Logistics Agency order and an order on the program office's production contract. The program office is in discussions with both vendors to implement a get-well plan for the remaining assets.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	October 01, 2018
Source of Estimate:	POE
Quantity to Sustain:	266343
Unit of Measure:	System
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2012 - FY 2052

Sustainment Life Breakdown:

Manpack Radio total quantity is 73,064, Sustainment Life is 20 years.

Rifleman Radio total quantity is 93,279, Sustainment Life is 20 years.

Leader Radio total quantity is 100,000, Sustainment Life is 20 years.

Small Form Fit-B (quantity of 950) and Small Form Fit-D (quantity of 3,076) are sustained by the host platform and not included in this estimate.

Developmental units (quantity of 833) will not be sustained.

Sustainment Strategy

Manpack (MP):

The development contract for Generation (GEN) 1 radios includes fixed-price options for the manufacturing of production-ready MP Radios for operational test to establish an initial production base, development of logistics support documentation and sustainment support. A follow-on Firm Fixed Price (FFP) / Cost Plus Fixed Fee (CPFF) GEN 1 Modification Contract was awarded to the GEN 1 vendor on March 24, 2015 to provide continued support of GEN 1 radios following the development contract. Contractor repair of unserviceable GEN 1 radios is planned to begin to transition to organic repair at Tobyhanna Army Depot (TYAD) upon the expiration of the MP Radio GEN 1 Modification Contract.

For GEN 2, MP Radios will be procured through a multiple award, FFP, Indefinite Delivery Indefinite Quantity contract. The contract provides for sustainment services which includes: warranties, radio repairs, spares, delivery and update of training material, delivery and update of technical manuals/bulletins, training, Field Service Representative (FSR) support, and the management and updates to the software and hardware baselines. Final disposition of all unserviceable radios will be accomplished at TYAD. All MP contracts will contain provisions to procure sustainment spares to replace unserviceable radios and ancillary items requisitioned through Standard Army Supply System (SASS), operations, maintenance, training documentation, the ability to procure the software development environment, and data to maintain the software baseline.

Leader Radio (LR):

All LR procured by HMS that become unserviceable will be returned to TYAD through the SASS. Radios will be returned to the Original Equipment Manufacturer for warranty repair or replacement. LR may come with a standard and/or additional warranty based on the cost and value to the Government. Upon expiration of the warranty period, there is no current plan to perform depot-level repair of the radio. Final disposition of all unserviceable radios will be accomplished at TYAD. All LR contracts will contain provisions to procure sustainment spares to replace unserviceable radios and

ancillary items requisitioned through SASS, operations, maintenance, training documentation and the ability to procure the software development environment and data to maintain the software baseline.

Rifleman Radio (RR):

All GEN 1 RR procured under the development contract were initially sustained by the prime contractor until expiration of the contract on February 28, 2015. A follow-on FFP/CPFF GEN 1 Modification Contract was awarded to the GEN 1 vendor on March 29, 2015 with one base year and one option year period of performance to maintain the software baseline, deliver updated logistics support documentation, provide FSR support and furnish technical support to address field and operational issues. Unserviceable radios will be returned to TYAD for inspection and testing. Field sustainment of GEN 1 radios and ancillary components will be accomplished through spares requisitioned through the SASS.

All GEN 2 RR (requirement currently deferred) that become unserviceable will be returned to TYAD through the SASS. Radios will be returned to the original equipment manufacturer for warranty repair or replacement. GEN 2 radios may come with a standard and/or additional warranty based on the cost and value to the Government. Upon expiration of the warranty period, there is no current plan to perform depot-level repair of the radio. Final disposition of all unserviceable radios will be accomplished at TYAD. All GEN 2 contracts will contain provisions to procure sustainment spares to replace unserviceable radios and ancillary items requisitioned through SASS, operations, maintenance, training documentation and the ability to procure the software development environment and data to maintain the software baseline.

Antecedent Information

No Antecedent. By the nature of the waveforms used in current HMS products and the tactical implementation of where the waveforms are found in the fielded formations, there are no analogous current or legacy radios to the MP, LR, or RR.

Cost Element	Annual O&S Costs BY2011 \$K	
	HMS Radios Average Annual Cost Per System	No Antecedent (Antecedent) N/A
Unit-Level Manpower	0.000	0.000
Unit Operations	0.000	0.000
Maintenance	1.978	0.000
Sustaining Support	0.046	0.000
Continuing System Improvements	0.198	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	2.222	--

Item	Total O&S Cost \$M			
	HMS Radios		Current Estimate	No Antecedent (Antecedent)
	Current Production APB Objective/Threshold			
Base Year	14710.4	16181.4	11832.7	N/A
Then Year	20019.2	N/A	19792.5	N/A

Equation to Translate Annual Cost to Total Cost

The Total O&S cost (\$M) is the Average Annual Cost (\$2.222K) x Total Number of Radios (266,343) x 20-year

sustainment life / 1000.

O&S Cost Variance		
Category	BY 2011 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2017 SAR	11380.9	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	451.8	Revised estimate to reflect Leader Radio unit cost updates resulting from contract awards.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	451.8	
Current Estimate	11832.7	

Disposal Estimate Details

Date of Estimate:	December 31, 2018
Source of Estimate:	POE
Disposal/Demilitarization Total Cost (BY 2011 \$M):	1192.3

The O&S estimate does not include Disposal costs in the amount of \$1,192.3 (BY 2011 \$M).