Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-386

Ground/Air Task Oriented Radar (G/ATOR)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

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

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

Program Information

Program Name

Ground/Air Task Oriented Radar (G/ATOR)

DoD Component

Navy

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Date Assigned: August 1, 2014

References

SAR Baseline (Production Estimate)

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated April 14, 2014

Approved APB

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated April 14, 2014

Mission and Description

The Ground/Air Task Oriented Radar (G/ATOR) is a single material solution for the mobile Multi-Role Radar System and Ground Weapons Locating Radar (GWLR) requirements. It is a three-dimensional, short/medium range multi-role radar designed to detect unmanned aerial systems, cruise missiles, air breathing targets, rockets, artillery, and mortars. G/ATOR satisfies the warfighter's expeditionary needs across the Marine Air Ground Task Force spectrum replacing five legacy radar systems with a single solution. The Air Defense/ Surveillance Radar G/ATOR Block 1 provides capabilities in the Short Range Air Defense and Air Surveillance mission areas; GWLR G/ATOR Block 2 will address Counter-fire Targeting Missions; and Expeditionary Airport Surveillance Radar G/ATOR Block 4 will address Air Traffic Control missions. G/ATOR Block 4 is not included in the Acquisition Program Baseline. Resourcing may be included in future budget builds. G/ATOR provides real-time radar measurement data to the Tactical Air Operations Module, Common Aviation Command and Control System, Composite Tracking Network, and Advanced Field Artillery Tactical Data System.

Executive Summary

Program Highlights Since Last Report:

The G/ATOR program received a waiver for a Gate Review prior to award of LRIP Lot 2 and extended the timeline for submission of the Test and Evaluation Master Plan for MDA signature on March 10, 2014 from the Assistant Secretary of the Navy, Research, Development and Acquisition (ASN (RDA)). Also, on June 11, 2015, the ASN (RDA) amended the Milestone C ADM to require Director, Marine Corps Operational Test and Evaluation Activity (MCOTEA) to provide an assessment of progress towards Operational Effectiveness/Operational Suitable (OE/OS) to support an Early Deployment Decision (EDD) for Gallium Arsenide-based G/ATOR Block (GB) 1 and 2 assets, and defer final certification of OE/OS to Initial Operational Test and Evaluation.

The award of LRIP Lot 2 to Northrop Grumman was exercised on March 20, 2015. It provided for the required systems to support the IOC of GB2 with all spares for initial fielding and Developmental Test/Operational Test. The G/ATOR program awarded to Northrop Grumman three additional contract actions: a sole source contract for the procurement of an additional eight LRIP units capable of meeting operational requirements for G/ATOR. The Gallium Nitride (GaN) Transition Phase 2 contract was awarded August 26, 2015 to complete transition to GaN Technology in preparation for GaN LRIP and the August 28, 2015 contract awarded to develop and verify the GB2 capability, Counterfire Targeting missions.

The G/ATOR program received on March 30, 2015, Director, Capabilities Development Directorate letter that clarified G/ATOR reliability requirements and the development of an operationally meaningful Key System Attribute with a timeline for achieving the threshold and objective values.

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

History of Significant Developments Since Program Initiation:

July 26, 2005: G/ATOR Program Milestone B ADM. This memorandum designated G/ATOR as an Acquisition Category (ACAT) II program and approved entry into the System Development and Demonstration (SDD) phase. The MDA at program initiation was ASN (RDA).

September 16, 2005: Initial development contract awarded to Northrop Grumman and became a subject of protest.

February 2007: The Fiscal Year (FY) 2008 Senate Armed Services Committee Report directed the Secretary of the Navy to conduct an independent assessment, and submit a report to the Congressional Defense Committees, with the FY 2009 budget request on the Marine Corps acquisition of the G/ATOR. The report was provided to the Congressional Defense Committees on February 4, 2008. The report concluded the G/ATOR system design provides optimal capability across a wide variety of operational mission profiles. The system is properly phased to provide the necessary air defense capabilities to Joint forces with performance that exceeds that of the legacy systems it replaces.

March 20, 2007: Deputy Commandant, Combat Development and Integration letter, and the subsequent Director, Force Protection Integration Division letter, dated August 3, 2007, clarified G/ATOR's compliance with Joint Requirements Oversight Council Memorandum 120-05, "Policy for Updating Capabilities Documents to Incorporate Force Protection and Survivability KPPs" dated June 13, 2005, by requiring G/ATOR to procure M1152A1 up-armored High Mobility Multipurpose Wheeled Vehicles. This Key Performance Parameter (KPP) forced significant system redesign.

March 30, 2007: Awarded SDD Contract to Northrop Grumman

April 5, 2007: ASN (RDA) directed transition of the G/ATOR Program from Marine Corps Systems Command to the newly established Program Executive Office Land Systems.

February 9, 2009: The G/ATOR Program was designated a Department of Defense Special Interest program by a USD

(AT&L) Memorandum.

October 28, 2011: USD (AT&L) ADM, designated G/ATOR an ACAT IC program with the Navy as the lead component. G/ATOR was no longer a special interest program.

January 24, 2014: The Milestone C LRIP Decision for G/ATOR Lots 1 and 2, and permission to release the GB2 Request for Proposal (RFP) was presented to the MDA, ASN (RDA). This meeting also constituted the G/ATOR Program's annual Configuration Steering Board and was documented in the March 10, 2015 ADM.

March 10, 2014: ASN (RDA) G/ATOR Milestone C ADM authorized the procurement of LRIP Lot 1 units contingent upon approval of all statutory acquisition documentation. The memorandum also required ASN (RDA) authorization for an EDD based on MCOTEA certification of OE/OS. Permission to release the GB2 RFP was deferred pending completion of a Deputy Assistant Secretary of the Navy for Acquisition and Procurement Peer Review, and an Office of the Secretary of Defense Developmental Test and Evaluation review of GB2 RFP test language. The memorandum also defined the entrance criteria for a Full deployment decision.

Threshold Breaches

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

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

Schedule

Schedule Events					
Events	**SAR Baseline Production Estimate**	**Current APB Production Objective/Threshold**		**Current Estimate**	
G/ATOR					
Milestone B	Aug 2005	Aug 2005	Aug 2005	Aug 2005	
Milestone C	Mar 2014	Mar 2014	Mar 2014	Mar 2014	
Initial Operational Test & Evaluation	Oct 2018	Oct 2018	Oct 2019	Oct 2018	
FRP Decision	Mar 2019	Mar 2019	Mar 2020	Mar 2019	
AD/SR (GB1)					
Operational Assessment	Aug 2016	Aug 2016	Aug 2017	Apr 2017	(Ch-1)
IOC	Feb 2017	Feb 2017	Feb 2018	Feb 2018	(Ch-1)
GWLR (GB2)					
Operational Assessment	Oct 2017	Oct 2017	Oct 2018	May 2018	(Ch-1)
IOC	Feb 2018	Feb 2018	Feb 2019	Sep 2018	(Ch-1)

Change Explanations

(Ch-1) AD/SR (GB1) Operational Assessment Current Estimate changed from Aug 2016 to Apr 2017 due to late LRIP Contract Award.
AD/SR (GB1) IOC Current Estimate changed from Feb 2017 to Feb 2018 due to late LRIP Contract Award.
GWLR (GB2) Operational Assessment Current Estimate changed from Oct 2017 to May 2018 due to late LRIP Contract Award.
GWLR (GB2) IOC Current Estimate changed from Feb 2018 to Sep 2018 due to late LRIP Contract Award.

Acronyms and Abbreviations

AD/SR - Air Defense/Surveillance Radar
GB1/2 - Ground/Air Task Oriented Radar Block 1/2
GWLR - Ground Weapons Locating Radar

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
AD/SR (GB1)				
Tier 1: Net-Centric Tier 2: Information Transport, Information Assurance				
Enter and be managed in the network				
Network: Direct Fiber to TAOM, CAC2S or CTN Measure: Time to connect to an operational network from power up Conditions: Network connectivity Network: EPLRS to TAOM or CAC2S				
30 min Reconfigure from transport to full operation 30 min	30 min Reconfigure from transport to full operation 30 min	60 min Reconfigure from transport to full operation 60 min	TBD	30 min Reconfigure from transport to full operation 30 min
Exchange information				
Information Element: Air Track Data Measure: Dissemination of target biographic and physical data Measure: Receipt of HVT data Measure: Latency of data Measure: Strenght of encryption Conditions: Tactical/Geopolitical				
Non Permissive	Non Permissive	Data: Date and time, Azimuth, range, elevation, time, size, speed and IFF NRT Data Rate: -524 Kbps TFOCA-11 Not Encrypted EPLRS: Communic-ation / Transmission Integrated Circuit (CTIC), CTIC DS-101 Hybrid (CDH) Permissive	TBD	Non Permissive
Tier 1: Battlespace Awareness Tier 2: Intelligence, Surveillance & Reconnaissance, Environment				
Combat Identification (Block 1) (Applicable to Block 4)				
(Threshold=Objective) AD/SR's IFF system shall be compatible with MK XII IFF systems (Modes 1, 2, 3/A, C, 4).	(Threshold= Objective) AD/SR's IFF system shall be compatible with MK XII IFF systems (Modes 1, 2, 3/A, C, 4).	AD/SR's IFF system shall be compatible with MK XII IFF systems (Modes 1, 2, 3/A, C, 4).	TBD	(Threshold= Objective) AD/SR's IFF system shall be compatible with MK XII IFF systems (Modes 1, 2, 3/A, C, 4).
Combat Identification (Block 1) (Applicable to Block 4				

Integrate IFF Mode 5 (Level 3) and Mode S (Level 3)	Integrate IFF Mode 5 (Level 3) and Mode S (Level 3)	Growth - Block 4. AD/SR shall integrate MK XIIA IFF Mode 5 (Level 2) capabilities and Mode S (level 2)	TBD	Integrate IFF Mode 5 (Level 3) and Mode S (Level 3)
Tier 1: Logistics Tier 2: 0perational Contract Support				
Sustainment				
Material Availability				
Materiel Availability The AD/SR shall have a Materiel Availability of 0.90 (Objective)	Materiel Availability The AD/SR shall have a Materiel Availability of 0.90 (Objective)	Materiel Availability The AD/SR shall have a Materiel Availability of 0.85 (Threshold)	TBD	Materiel Availability The AD/SR shall have a Materiel Availability of 0.90 (Objective)
Operational availability				
Operational availability The AD/SR shall have an Ao of 0.95 (Objective)	Operational availability The AD/SR shall have an Ao of 0.95 (Objective)	Operational availability The AD/SR shall have an Ao of 0.90 (Threshold)	TBD	Operational availability The AD/SR shall have an Ao of 0.95 (Objective)
GWLR (GB2)				
Detection, Tracking and Classification (all ranges in (km))				
(Mortar (Light .5-30) (Medium .5-40) (Heavy .5-40)) (Artillery (Light 3-60) (Medium 3-60) (Heavy 3-60)) (Rockets (Light 6-60) (Medium 6-60) (Heavy 15-90))	(Mortar (Light .5-30) (Medium .5-40) (Heavy .5-40)) (Artillery (Light 3-60) (Medium 3-60) (Heavy 3-60)) (Rockets (Light 6-60) (Medium 6-60) (Heavy 15-90))	(Mortar (Light .75-20) (Medium .75-30) (Heavy .75-30)) (Artillery (Light 3-30) (Medium 3-40) (Heavy 3-40)) (Rockets (Light 10-40) (Medium 10-50) (Heavy 10-60))	TBD	(Mortar (Light .75-20) (Medium .75-30) (Heavy .75-30)) (Artillery (Light 3-30) (Medium 3-40) (Heavy 3- 40)) (Rockets (Light 10-40) (Medium 10-50) (Heavy 10-60))
Probability of location (acquisition)				
Assuming no targets in track, 0.97 for at least 90% of the cases in the shot array with +/-800 mils coverage (1600 mils total) with the radar in either normal or extended range operating mode in the defined nominal environment.	Assuming no targets in track, 0.97 for at least 90% of the cases in the shot array with +/-800 mils coverage (1600 mils total) with the radar in either normal or extended range operating mode in the defined nominal environment.	Assuming no targets in track, 0.90 for at least 90% of the cases in the shot array with +/-800 mils coverage (1600 mils total) with the radar in either normal or extended range operating mode in the defined nominal environment.	TBD	Assuming no targets in track, 0.90 for at least 90% of the cases in the shot array with +/-800 mils coverage (1600 mils total) with the radar in either normal or extended range operating mode in the defined nominal environment
Hostile Weapon Location (range in (m))				
The CEP50 of weapon	The CEP50 of weapon	The CEP50 of	TBD	The CEP50 of

location shall be less than the greater of 30m or 0.252% of range for at least 90% (threshold) of the cases in the shot array in the defined nominal environment.	location shall be less than the greater of 30m or 0.252% of range for at least 90% (threshold) of the cases in the shot array in the defined nominal environment.	weapon location shall be less than the greater of 30m or 0.252% of range for at least 80% (objective) of the cases in the shot array in the defined nominal environment.		weapon location shall be less than the greater of 30m or 0.252% of range for at least 80% (objective) of the cases in the shot array in the defined nominal
Projectile Impact (CEP50)				
The CEP50 of weapon location shall be less than the greater of 30m or 0.252% of range (in meters) for at least 90% (threshold) of the cases in the shot array in the defined nominal environment.	The CEP50 of weapon location shall be less than the greater of 30m or 0.252% of range (in meters) for at least 90% (threshold) of the cases in the shot array in the defined nominal environment.	The CEP50 of weapon location shall be less than the greater of 30m or 0.252% of range (in meters) for at least 80% (objective) of the cases in the shot array in the defined nominal environment.	TBD	The CEP50 of weapon location shall be less than the greater of 30m or 0.252% of range (in meters) for at least 80% objective) of the cases in the shot array in the defined nominal environment.
Transportability				
(Objective=Threshold) C-130 drive-on, drive-off	(Objective=Threshold) C-130 drive-on, drive-off	C-130 drive-on, drive-off	TBD	C-130 drive-on, drive-off
Net Ready				
100% of interfaces certified; services; policy-enforcement controls; and data correctness, availability and processing requirements in the Joint integrated architecture.	100% of interfaces certified; services; policy-enforcement controls; and data correctness, availability and processing requirements in the Joint integrated architecture.	100% of interfaces certified; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise-level or critical in the Joint integrated architecture.	TBD	100 percent of interfaces certified; services; policy enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the Joint integrated architecture.

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

Requirements Reference

CPD (GB1) dated December 3, 2012 and ORD (GB2) dated July 20, 2004

Change Explanations

None

Acronyms and Abbreviations

AD/SR - Air Defense/Surveillance Radar
CAC2S - Common Aviation Command and Control System
CEP50 - Circular Error Probable 50
CTN - Composite Tracking Network
EPLRS - Enhanced Position Location Reporting System
GB1/2/4 - Ground/Air Task Oriented Radar Block 1/2/4
GWLR - Ground Weapons Locating Radar
HVT - High Value Target
IFF - Identification Friend or Foe
kbps - kilobits per second
km - Kilometers
m - meters
mils - milliradians
min - minutes
NRT - Near Real Time
TAOM - Tactical Air Operations Modules
TFOCA - Tactical Fiber Optic Cable Assembly

Track to Budget

RDT&E

Appn	BA	PE
Navy	07	0204460M

Project	Name
9C89	Marine Ground-Air Radar

Notes: Sub activity changed to C9C890 from C9C89B FY2013 when G/ATOR PE was created and no longer shared.

Appn	BA	PE
Navy	04	0206313M

Project	Name		
3099D	Radar Systems	(Shared)	(Sunk)

Notes: Added based on historical data. This line started its use with G/ATOR in 2004.

Appn	BA	PE
Navy	07	0206313M

Project	Name		
9C89	G/ATOR	(Shared)	(Sunk)

Notes: Ground/Air Task Oriented Radar (G/ATOR)

Procurement

Appn	BA	PE
Navy	04	0206313M

Line Item	Name	
4650	Radar Systems	(Shared)

Notes: Radar Systems

Appn	BA	PE
Navy	04	0204460M

Line Item	Name		
4650	Radar Systems	(Shared)	(Sunk)

Notes: Radar Systems FY2013 and FY2014

Line Item	Name
4655	G/ATOR

Notes: G/ATOR FY2015 and beyond.

Appn	BA	PE
Navy	04	0506313M

Line Item	Name
4655	G/ATOR

Notes: G/ATOR FY2015 and beyond.

Appn	BA	PE
Navy	07	0204460M

Line Item	Name	
7000	Spares and Repairs Parts	(Shared)

Notes: Spares and Repairs Parts

MILCON

Notes

The MILCON funding line has not yet been established.

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2012 $M			BY 2012 $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	986.5	986.5	1085.2	989.6	1019.2	1019.2	1017.3
Procurement	1625.3	1625.3	1787.8	1633.4	1894.8	1894.8	1892.2
Flyaway	--	--	--	1424.9	--	--	1652.5
Recurring	--	--	--	1299.5	--	--	1510.3
Non Recurring	--	--	--	125.4	--	--	142.2
Support	--	--	--	208.5	--	--	239.7
Other Support	--	--	--	133.6	--	--	154.1
Initial Spares	--	--	--	74.9	--	--	85.6
MILCON	3.5	3.5	3.9	3.5	3.9	3.9	3.9
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2615.3	2615.3	N/A	2626.5	2917.9	2917.9	2913.4

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The ICE to support the G/ATOR program to establish a new APB; like all life-cycle cost estimates previously performed by the Naval Center for Cost Analysis (NCCA) is built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	45	45	45
Total	45	45	45

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	750.6	65.6	83.5	50.3	10.1	12.5	6.3	38.4	1017.3
Procurement	275.3	126.9	135.0	145.0	233.2	283.3	297.2	396.3	1892.2
MILCON	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	3.9
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	1025.9	196.4	218.5	195.3	243.3	295.8	303.5	434.7	2913.4
PB 2016 Total	1035.2	214.8	225.4	182.0	244.9	230.8	344.2	438.1	2915.4
Delta	-9.3	-18.4	-6.9	13.3	-1.6	65.0	-40.7	-3.4	-2.0

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	6	3	3	3	6	8	8	8	45
PB 2017 Total	0	6	3	3	3	6	8	8	8	45
PB 2016 Total	0	6	3	3	3	6	6	9	9	45
Delta	0	0	0	0	0	0	2	-1	-1	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
2004	--	--	--	--	--	--	6.7
2005	--	--	--	--	--	--	8.9
2006	--	--	--	--	--	--	13.5
2007	--	--	--	--	--	--	37.2
2008	--	--	--	--	--	--	88.9
2009	--	--	--	--	--	--	127.3
2010	--	--	--	--	--	--	67.2
2011	--	--	--	--	--	--	63.2
2012	--	--	--	--	--	--	102.5
2013	--	--	--	--	--	--	70.2
2014	--	--	--	--	--	--	74.4
2015	--	--	--	--	--	--	90.6
2016	--	--	--	--	--	--	65.6
2017	--	--	--	--	--	--	83.5
2018	--	--	--	--	--	--	50.3
2019	--	--	--	--	--	--	10.1
2020	--	--	--	--	--	--	12.5
2021	--	--	--	--	--	--	6.3
2022	--	--	--	--	--	--	6.6
2023	--	--	--	--	--	--	0.3
2024	--	--	--	--	--	--	2.3
2025	--	--	--	--	--	--	--
2026	--	--	--	--	--	--	2.4
2027	--	--	--	--	--	--	--
2028	--	--	--	--	--	--	2.5
2029	--	--	--	--	--	--	--
2030	--	--	--	--	--	--	2.6
2031	--	--	--	--	--	--	--
2032	--	--	--	--	--	--	2.7
2033	--	--	--	--	--	--	--
2034	--	--	--	--	--	--	2.9
2035	--	--	--	--	--	--	--
2036	--	--	--	--	--	--	3.0
2037	--	--	--	--	--	--	--
2038	--	--	--	--	--	--	3.1

2039	--	--	--	--	--	--	--
2040	--	--	--	--	--	--	3.2
2041	--	--	--	--	--	--	--
2042	--	--	--	--	--	--	3.2
2043	--	--	--	--	--	--	--
2044	--	--	--	--	--	--	3.6
Subtotal	--	--	--	--	--	--	1017.3

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2012 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	7.8
2005	--	--	--	--	--	--	10.1
2006	--	--	--	--	--	--	14.8
2007	--	--	--	--	--	--	39.8
2008	--	--	--	--	--	--	93.5
2009	--	--	--	--	--	--	132.1
2010	--	--	--	--	--	--	68.7
2011	--	--	--	--	--	--	63.1
2012	--	--	--	--	--	--	100.7
2013	--	--	--	--	--	--	68.3
2014	--	--	--	--	--	--	71.3
2015	--	--	--	--	--	--	85.8
2016	--	--	--	--	--	--	61.1
2017	--	--	--	--	--	--	76.4
2018	--	--	--	--	--	--	45.1
2019	--	--	--	--	--	--	8.9
2020	--	--	--	--	--	--	10.8
2021	--	--	--	--	--	--	5.3
2022	--	--	--	--	--	--	5.5
2023	--	--	--	--	--	--	0.2
2024	--	--	--	--	--	--	1.8
2025	--	--	--	--	--	--	--
2026	--	--	--	--	--	--	1.8
2027	--	--	--	--	--	--	--
2028	--	--	--	--	--	--	1.8
2029	--	--	--	--	--	--	--
2030	--	--	--	--	--	--	1.8
2031	--	--	--	--	--	--	--
2032	--	--	--	--	--	--	1.8
2033	--	--	--	--	--	--	--
2034	--	--	--	--	--	--	1.9
2035	--	--	--	--	--	--	--
2036	--	--	--	--	--	--	1.9
2037	--	--	--	--	--	--	--
2038	--	--	--	--	--	--	1.9
2039	--	--	--	--	--	--	--
2040	--	--	--	--	--	--	1.9
2041	--	--	--	--	--	--	--
2042	--	--	--	--	--	--	1.8
2043	--	--	--	--	--	--	--

2044	--	--	--	--	--	--	1.9
Subtotal	--	--	--	--	--	--	989.6

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
2012	--	--	--	4.2	4.2	--	4.2
2013	2	74.0	--	10.6	84.6	1.8	86.4
2014	2	74.0	--	10.6	84.6	9.2	93.8
2015	2	72.6	--	6.4	79.0	11.9	90.9
2016	3	103.9	--	11.5	115.4	11.5	126.9
2017	3	92.8	0.3	10.7	103.8	31.2	135.0
2018	3	89.2	0.2	10.9	100.3	44.7	145.0
2019	6	181.1	--	20.5	201.6	31.6	233.2
2020	8	231.7	0.5	17.8	250.0	33.3	283.3
2021	8	247.4	--	21.2	268.6	28.6	297.2
2022	8	274.4	0.8	11.3	286.5	22.2	308.7
2023	--	--	--	--	--	3.5	3.5
2024	--	--	--	--	--	10.2	10.2
2025	--	--	--	6.5	6.5	--	6.5
2026	--	--	--	--	--	--	--
2027	--	9.8	--	--	9.8	--	9.8
2028	--	--	--	--	--	--	--
2029	--	--	--	--	--	--	--
2030	--	10.3	--	--	10.3	--	10.3
2031	--	--	--	--	--	--	--
2032	--	--	--	--	--	--	--
2033	--	10.9	--	--	10.9	--	10.9
2034	--	--	--	--	--	--	--
2035	--	--	--	--	--	--	--
2036	--	11.5	--	--	11.5	--	11.5
2037	--	--	--	--	--	--	--
2038	--	--	--	--	--	--	--
2039	--	12.1	--	--	12.1	--	12.1
2040	--	--	--	--	--	--	--
2041	--	--	--	--	--	--	--
2042	--	12.8	--	--	12.8	--	12.8
Subtotal	45	1508.5	1.8	142.2	1652.5	239.7	1892.2

Annual Funding 1109 | Procurement | Procurement, Marine Corps							
Fiscal Year	Quantity	BY 2012 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	4.1	4.1	--	4.1
2013	2	71.3	--	10.2	81.5	1.7	83.2
2014	2	70.4	--	10.1	80.5	8.7	89.2
2015	2	68.1	--	6.0	74.1	11.1	85.2
2016	3	95.7	--	10.6	106.3	10.6	116.9
2017	3	83.9	0.3	9.7	93.9	28.2	122.1
2018	3	79.1	0.2	9.7	89.0	39.6	128.6
2019	6	157.4	--	17.8	175.2	27.5	202.7
2020	8	197.5	0.4	15.2	213.1	28.3	241.4
2021	8	206.7	--	17.7	224.4	23.9	248.3
2022	8	224.8	0.7	9.3	234.8	18.1	252.9
2023	--	--	--	--	--	2.8	2.8
2024	--	--	--	--	--	8.0	8.0
2025	--	--	--	5.0	5.0	--	5.0
2026	--	--	--	--	--	--	--
2027	--	7.3	--	--	7.3	--	7.3
2028	--	--	--	--	--	--	--
2029	--	--	--	--	--	--	--
2030	--	7.2	--	--	7.2	--	7.2
2031	--	--	--	--	--	--	--
2032	--	--	--	--	--	--	--
2033	--	7.2	--	--	7.2	--	7.2
2034	--	--	--	--	--	--	--
2035	--	--	--	--	--	--	--
2036	--	7.1	--	--	7.1	--	7.1
2037	--	--	--	--	--	--	--
2038	--	--	--	--	--	--	--
2039	--	7.1	--	--	7.1	--	7.1
2040	--	--	--	--	--	--	--
2041	--	--	--	--	--	--	--
2042	--	7.1	--	--	7.1	--	7.1
Subtotal	45	1297.9	1.6	125.4	1424.9	208.5	1633.4

Cost Quantity Information 1109 | Procurement | Procurement, Marine Corps		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2012 $M**
2012	--	--
2013	2	73.1
2014	2	72.0
2015	2	69.6
2016	3	97.9
2017	3	87.3
2018	3	82.6
2019	6	163.3
2020	8	205.0
2021	8	214.2
2022	8	232.9
2023	--	--
2024	--	--
2025	--	--
2026	--	--
2027	--	--
2028	--	--
2029	--	--
2030	--	--
2031	--	--
2032	--	--
2033	--	--
2034	--	--
2035	--	--
2036	--	--
2037	--	--
2038	--	--
2039	--	--
2040	--	--
2041	--	--
2042	--	--
Subtotal	45	1297.9

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	**TY $M** **Total Program**
2016	3.9
Subtotal	3.9

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	**BY 2012 $M**
	Total Program
2016	3.5
Subtotal	3.5

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	3/10/2014	3/10/2015
Approved Quantity	4	6
Reference	MS C ADM	MS C ADM
Start Year	2014	2016
End Year	2014	2016

The Current Total LRIP Quantity is more than 10% of the total production quantity The MDA authorized additional LRIP units to mitigate risk associated with conversion to Gallium Arsenide (GaN) technology and associated testing.

Foreign Military Sales

None

Nuclear Costs

None

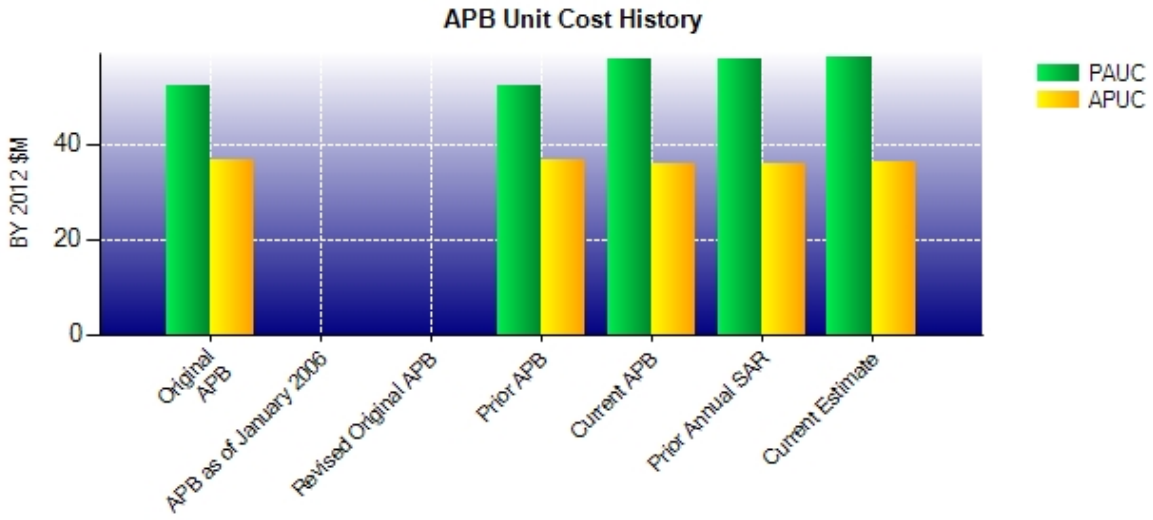
Unit Cost

Unit Cost Report

Item	BY 2012 $M Current UCR Baseline (Apr 2014 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2615.3	2626.5	
Quantity	45	45	
Unit Cost	58.118	58.367	+0.43
Average Procurement Unit Cost			
Cost	1625.3	1633.4	
Quantity	45	45	
Unit Cost	36.118	36.298	+0.50

Item	BY 2012 $M Original UCR Baseline (May 2012 APB)	BY 2012 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2987.3	2626.5	
Quantity	57	45	
Unit Cost	52.409	58.367	+11.37
Average Procurement Unit Cost			
Cost	2103.1	1633.4	
Quantity	57	45	
Unit Cost	36.896	36.298	-1.62

Unit Cost History



Item	Date	BY 2012 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2012	52.409	36.896	58.349	42.665
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	May 2012	52.409	36.896	58.349	42.665
Current APB	Apr 2014	58.118	36.118	64.842	42.107
Prior Annual SAR	Dec 2014	58.111	36.078	64.787	42.098
Current Estimate	Dec 2015	58.367	36.298	64.742	42.049

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	
58.349	0.367	5.249	0.813	0.000	1.451	0.000	-1.387	6.493	64.842

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
64.842	-0.807	0.000	-0.073	0.000	-2.067	0.000	2.847	-0.100	64.742

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	
42.665	0.276	1.067	0.813	0.000	-1.327	0.000	-1.387	-0.558	42.107

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
42.107	-0.638	0.000	-0.073	0.000	-2.073	0.000	2.727	-0.057	42.049

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	Aug 2005	Aug 2005	Aug 2005
Milestone C	N/A	Jul 2013	Mar 2014	Mar 2014
IOC	N/A	Aug 2016	Feb 2017	Feb 2018
Total Cost (TY $M)	N/A	3325.9	2917.9	2913.4
Total Quantity	N/A	57	45	45
PAUC	N/A	58.349	64.842	64.742

Cost Variance

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	1019.2	1894.8	3.9	2917.9
Previous Changes				
Economic	-5.1	-14.7	-0.1	-19.9
Quantity	--	--	--	--
Schedule	--	-1.1	--	-1.1
Engineering	--	--	--	--
Estimating	-2.4	+5.0	+0.1	+2.7
Other	--	--	--	--
Support	+5.4	+10.4	--	+15.8
Subtotal	-2.1	-0.4	--	-2.5
Current Changes				
Economic	-2.4	-14.0	--	-16.4
Quantity	--	--	--	--
Schedule	--	-2.2	--	-2.2
Engineering	--	--	--	--
Estimating	+2.6	-98.3	--	-95.7
Other	--	--	--	--
Support	--	+112.3	--	+112.3
Subtotal	+0.2	-2.2	--	-2.0
Adjustments	--	--	--	--
Total Changes	-1.9	-2.6	--	-4.5
CE - Cost Variance	1017.3	1892.2	3.9	2913.4
CE - Cost & Funding	1017.3	1892.2	3.9	2913.4

Summary BY 2012 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	986.5	1625.3	3.5	2615.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	-0.1	-0.1
Engineering	--	--	--	--
Estimating	+1.5	-10.1	+0.1	-8.5
Other	--	--	--	--
Support	--	+8.3	--	+8.3
Subtotal	+1.5	-1.8	--	-0.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1.6	-89.0	--	-87.4
Other	--	--	--	--
Support	--	+98.9	--	+98.9
Subtotal	+1.6	+9.9	--	+11.5
Adjustments	--	--	--	--
Total Changes	+3.1	+8.1	--	+11.2
CE - Cost Variance	989.6	1633.4	3.5	2626.5
CE - Cost & Funding	989.6	1633.4	3.5	2626.5

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-2.4
Congressional Reduction in FY 2016 and FY 2019 with payback in FY 2018. (Estimating)	-0.7	-0.2
Decreased estimate resulting from contract negotiations. (Estimating)	-8.3	-8.9
Revised estimate to incorporate additional rigor of testing. (Estimating)	+5.5	+6.3
Engineering Change Order/Engineering Change Proposal (ECO/ECP) costs increase as a function of Hardware procurement costs and rephasing of funding. (Estimating)	+8.4	+10.1
Revised estimate in FY 2013 to reflect actuals. (Estimating)	0.0	-0.1
Revised estimate for out-year ECO/ECP rates. (Estimating)	-4.6	-5.9
Adjustment for current and prior escalation. (Estimating)	+1.3	+1.3
RDT&E Subtotal	+1.6	+0.2

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-14.0
Acceleration of procurement buy profile, moving 1 unit each from FY 2021 and FY 2022 to FY 2020 to achieve production rate efficiencies. (Schedule)	0.0	-2.2
Updated estimating methodology factor to incorporate HW reliability metric trends, through delivery of the final production lot. (Estimating)	-77.1	-88.1
Revised estimate due to Congressional reduction. (Estimating)	-11.2	-12.4
Revised estimate and phasing for facilitization and training costs to support FOC. (Estimating)	+4.6	+6.4
Revised estimate due to surge in Post FOC ECO/ECP. (Estimating)	+5.0	+6.5
Adjustment for current and prior escalation. (Estimating)	+2.0	+2.1
Revised estimate reconcile POE to OSD out-year inflation. (Estimating)	+0.5	+0.8
Revised estimate in FY 2013 through FY 2015 to reflect actuals. (Estimating)	-12.8	-13.6
Increase to Other Support due to refined estimate in HW costs and the associated factor used in the estimating methodology through delivery of the final production lot. (Support)	+118.0	+135.2
Decrease in Initial Spares due to Congressional reduction. (Support)	-19.1	-22.9
Procurement Subtotal	+9.9	-2.2

Contracts

Contract Identification

Appropriation: RDT&E

Contract Name: LRIP GaAs

Contractor: Northrop Grumman Corporation

Contractor Location: 1580 West Nursery Road
Linthicum Heights, MD 21090

Contract Number: M67854-07-C-2072/4

Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Firm Fixed Price (FFP), Cost Plus Incentive Fee (CPIF)

Award Date: October 23, 2014

Definitization Date: October 23, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
0.0	207.3	4	327.1	340.2	6	325.0	327.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an omission of target cost during data entry at initial contract award.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	+2.0	-17.1
Previous Cumulative Variances	0.0	0.0
Net Change	+2.0	-17.1

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to cost savings associated with change in supplier, new machining process, and decrease in ramp up of staffing.

The unfavorable cumulative schedule variance is due to material supply chain management delays.

Contract Identification

Appropriation: RDT&E

Contract Name: Ground Weapons Locating Radar (GWLR) GB2

Contractor: Northrop Grumman Corporation

Contractor Location: 1580 West Nursery Road
Linthicum Heights, MD 21090

Contract Number: M67854-15-C-0230/7

Contract Type: Cost Plus Incentive Fee (CPIF)

Award Date: August 28, 2015

Definitization Date: August 28, 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
58.7	N/A	0	58.7	N/A	0	58.7	58.7

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	0.0	-0.4
Previous Cumulative Variances	--	--
Net Change	+0.0	-0.4

Cost and Schedule Variance Explanations

The unfavorable cumulative schedule variance is due to limited performance taken on subcontractor tasks.

Notes

This is the first time this contract is being reported.

Contract Identification

Appropriation: RDT&E

Contract Name: GaN Transition Phase 2

Contractor: Northrop Grumman Corporation

Contractor Location: 1580 West Nursery Road
Linthicum Heights, MD 21090

Contract Number: M67854-07-C-2072/8

Contract Type: Cost Plus Fixed Fee (CPFF)

Award Date: August 28, 2015

Definitization Date: August 28, 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
9.2	N/A	0	9.2	N/A	0	9.2	9.2

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	+0.3	-0.5
Previous Cumulative Variances	--	--
Net Change	+0.3	-0.5

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to efficiencies gained through elimination of redundancy in test planning efforts.

The unfavorable cumulative schedule variance is due to delay in staffing up resources to plan as well as late material receipts.

Notes

This is the first time this contract is being reported.

Contract Identification

Appropriation: RDT&E

Contract Name: OCC Migration Phase II

Contractor: Northrop Grumman Corporation

Contractor Location: 1580 West Nursery Road
Linthicum Heights, MD 21090

Contract Number: M67854-07-C-2072/5

Contract Type: Cost Plus Fixed Fee (CPFF)

Award Date: December 03, 2014

Definitization Date: December 03, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
10.2	N/A	0	10.8	N/A	0	10.8	10.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to Authorized Undefinitized Work (AUW) at initial contract award.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	0.0	-0.1
Previous Cumulative Variances	--	--
Net Change	+0.0	-0.1

Cost and Schedule Variance Explanations

The unfavorable cumulative schedule variance is due to late subcontractor receipts and inability to staff to plan.

Notes

This is the first time this contract is being reported.

Contract Identification

Appropriation: RDT&E

Contract Name: Reliability Phase II

Contractor: Northrop Grumman Corporation

Contractor Location: 1580 West Nursery Road
Linthicum Heights, MD 21090

Contract Number: M67854-07-C-2072/6

Contract Type: Cost Plus Fixed Fee (CPFF)

Award Date: March 30, 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
15.3	N/A	0	15.3	N/A	0	15.3	15.3

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	+0.1	0.0
Previous Cumulative Variances	--	--
Net Change	+0.1	+0.0

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to completion of software change request at a greater efficiency.

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	0	0	0	--
Production	45	0	45	0.00%
Total Program Quantity Delivered	45	0	45	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	2913.4	Years Appropriated	13
Expended to Date	740.9	Percent Years Appropriated	31.71%
Percent Expended	25.43%	Appropriated to Date	1222.3
Total Funding Years	41	Percent Appropriated	41.95%

The above data is current as of January 05, 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: January 12, 2016
Source of Estimate: POE
Quantity to Sustain: 45
Unit of Measure: System
Service Life per Unit: 20.00 Years
Fiscal Years in Service: FY 2016 - FY 2044

A system consists of the Radar Equipment Group, the Communications Equipment Group and the Power Equipment Group.

Sustainment Strategy

The sustainment strategy includes organic support with contract support for the depot level. Current Product Support Strategy employs Contractor Logistics Support (CLS) during the EMD phase to provide support for the two Engineering Development Models and up to eight LRIP systems. Interim CLS will be provided as part of the FRP contract. During production some components may remain under CLS, others may transition to Performance Based Logistics and others may transition to traditional organic support.

Antecedent Information

The AN/TPS-63B Radar is the antecedent system. There is no data in the Naval Visibility and Management of Operating and Support Costs database for the antecedent system.

Annual O&S Costs BY2012 $M		
Cost Element	**G/ATOR Average Annual Cost Per System**	**AN/TPS-63B Radar (Antecedent) Average Annual Cost Per System**
Unit-Level Manpower	0.250	0.000
Unit Operations	0.013	0.000
Maintenance	1.261	0.000
Sustaining Support	0.596	0.000
Continuing System Improvements	0.712	0.000
Indirect Support	0.033	0.000
Other	--	--
Total	2.865	--

The G/ATOR profile reflects a 20-year Life Cycle Cost and is based upon the Operations and Support developed jointly by NCCA and the program office. The data reflected to date includes fact of life changes incorporated during the last Program Office Estimate review.

Item	Total O&S Cost $M			
	G/ATOR			AN/TPS-63B Radar (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	2522.6	2774.9	2578.5	0.0
Then Year	3326.3	N/A	3616.2	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

Equation to Translate Annual Cost to Total Cost

Total O&S cost = Average Annual Cost Per System * # of systems * Service Life = $2.865M * 45 * 20 = $2578.5M

O&S Cost Variance		
Category	**BY 2012 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	2519.4	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	59.1	Revised methodology for reliability and maintainability, sustaining engineering and software maintenance. Revised methodology is a more applicable cost estimating relationship based on historical costs. Also includes revised manpower projection associated with software support activity.
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	59.1	
Current Estimate	2578.5	

Disposal Estimate Details

Date of Estimate: January 12, 2016

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2012 $M): Total costs for disposal of all System are 2.9

TY Total disposal cost are $5.2M.