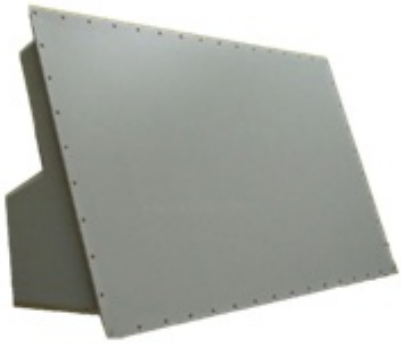
Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-582

Signal Data Processor with Sierra Chip (SDP-S)



Planar Array Antenna Assembly (PAAA)

Cooperative Engagement Capability (CEC)

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

Cooperative Engagement Capability (CEC)

DoD Component

Navy

Joint Participants

United States Marine Corps; United States Air Force; United States Army

Responsible Office

CAPT Joseph Reason
Program Executive Office
Integrated Warfare Systems
1333 Isaac Hull Avenue, S.E.
Washington, DC 20376-4401

Phone: 202-781-2029
Fax: 202-781-4752
DSN Phone: 326-2029
DSN Fax: 326-4752
Date Assigned: June 27, 2012

joseph.reason@navy.mil

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated April 3, 2002

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 16, 2004

Mission and Description

Mission

The Cooperative Engagement Capability (CEC) increases overall Naval Air Defense capabilities by integrating sensors and weapon assets into a single, integrated, real-time network which expands the battlespace; enhances situational awareness; increases depth of fire and enables longer intercept ranges; and improves decision and reaction times.

Description

CEC is a real-time sensor netting system that enables high quality situational awareness and Integrated Fire Control (IFC) capability, which revolutionizes Naval Air Defense by providing improved accuracy, continuity, and identification consistency. This sensor netting system significantly improves Naval Carrier and Expeditionary Strike Group's Area Air Defense capabilities by extracting and distributing sensor-derived information such that the superset of this data is available to all participating CEC Cooperating Units (CUs). CEC fuses the distributed data from shipboard, airborne, Composite Tracking Network (CTN) ground mobile units, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and select coalition partners into a single fire control quality air track picture. Radar measurement data from individual CUs within a CEC equipped force are transmitted to other CUs using the Line-Of-Sight Data Distribution System. A variety of automated network configurations are possible since CEC terminals provide highly directional, point-to-point data exchanges.

The CEC system distributes data between sensor and weapon assets to create a single, distributed, integrated air picture that supports and enables IFC. Individual sensors on all platforms in a CEC network are used in a cooperative manner as a distributed system to obtain track information to form a single, real-time composite track. This real-time composite tracking enables CEC to support Theater Air and Missile Defense allowing coordination of Naval and Joint sensor system assets among CEC-equipped ships, aircraft, and land platforms and joint operational access to engage cruise missiles that threaten joint forces in a denied access environment.

CEC consists of the following variants:

AN/USG-2: Shipboard designation of CEC deployed aboard the Aegis Guided Missile Cruisers (CG), Aegis Guided Missile Destroyers (DDG), Aircraft Carriers (CVN) and Amphibious Transport Dock (LPD)/Amphibious Assault (LHD) ships

AN/USG-3: Airborne designation of CEC deployed in E-2C and E-2D aircraft

AN/USG-4: United States Marine Corps (USMC) CTN platform

AN/USG-5: United States Army JLENS platform

AN/USG-6/7/8/10: FMS

AN/USG-9: CEC with USMC Common Aviation Command and Control System

Executive Summary

The CEC program achieved a Milestone III FRP decision in April 2002 for the AN/USG-2 shipboard variant and is continuing development efforts to keep pace with the security threats and ensure producibility. The program remains focused on ensuring compatibility, appropriate maintenance, and ultimate disposal.

The Assistant Secretary of the Navy (Research, Development and Acquisition) Memorandum for PEO for Integrated Warfare Systems, dated April 14, 2014, authorized FRP for the CEC AN/USG-3B (E-2D Airborne Variant) System in support of E-2D Advanced Hawkeye FRP.

The CEC program has developed a three phase approach to resolve interoperability issues.

- Phase 1 - Near Term of the Track File Concurrence software updates to resolve software shortfalls discovered during Development Test (DT-IIID)/Operational Test (OT-IIIF) testing for the CEC AN/USG-3B (E-2D Airborne Variant) System were fielded in FY 2014.

- Phase 2 - Accelerated Mid-Term Interoperability Improvement Project (AMIIP) (FY 2011 - FY 2019) corrects interoperability, including Dual Tracks improvements, and is certified within Aegis, Ship Self Defense System, and E-2C Hawkeye 2000 combat systems. Fleet delivery of AMIIP to Aegis Cruisers and Destroyers is ongoing. E-2C fielding is complete. E-2D AMIIP development has started and delivery is planned in FY 2019. AMIIP design was included in Common Aviation Command and Control System (CAC2S) Phase 2 during the design phase. CAC2S Phase 2 is conducting DT now, with OT scheduled in second quarter FY 2016. DDG 1000 has not included the AMIIP features in their design and there is no plan to include AMIIP in DDG 1000.

- Phase 3 – Far Term Interoperability Improvement Project (Far Term Host Combat System Design Changes) are in early planning stages and will be influenced by the results obtained from AMIIP. There is no funding allocated beyond FY 2016. However, Program Objective Memorandum (POM) issues were submitted in POM 16, POM 17 and POM 18 for the Far Term Interoperability Improvement Project efforts.

The RDT&E FY 2016 Congressional reduction will delay the development of the Common Array Block antenna that replaces Planar Array Antenna Assembly (PAAA) antennas. This reduction will cause a four-month delay in the delivery of the Common Array Block Functional Design Package for Aegis Flight III ships which will compromise the Flight III schedule. CEC will not be able to produce PAAA antennas beyond FY 2016 and an additional program cost of $14M will be incurred in order to qualify a second vendor for PAAA antennas, if necessary.

CEC continues to follow an evolutionary acquisition process, delivering capability in increments of hardware and/or software upgrades. This evolutionary approach acknowledges the need for future capability improvements to pace evolutionary trends.

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

Threshold Breaches

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

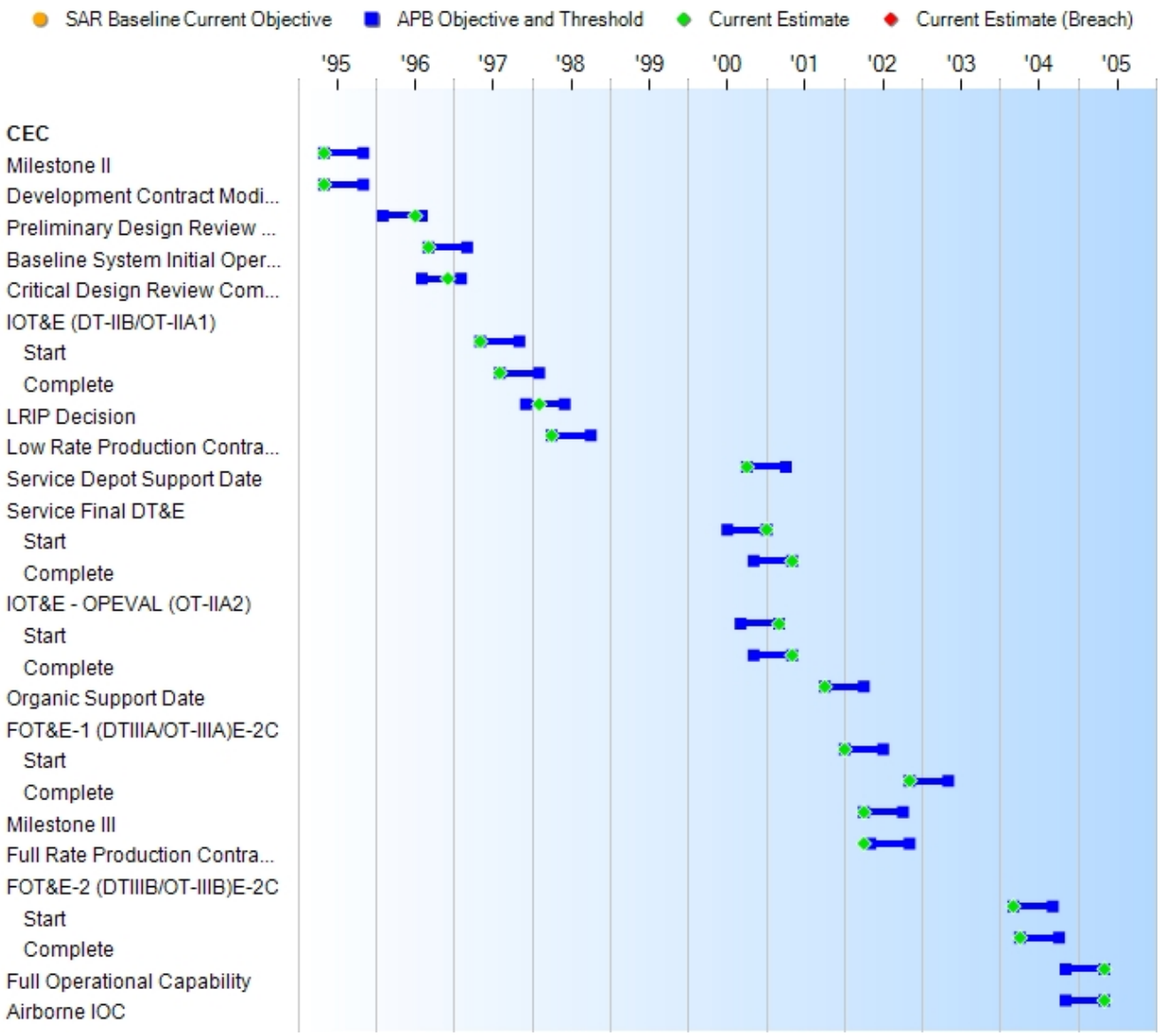
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

The breach to RDT&E was previously reported in the December 2011 SAR and will not be cleared, as the Single Integrated Air Picture aspect of our program was removed.

APB will be updated 30 days after the CPD is approved.

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
CEC
Milestone II
Development Contract Modi...
Preliminary Design Review ...
Baseline System Initial Oper...
Critical Design Review Com...
IOT&E (DT-IIB/OT-IIA1)
Start
Complete
LRIP Decision
Low Rate Production Contra...
Service Depot Support Date
Service Final DT&E
Start
Complete
IOT&E - OPEVAL (OT-IIA2)
Start
Complete
Organic Support Date
FOT&E-1 (DTIIIA/OT-IIIA)E-2C
Start
Complete
Milestone III
Full Rate Production Contra...
FOT&E-2 (DTIIIB/OT-IIIB)E-2C
Start
Complete
Full Operational Capability
Airborne IOC

Schedule Events				
Events	**SAR Baseline Production Estimate**	**Current APB Production Objective/Threshold**		**Current Estimate**
Milestone II	May 1995	May 1995	Nov 1995	May 1995
Development Contract Modification	May 1995	May 1995	Nov 1995	May 1995
Preliminary Design Review Complete	Feb 1996	Feb 1996	Aug 1996	Jul 1996
Baseline System Initial Operational Capability	Sep 1996	Sep 1996	Mar 1997	Sep 1996
Critical Design Review Complete	Aug 1996	Aug 1996	Feb 1997	Dec 1996
IOT&E (DT-IIB/OT-IIA1)				
Start	May 1997	May 1997	Nov 1997	May 1997
Complete	Aug 1997	Aug 1997	Feb 1998	Aug 1997
LRIP Decision	Dec 1997	Dec 1997	Jun 1998	Feb 1998
Low Rate Production Contract Award	Apr 1998	Apr 1998	Oct 1998	Apr 1998
Service Depot Support Date	Oct 2000	Oct 2000	Apr 2001	Oct 2000
Service Final DT&E				
Start	Jul 2000	Jul 2000	Jan 2001	Jan 2001
Complete	Nov 2000	Nov 2000	May 2001	May 2001
IOT&E - OPEVAL (OT-IIA2)				
Start	Sep 2000	Sep 2000	Mar 2001	Mar 2001
Complete	Nov 2000	Nov 2000	May 2001	May 2001
Organic Support Date	Oct 2001	Oct 2001	Apr 2002	Oct 2001
FOT&E-1 (DTIIIA/OT-IIIA)E-2C				
Start	Jan 2002	Jan 2002	Jul 2002	Jan 2002
Complete	Aug 2002	Nov 2002	May 2003	Nov 2002
Milestone III	Apr 2002	Apr 2002	Oct 2002	Apr 2002
Full Rate Production Contract Award	May 2002	May 2002	Nov 2002	Apr 2002
FOT&E-2 (DTIIIB/OT-IIIB)E-2C				
Start	Mar 2003	Mar 2004	Sep 2004	Mar 2004
Complete	Jul 2003	Apr 2004	Oct 2004	Apr 2004
Full Operational Capability	Dec 2003	Nov 2004	May 2005	May 2005
Airborne IOC	Dec 2003	Nov 2004	May 2005	May 2005

Change Explanations

None

Acronyms and Abbreviations

DT - Developmental Test
DT&E - Developmental Test and Evaluation
FOT&E - Follow-on Test and Evaluation
IOT&E - Initial Operational Test and Evaluation
OPEVAL - Operational Evaluation
OT - Operational Test

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Operational Availability				
>=.95	>=.95	>=.90	>=.89	>=.91
Interoperability				
Information Exchange Requirements (IER)				
100% of top-level IERs	100% of top-level IERs.	100% of top-level IERs designated critical	100% of top-level IERs designated critical	100% of top-level IERs designated critical
Track File Consistency				
Integration will improve track file consistency in each host system	CEC integration will improve track file consistency as measured in each host system	CEC integration must not degrade track file consistency (0% degradation)as measured in each host system	CEC integration will improve track file consistency as measured in each host system	CEC integration will improve track file consistency in each host system

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

Requirements Reference

ORD dated January 31, 2002 and ORD Change 1 dated January 31, 2011

Change Explanations

None

Notes

The AN/USG-2/2A legacy shipboard systems Demonstrated Performance changed from 0.91 to 0.89 due to an increase in MDT resulting from aging assemblies including the Antenna Environmental Control Units which are beyond their intended service life. AN/USG-2/2A re-utilization assets made available from AN/USG-2B back fits are being used to minimize MDT. The AN/USG-2/2A systems are being backfitted with the AN/USG-2B systems and will no longer be in use after CY 2020. The AN/USG-2B will start reporting sustainment metrics by mid FY 2016.

The following Demonstrated Performance for the AN/USG-3 and AN/USG-3B is provided since the Performance characteristics table above only identifies the AN/USG-2/2A Demonstrated Performance.

The AN/USG-3 Demonstrated Performance of 0.61 is due to extended MDT resulting directly from the Naval Sea Systems Command's lack of funding and Naval Supply Systems Command contracting issues with Raytheon, the Original Equipment Manufacturer, since the NAVSUP Performance Based Logistics contract expired in April 2012. The MDT is expected to decrease over time since NAVSUP signed a repair BOA on December 8, 2014 with Raytheon and NAVSEA has a repair BOA in place with Raytheon.

The AN/USG-3B Demonstrated Performance is 0.95. The AN/USG-3B is the latest airborne system. The AN/USG-3 legacy airborne system is being retired and will no longer be in use after CY 2023.

Acronyms and Abbreviations

BOA - Basic Order Agreement
IER - Information Exchange Requirements
MDT - Mean Down Time
NAVSUP - Naval Supply Systems Command

Track to Budget

General Notes

All APPNs and PEs have been updated to align with FY 2017 PB values.

Program element 0607658N Project 2039 CEC RDT&E established as of FY 2017 PB.
Program element 0603658N Project 2039 CEC RDT&E reported as sunk as of FY 2017 PB.
Program element 0204228N Line Item 0900 DDG Modernization OPN reported as sunk as of FY 2017 PB.
Program element 0206313M Line Item 4644 PMC established as of FY 2017 PB.

RDT&E

Appn	BA	PE
Navy	07	0206313M

Project	Name		
2273	Marine Corps Communication Systems/Marine Corps Communication Systems	(Shared)	
Notes:	Shared with Composite Tracking Network		

Appn	BA	PE
Navy	04	0603658N

Project	Name		
2039	COOP Engagement		(Sunk)
Notes:	Reported Sunk as of FY 2017 PB.		
2616	Cooperative Engagement Capability (CEC)		(Sunk)

Appn	BA	PE
Navy	05	0604234N

Project	Name		
3051	E2-D Advanced Hawkeye	(Shared)	(Sunk)
Notes:	Shared with Advanced Hawkeye Program		
5EJ	E2-D Advanced Hawkeye	(Shared)	(Sunk)
Notes:	Shared with Advanced Hawkeye Program		

Appn	BA	PE
Navy	07	0607658N

Project	Name
2039	COOP Engagement

Appn	BA	PE
Army	07	0102419A

Project	Name		
E55	Joint Aero Stat Program EMD Effort	(Shared)	(Sunk)
Notes:	Shared with Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System		

Procurement

Appn	BA	PE

Navy 1109 04 0206313M

Line Item	Name	
4640	Air Operations C2 Systems	(Shared)
Notes:	Shared with Composite Tracking Network	
4644	Common Aviation Command and Control System (CAC2S)	(Shared)
Notes:	Shared with Composite Tracking Network	

Navy 1506 01 0204152N

Line Item	Name	
0195	E-2D Adv Hawkeye	(Shared)
Notes:	Shared with E-2C Hawkeye	

Navy 1611 02 0204112N

Line Item	Name		
2001	Carrier Replacement Program	(Shared)	(Sunk)
Notes:	Shared with CVN Replacement Program		
2086	CVN Refueling Overhauls	(Shared)	
Notes:	Shared with Refueling Complex Overhaul		

Navy 1611 05 0204228N

Line Item	Name		
2119	DDG 1000	(Shared)	(Sunk)
Notes:	Shared with DDG 1000 Program		

Navy 1611 02 0204222N

Line Item	Name		
2119	DDG 1000	(Shared)	(Sunk)
Notes:	Shared with DDG 1000 Program		
2122	DDG-51	(Shared)	
Notes:	Shared with DDG-51 Program		

Navy 1611 03 0204411N

Line Item	Name		
3035	LHD-1	(Shared)	(Sunk)
Notes:	Shared with Amphibious Assault Ships		
3036	LPD-17	(Shared)	
Notes:	Shared with Amphibious Assault Ships		
3041	LHA Replacement	(Shared)	
Notes:	Shared with Amphibious Assault Ships		

Navy 1810 01 0204228N

Line Item	Name		
0900	DDG Modernization	(Shared)	(Sunk)
Notes:	Shared with DDG Modernization Program - Reported as sunk as of 2017 PB.		

Navy 1810 01 0204162N

Line Item	Name	
0960	CG Modernization	(Shared)

Notes: Shared with Cruiser Modernization Program.

Navy	1810	02	0204228N

Line Item	Name
2606	Cooperative Engagement Capability (CEC)

Navy	1810	02	0204221N

Line Item	Name	
2606	Cooperative Engagement Capability (CEC)	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2002 $M			BY 2002 $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	2028.1	2435.7	2679.3	2985.9[1]	1946.5	2394.3	3171.2
Procurement	2095.2	2095.2	2304.7	1751.6	2364.2	2364.2	2127.9
Flyaway	--	--	--	1516.6	--	--	1824.1
Recurring	--	--	--	1516.6	--	--	1824.1
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	235.0	--	--	303.8
Other Support	--	--	--	235.0	--	--	303.8
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	4123.3	4530.9	N/A	4737.5	4310.7	4758.5	5299.1

[1] *APB Breach*

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	16	27	30
Procurement	256	256	253
Total	272	283	283

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	2631.0	74.9	88.0	91.1	97.6	93.6	95.0	0.0	3171.2
Procurement	1516.2	84.8	66.1	90.7	64.0	62.3	68.7	175.1	2127.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	4147.2	159.7	154.1	181.8	161.6	155.9	163.7	175.1	5299.1
PB 2016 Total	4105.2	127.9	152.4	150.1	140.4	137.6	24.6	56.6	4894.8
Delta	42.0	31.8	1.7	31.7	21.2	18.3	139.1	118.5	404.3

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	30	0	0	0	0	0	0	0	0	30
Production	0	173	13	11	13	8	6	7	22	253
PB 2017 Total	30	173	13	11	13	8	6	7	22	283
PB 2016 Total	30	171	8	11	10	7	6	6	15	264
Delta	0	2	5	0	3	1	0	1	7	19

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
1994	--	--	--	--	--	--	203.2
1995	--	--	--	--	--	--	154.1
1996	--	--	--	--	--	--	256.4
1997	--	--	--	--	--	--	224.7
1998	--	--	--	--	--	--	200.8
1999	--	--	--	--	--	--	189.8
2000	--	--	--	--	--	--	179.8
2001	--	--	--	--	--	--	173.4
2002	--	--	--	--	--	--	106.7
2003	--	--	--	--	--	--	107.1
2004	--	--	--	--	--	--	91.1
2005	--	--	--	--	--	--	114.0
2006	--	--	--	--	--	--	99.8
2007	--	--	--	--	--	--	55.0
2008	--	--	--	--	--	--	53.4
2009	--	--	--	--	--	--	44.2
2010	--	--	--	--	--	--	65.8
2011	--	--	--	--	--	--	59.6
2012	--	--	--	--	--	--	60.0
2013	--	--	--	--	--	--	52.5
2014	--	--	--	--	--	--	60.0
2015	--	--	--	--	--	--	42.6
2016	--	--	--	--	--	--	74.9
2017	--	--	--	--	--	--	88.0
2018	--	--	--	--	--	--	91.1
2019	--	--	--	--	--	--	97.6
2020	--	--	--	--	--	--	93.6
2021	--	--	--	--	--	--	95.0
Subtotal	22	--	--	--	--	--	3134.2

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	224.2
1995	--	--	--	--	--	--	166.8
1996	--	--	--	--	--	--	272.9
1997	--	--	--	--	--	--	236.3
1998	--	--	--	--	--	--	209.4
1999	--	--	--	--	--	--	195.7
2000	--	--	--	--	--	--	182.7
2001	--	--	--	--	--	--	173.8
2002	--	--	--	--	--	--	105.9
2003	--	--	--	--	--	--	104.7
2004	--	--	--	--	--	--	86.7
2005	--	--	--	--	--	--	105.7
2006	--	--	--	--	--	--	89.7
2007	--	--	--	--	--	--	48.3
2008	--	--	--	--	--	--	46.0
2009	--	--	--	--	--	--	37.6
2010	--	--	--	--	--	--	55.2
2011	--	--	--	--	--	--	48.8
2012	--	--	--	--	--	--	48.3
2013	--	--	--	--	--	--	41.8
2014	--	--	--	--	--	--	47.1
2015	--	--	--	--	--	--	33.1
2016	--	--	--	--	--	--	57.2
2017	--	--	--	--	--	--	66.0
2018	--	--	--	--	--	--	67.0
2019	--	--	--	--	--	--	70.4
2020	--	--	--	--	--	--	66.2
2021	--	--	--	--	--	--	65.9
Subtotal	22	--	--	--	--	--	2953.4

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
1999	--	--	--	--	--	--	9.7
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	8.6
2010	--	--	--	--	--	--	5.2
2011	--	--	--	--	--	--	5.0
2012	--	--	--	--	--	--	5.6
2013	--	--	--	--	--	--	2.4
2014	--	--	--	--	--	--	0.5
Subtotal	8	--	--	--	--	--	37.0

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	--	10.0
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	7.3
2010	--	--	--	--	--	--	4.3
2011	--	--	--	--	--	--	4.1
2012	--	--	--	--	--	--	4.5
2013	--	--	--	--	--	--	1.9
2014	--	--	--	--	--	--	0.4
Subtotal	8	--	--	--	--	--	32.5

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
2008	--	--	3.0	--	3.0	--	3.0
2009	10	16.0	--	--	16.0	--	16.0
2010	--	--	--	--	--	--	--
2011	--	--	11.3	--	11.3	--	11.3
2012	--	--	3.8	--	3.8	--	3.8
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	1.9	--	1.9	--	1.9
2016	--	--	6.3	--	6.3	--	6.3
2017	--	--	6.5	--	6.5	--	6.5
2018	--	--	8.1	--	8.1	--	8.1
2019	--	--	3.5	--	3.5	--	3.5
2020	--	--	3.6	--	3.6	--	3.6
Subtotal	10	16.0	48.0	--	64.0	--	64.0

Annual Funding 1109 | Procurement | Procurement, Marine Corps							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2008	--	--	2.6	--	2.6	--	2.6
2009	10	13.5	--	--	13.5	--	13.5
2010	--	--	--	--	--	--	--
2011	--	--	9.2	--	9.2	--	9.2
2012	--	--	3.0	--	3.0	--	3.0
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	1.5	--	1.5	--	1.5
2016	--	--	4.8	--	4.8	--	4.8
2017	--	--	4.8	--	4.8	--	4.8
2018	--	--	5.9	--	5.9	--	5.9
2019	--	--	2.5	--	2.5	--	2.5
2020	--	--	2.5	--	2.5	--	2.5
Subtotal	10	13.5	36.8	--	50.3	--	50.3

Annual Funding 1506 | Procurement | Aircraft 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
2000	6	35.0	--	--	35.0	--	35.0
2001	1	14.7	--	--	14.7	--	14.7
2002	5	27.6	--	--	27.6	--	27.6
2003	6	33.3	--	--	33.3	--	33.3
2004	6	27.9	--	--	27.9	--	27.9
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	2	7.7	--	--	7.7	--	7.7
2010	3	12.6	--	--	12.6	--	12.6
2011	5	16.3	--	--	16.3	--	16.3
2012	5	15.6	--	--	15.6	--	15.6
2013	5	14.9	--	--	14.9	--	14.9
2014	5	13.1	--	--	13.1	--	13.1
2015	5	16.0	--	--	16.0	--	16.0
2016	5	16.3	--	--	16.3	--	16.3
2017	6	19.9	--	--	19.9	--	19.9
2018	5	16.9	--	--	16.9	--	16.9
2019	3	10.3	--	--	10.3	--	10.3
2020	4	14.1	--	--	14.1	--	14.1
2021	5	17.9	--	--	17.9	--	17.9
2022	5	18.3	--	--	18.3	--	18.3
2023	5	18.7	--	--	18.7	--	18.7
2024	2	7.6	--	--	7.6	--	7.6
Subtotal	94	374.7	--	--	374.7	--	374.7

Annual Funding 1506 | Procurement | Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	6	35.1	--	--	35.1	--	35.1
2001	1	14.6	--	--	14.6	--	14.6
2002	5	27.0	--	--	27.0	--	27.0
2003	6	32.0	--	--	32.0	--	32.0
2004	6	26.1	--	--	26.1	--	26.1
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	2	6.5	--	--	6.5	--	6.5
2010	3	10.4	--	--	10.4	--	10.4
2011	5	13.2	--	--	13.2	--	13.2
2012	5	12.4	--	--	12.4	--	12.4
2013	5	11.7	--	--	11.7	--	11.7
2014	5	10.2	--	--	10.2	--	10.2
2015	5	12.3	--	--	12.3	--	12.3
2016	5	12.3	--	--	12.3	--	12.3
2017	6	14.7	--	--	14.7	--	14.7
2018	5	12.3	--	--	12.3	--	12.3
2019	3	7.3	--	--	7.3	--	7.3
2020	4	9.8	--	--	9.8	--	9.8
2021	5	12.2	--	--	12.2	--	12.2
2022	5	12.3	--	--	12.3	--	12.3
2023	5	12.3	--	--	12.3	--	12.3
2024	2	4.9	--	--	4.9	--	4.9
Subtotal	94	309.6	--	--	309.6	--	309.6

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	1	13.9	--	--	13.9	1.6	15.5
1996	1	11.3	--	--	11.3	0.1	11.4
1997	--	--	--	--	--	--	--
1998	3	31.8	--	--	31.8	3.2	35.0
1999	1	9.0	--	--	9.0	0.9	9.9
2000	2	14.3	--	--	14.3	1.7	16.0
2001	2	12.3	--	--	12.3	1.1	13.4
2002	2	15.4	--	--	15.4	1.7	17.1
2003	1	5.8	--	--	5.8	0.8	6.6
2004	1	6.3	--	--	6.3	0.6	6.9
2005	1	7.6	--	--	7.6	0.6	8.2
2006	2	12.6	--	--	12.6	1.3	13.9
2007	3	16.8	--	--	16.8	5.9	22.7
2008	2	12.8	--	--	12.8	3.3	16.1
2009	3	13.8	--	--	13.8	6.4	20.2
2010	1	6.9	--	--	6.9	0.7	7.6
2011	3	12.1	--	--	12.1	4.9	17.0
2012	2	8.6	--	--	8.6	3.3	11.9
2013	5	24.1	--	--	24.1	6.2	30.3
2014	1	5.0	--	--	5.0	1.4	6.4
2015	2	8.8	--	--	8.8	2.4	11.2
2016	5	27.3	--	--	27.3	6.8	34.1
2017	3	14.2	--	--	14.2	3.5	17.7
2018	4	25.0	--	--	25.0	6.3	31.3
2019	3	14.5	--	--	14.5	3.6	18.1
2020	2	10.0	--	--	10.0	2.5	12.5
2021	2	10.1	--	--	10.1	2.6	12.7
2022	2	10.2	--	--	10.2	2.6	12.8
2023	2	10.2	--	--	10.2	2.6	12.8
2024	2	10.2	--	--	10.2	2.6	12.8
2025	2	10.2	--	--	10.2	2.6	12.8
2026	2	10.2	--	--	10.2	2.6	12.8
Subtotal	68	401.3	--	--	401.3	86.4	487.7

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	1	14.7	--	--	14.7	1.7	16.4
1996	1	11.8	--	--	11.8	0.1	11.9
1997	--	--	--	--	--	--	--
1998	3	32.0	--	--	32.0	3.2	35.2
1999	1	8.9	--	--	8.9	0.9	9.8
2000	2	13.8	--	--	13.8	1.7	15.5
2001	2	11.5	--	--	11.5	1.0	12.5
2002	2	14.3	--	--	14.3	1.6	15.9
2003	1	5.1	--	--	5.1	0.7	5.8
2004	1	5.3	--	--	5.3	0.5	5.8
2005	1	6.2	--	--	6.2	0.5	6.7
2006	2	9.9	--	--	9.9	1.0	10.9
2007	3	12.6	--	--	12.6	4.4	17.0
2008	2	9.3	--	--	9.3	2.4	11.7
2009	3	9.7	--	--	9.7	4.5	14.2
2010	1	4.7	--	--	4.7	0.5	5.2
2011	3	8.0	--	--	8.0	3.2	11.2
2012	2	5.5	--	--	5.5	2.2	7.7
2013	5	15.2	--	--	15.2	3.9	19.1
2014	1	3.1	--	--	3.1	0.9	4.0
2015	2	5.4	--	--	5.4	1.4	6.8
2016	5	16.3	--	--	16.3	4.1	20.4
2017	3	8.3	--	--	8.3	2.1	10.4
2018	4	14.4	--	--	14.4	3.6	18.0
2019	3	8.2	--	--	8.2	2.0	10.2
2020	2	5.5	--	--	5.5	1.4	6.9
2021	2	5.5	--	--	5.5	1.4	6.9
2022	2	5.4	--	--	5.4	1.4	6.8
2023	2	5.3	--	--	5.3	1.4	6.7
2024	2	5.2	--	--	5.2	1.3	6.5
2025	2	5.1	--	--	5.1	1.3	6.4
2026	2	5.0	--	--	5.0	1.3	6.3
Subtotal	68	291.2	--	--	291.2	57.6	348.8

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
1998	5	55.2	--	--	55.2	12.1	67.3
1999	5	79.7	--	--	79.7	1.7	81.4
2000	3	53.2	--	--	53.2	6.0	59.2
2001	6	36.4	--	--	36.4	--	36.4
2002	4	77.6	--	--	77.6	6.4	84.0
2003	6	64.9	--	--	64.9	6.1	71.0
2004	4	60.4	--	--	60.4	5.8	66.2
2005	3	60.9	--	--	60.9	6.2	67.1
2006	3	21.2	--	--	21.2	3.8	25.0
2007	5	34.4	--	--	34.4	3.6	38.0
2008	4	33.1	--	--	33.1	5.8	38.9
2009	4	29.3	--	--	29.3	4.9	34.2
2010	5	42.1	--	--	42.1	7.9	50.0
2011	5	47.7	--	--	47.7	13.7	61.4
2012	--	--	40.2	--	40.2	--	40.2
2013	2	20.3	--	--	20.3	11.2	31.5
2014	2	19.9	--	--	19.9	15.7	35.6
2015	4	24.3	--	--	24.3	36.5	60.8
2016	3	11.2	--	--	11.2	16.9	28.1
2017	2	8.8	--	--	8.8	13.2	22.0
2018	4	13.8	--	--	13.8	20.6	34.4
2019	2	12.8	--	--	12.8	19.3	32.1
2020	--	--	32.1	--	32.1	--	32.1
2021	--	--	38.1	--	38.1	--	38.1
2022	--	--	32.5	--	32.5	--	32.5
2023	--	--	34.0	--	34.0	--	34.0
Subtotal	81	807.2	176.9	--	984.1	217.4	1201.5

Annual Funding 1810 | Procurement | Other Procurement, Navy							
Fiscal Year	Quantity	BY 2002 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1998	5	57.3	--	--	57.3	12.5	69.8
1999	5	81.6	--	--	81.6	1.8	83.4
2000	3	53.7	--	--	53.7	6.1	59.8
2001	6	36.3	--	--	36.3	--	36.3
2002	4	76.3	--	--	76.3	6.3	82.6
2003	6	62.6	--	--	62.6	5.9	68.5
2004	4	56.9	--	--	56.9	5.4	62.3
2005	3	55.8	--	--	55.8	5.6	61.4
2006	3	18.8	--	--	18.8	3.4	22.2
2007	5	29.8	--	--	29.8	3.2	33.0
2008	4	28.3	--	--	28.3	4.9	33.2
2009	4	24.7	--	--	24.7	4.1	28.8
2010	5	34.8	--	--	34.8	6.5	41.3
2011	5	38.9	--	--	38.9	11.1	50.0
2012	--	--	32.2	--	32.2	--	32.2
2013	2	16.1	--	--	16.1	8.8	24.9
2014	2	15.5	--	--	15.5	12.3	27.8
2015	4	18.7	--	--	18.7	28.1	46.8
2016	3	8.5	--	--	8.5	12.8	21.3
2017	2	6.5	--	--	6.5	9.8	16.3
2018	4	10.1	--	--	10.1	15.0	25.1
2019	2	9.1	--	--	9.1	13.8	22.9
2020	--	--	22.5	--	22.5	--	22.5
2021	--	--	26.2	--	26.2	--	26.2
2022	--	--	21.9	--	21.9	--	21.9
2023	--	--	22.4	--	22.4	--	22.4
Subtotal	81	740.3	125.2	--	865.5	177.4	1042.9

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	3/2/1998	10/31/2013
Approved Quantity	7	84
Reference	LRIP 1 ADM	LRIP 14 ADM
Start Year	1998	1998
End Year	1998	2013

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the requirements (1) to meet ship installation schedules, (2) to outfit Land Based Test Sites in preparation for completion of Operational Testing (OT), and (3) to maintain the Minimum Sustaining Rate for production of CEC systems pending completion of OT and entry into FRP.

Foreign Military Sales

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

Nuclear Costs

None

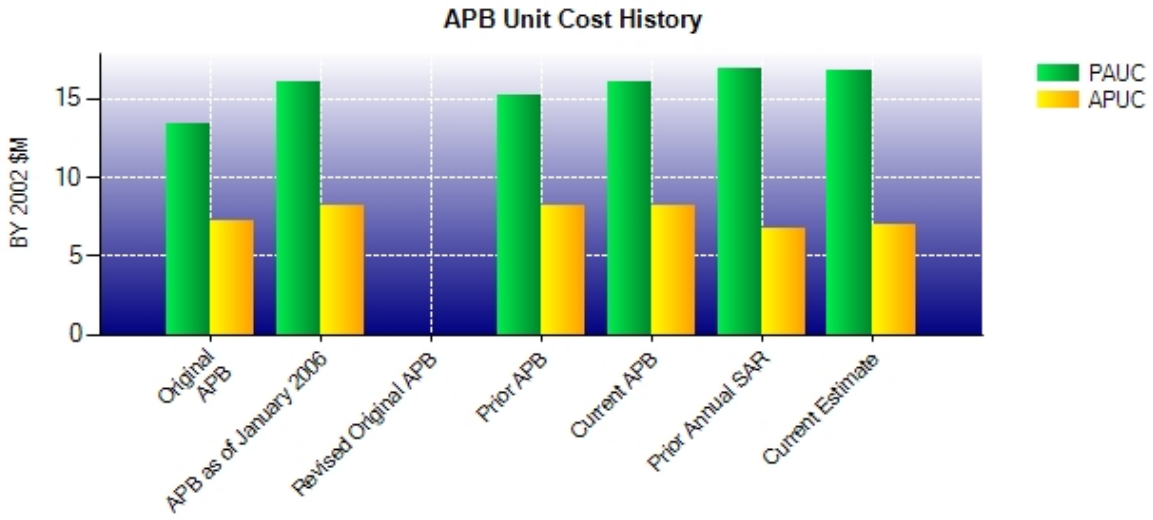
Unit Cost

Unit Cost Report

Item	BY 2002 $M Current UCR Baseline (Jun 2004 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	4530.9	4737.5	
Quantity	283	283	
Unit Cost	16.010	16.740	+4.56
Average Procurement Unit Cost			
Cost	2095.2	1751.6	
Quantity	256	253	
Unit Cost	8.184	6.923	-15.41

Item	BY 2002 $M Original UCR Baseline (Jul 1995 APB)	BY 2002 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2443.4	4737.5	
Quantity	183	283	
Unit Cost	13.352	16.740	+25.37
Average Procurement Unit Cost			
Cost	1262.8	1751.6	
Quantity	174	253	
Unit Cost	7.257	6.923	-4.60

Unit Cost History



Item	Date	BY 2002 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Jul 1995	13.326	7.257	14.061	8.222
APB as of January 2006	Jun 2004	16.010	8.184	16.814	9.235
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Apr 2002	15.159	8.184	15.848	9.235
Current APB	Jun 2004	16.010	8.184	16.814	9.235
Prior Annual SAR	Dec 2014	16.902	6.725	18.541	7.943
Current Estimate	Dec 2015	16.740	6.923	18.725	8.411

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	
14.060	-0.656	-2.840	0.590	0.420	5.010	0.000	-0.736	1.788	15.848

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
15.848	0.252	-0.838	2.089	1.059	0.229	0.000	0.086	2.877	18.725

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	
8.220	-0.532	-0.797	0.291	-0.439	1.761	0.000	0.731	1.015	9.235

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
9.235	0.180	-0.343	0.702	-0.707	-0.737	0.000	0.081	-0.824	8.411

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	May 1995	May 1995	May 1995
Milestone III	N/A	Oct 1998	Apr 2002	Apr 2002
IOC	N/A	Sep 1996	Sep 1996	Sep 1996
Total Cost (TY $M)	N/A	2573.1	4310.7	5299.1
Total Quantity	N/A	183	272	283
PAUC	N/A	14.061	15.848	18.725

IOC identified above refers to the CEC Shipboard configuration, AN/USG-2. FOC occurred in conjunction with Airborne IOC in May 2005.

Cost Variance

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	1946.5	2364.2	--	4310.7
Previous Changes				
Economic	+28.9	+47.8	--	+76.7
Quantity	+51.6	-261.9	--	-210.3
Schedule	+318.7	+63.6	--	+382.3
Engineering	+478.7	-146.1	--	+332.6
Estimating	+208.1	-194.4	--	+13.7
Other	--	--	--	--
Support	+3.6	-14.5	--	-10.9
Subtotal	+1089.6	-505.5	--	+584.1
Current Changes				
Economic	-3.0	-2.3	--	-5.3
Quantity	--	+147.4	--	+147.4
Schedule	+95.0	+113.9	--	+208.9
Engineering	--	-32.8	--	-32.8
Estimating	+43.1	+7.9	--	+51.0
Other	--	--	--	--
Support	--	+35.1	--	+35.1
Subtotal	+135.1	+269.2	--	+404.3
Total Changes	+1224.7	-236.3	--	+988.4
CE - Cost Variance	3171.2	2127.9	--	5299.1
CE - Cost & Funding	3171.2	2127.9	--	5299.1

Summary BY 2002 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	2028.1	2095.2	--	4123.3
Previous Changes				
Economic	--	--	--	--
Quantity	+47.8	-227.3	--	-179.5
Schedule	+227.8	-21.3	--	+206.5
Engineering	+418.9	-111.0	--	+307.9
Estimating	+163.2	-38.4	--	+124.8
Other	--	--	--	--
Support	+2.8	-123.6	--	-120.8
Subtotal	+860.5	-521.6	--	+338.9
Current Changes				
Economic	--	--	--	--
Quantity	--	+84.0	--	+84.0
Schedule	+65.4	+77.6	--	+143.0
Engineering	--	-18.9	--	-18.9
Estimating	+31.9	+12.1	--	+44.0
Other	--	--	--	--
Support	--	+23.2	--	+23.2
Subtotal	+97.3	+178.0	--	+275.3
Total Changes	+957.8	-343.6	--	+614.2
CE - Cost Variance	2985.9	1751.6	--	4737.5
CE - Cost & Funding	2985.9	1751.6	--	4737.5

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-3.0
Stretch-out of development effort from FY 2020 to FY 2021. (Schedule)	+65.4	+95.0
Additional funding for CVN 78 integration and testing. (Estimating)	+3.5	+4.5
Additional funding for CEC integration and development efforts. (Estimating)	+23.2	+32.3
Additional U.S. Marine Corps funding to support Composite Tracking Network (CTN) and Common Aviation Command and Control System (CAC2S). (Estimating)	+4.6	+5.5
Adjustment for current and prior escalation. (Estimating)	+0.6	+0.8
RDT&E Subtotal	+97.3	+135.1

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-2.3
Adjustment for current and prior escalation. (Estimating)	+0.4	+0.3
Quantity variance resulting from an increase of 12 CEC systems from 56 to 68 (Shipbuilding and Conversion, Navy (SCN)). (Subtotal)	+37.1	+72.0
Quantity variance resulting from an increase of 12 CEC systems from 56 to 68 (SCN). (Quantity)	(+59.3)	(+115.1)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+4.8)	(+9.3)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-12.0)	(-23.3)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-15.0)	(-29.1)
Additional quantity variance allocated to DDG systems (SCN). (Quantity)	-4.1	-8.0
Additional quantity variance CVN 73 and CVN74 CEC systems added to procurement buy profile (SCN). (Quantity)	+4.3	+7.5
Quantity variance resulting from an increase of 7 AN/USG-2 OPN systems from 74 to 81 (Aircraft Procurement, Navy (APN)). (Subtotal)	+23.1	+31.8
Quantity variance resulting from an increase of 7 AN/USG-2 OPN systems from 74 to 81.(APN). (Quantity)	(+36.1)	(+49.7)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-9.0)	(-12.3)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+2.9)	(+3.9)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-6.9)	(-9.5)
Additional quantity variance resulting from CG modernization budget adjustments (funds to be provided at year of execution) (APN). (Quantity)	-11.6	-16.9
Acceleration of procurement buy profile from FY 2016 to FY 2015 Other Procurement, Navy (OPN). (Schedule)	0.0	-0.8
Stretch-out of CEC OPN buy profile from FY 2020 to FY 2023 (OPN). (Schedule)	+71.9	+106.5
Acceleration of procurement buy profile (APN). (Schedule)	0.0	-0.1
Additional schedule variance resulting from acceleration of procurement buy profile (APN). (Schedule)	+3.4	+5.0
Acceleration of procurement buy profile by one year for DDG 127-135 systems (SCN). (Schedule)	0.0	-2.6
Additional Schedule Variance resulting from one LHD OPN system shifting from FY 2017 to FY 2018 (SCN). (Schedule)	-5.4	-7.3

Revised estimate for DDG Modernization (OPN). (Estimating)	-1.1	-1.4
Allocation to estimating as a result of revised unit cost based on actual system cost (APN). (Estimating)	+15.6	+21.8
Revised estimate to support CTN and CAC2S Procurement Marine Corps (PMC). (Estimating)	+21.7	+29.5
Refined unit cost estimates for CEC DDG systems (SCN). (Estimating)	-0.5	-0.9
Increase in Other Support for CEC as a result of 12 additional systems (SCN). (Support)	+9.1	+17.2
Increase in Other support for CEC back-fit and system installation support (OPN). (Support)	+13.9	+17.6
Adjustment for current and prior escalation. (Support)	+0.2	+0.3
Procurement Subtotal	+178.0	+269.2

(QR) Quantity Related

Contracts

Contract Identification

Appropriation: Procurement

Contract Name: CEC Signal Data Processor-Sierra (SDP-S) Production

Contractor: Sechan Electronics Inc

Contractor Location: 525 Furnace Hills Pike
Lititz, PA 17543-8902

Contract Number: N00024-12-D-5203/1

Contract Type: Indefinite Delivery Indefinite Quantity (IDIQ), Firm Fixed Price (FFP)

Award Date: December 20, 2011

Definitization Date: December 20, 2011

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
13.8	N/A	84	64.2	N/A	244	64.2	64.2

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 0001, 0002, 0003, and 0004.

Cost and Schedule Variance Explanations

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

Notes

This is a Delivery Order contract to procure SDP-S. Production units are FFP, the engineering support services are Cost Plus Fixed-Fee. This is an IDIQ contract, therefore, the estimated ceiling price at completion is not applicable.

Contract Identification

Appropriation: RDT&E

Contract Name: Design Agent/Engineering Services (FY 2014 - FY 2018)

Contractor: Raytheon - Network Centric Systems

Contractor Location: 8333 Bryan Dairy Road
Largo, FL 33777-1444

Contract Number: N00024-13-C-5212/0

Contract Type: Cost Plus Fixed Fee (CPFF)

Award Date: September 27, 2013

Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
32.8	N/A	0	157.5	N/A	0	288.6	288.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to exercising options for FY 2014, FY 2015, and FY 2016 Design Agent/Engineering Services (DA/ES) efforts.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	+96.7	0.0
Previous Cumulative Variances	+77.0	-20.0
Net Change	+19.7	+20.0

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to the Program Management and administrative support functions continuing to be shared resources across the entire DA/ES contract rather than solely being functions of the Design Agent effort.

The favorable net change in the schedule variance is due to the placement of the purchase order of the software license renewal previously delayed. This delay caused the unfavorable schedule variance in the previous SAR.

Notes

The FY 2014 - FY 2018 DA/ES contract was awarded September 27, 2013 and is the follow-on contract to the FY 2008 - FY 2013 DA/ES contract. The current end date including all option years is September 26, 2018.

This follow-on effort includes labor, facilities, engineering, and technical support services required for CEC System Design Agent Services, support equipment, and computer program installations as well as Engineering and Technical services in support of existing CEC assets, auxiliary equipment, and stand alone equipment.

Contract Identification

Appropriation: Procurement

Contract Name: CEC Production (FY 2012 - FY 2016)

Contractor: Raytheon - Network Centric Systems

Contractor Location: 8333 Bryan Dairy Road
Largo, FL 33777-1444

Contract Number: N00024-12-C-5231/0

Contract Type: Firm Fixed Price (FFP)

Award Date: September 28, 2012

Definitization Date: May 01, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
20.3	N/A	0	131.6	N/A	28	267.1	267.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to incorporating following year production efforts.

Cost and Schedule Variance Explanations

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

Notes

FY 2012 - FY 2016 CEC production contract was awarded September 28, 2012 and is the follow-on contract to FY 2008-FY 2011 CEC production. This contract includes production requirements for CEC systems requirements for associated Installations and Checkout Kits and Planar Array Antenna Assemblies back-fit and other ancillary equipment are also included.

Contract Identification

Appropriation: RDT&E

Contract Name: Common Array Block (CAB) Antenna Development and Production

Contractor: Raytheon

Contractor Location: 8333 Bryan Dairy Road
Largo, FL 33777-1444

Contract Number: N00024-13-C-5230/0

Contract Type: Cost Plus Incentive Fee (CPIF)

Award Date: September 27, 2013

Definitization Date: September 27, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
7.3	N/A	6	20.2	N/A	6	59.1	59.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to exercising Year 1 options.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2016)	-1.0	-1.2
Previous Cumulative Variances	+0.2	0.0
Net Change	-1.2	-1.2

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to being behind plan performance on the Hardware and Firmware detail design and development for several efforts. Although the efforts are progressing they have proven to be more complex than planned resulting in negative cost and schedule trends. Labor usage is also a contributing factor to the negative cost trend.

The unfavorable cumulative schedule variance is due to being behind plan performance on the Hardware and Firmware design and development efforts. Labor usage is also a contributing factor to the negative schedule variance due to designs being more complex than originally planned in the Integrated Master Schedule Discussion Analysis, Data Item Description.

Notes

This contract is for development and production of the next generation CEC antenna.

Contract Identification

Appropriation: Procurement

Contract Name: CEC Production (FY 2015- FY2021)

Contractor: DRS Laurel Technologies

Contractor Location: 246 Airport Rd
Johnstown, PA 15904-7224

Contract Number: N00024-15-C-5228/0

Contract Type: Firm Fixed Price (FFP)

Award Date: February 25, 2015

Definitization Date: February 25, 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	2	13.9	N/A	8	227.0	227.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to increase of six CEC systems procured since initial contract.

Cost and Schedule Variance Explanations

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

Notes

This is the first time this contract is being reported.

The FFP portion of this contract includes production and testing for AN/USG-2B, AN/USG-3B, AN/USG-4B CEC systems as well as AN/USG -2/2A to 2B backfit kits. The CPFF portion of the contract includes Engineering Services in support of the manufacture, assembly, and testing of the CEC production systems under the contract.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	30	30	30	100.00%
Production	162	151	253	59.68%
Total Program Quantity Delivered	192	181	283	63.96%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	5299.1	Years Appropriated	23
Expended to Date	4080.5	Percent Years Appropriated	69.70%
Percent Expended	77.00%	Appropriated to Date	4306.9
Total Funding Years	33	Percent Appropriated	81.28%

The above data is current as of February 09, 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: February 05, 2016
Source of Estimate: POE
Quantity to Sustain: 283
Unit of Measure: System
Service Life per Unit: 20.00 Years
Fiscal Years in Service: FY 1994 - FY 2046

The quantity to sustain changed from 264 to 283 due to the increase of 19 systems. The unit of measure is the AN/USG-2/2A/2B Shipboard variant and AN/USG-3/3B Airborne Variant.

The sustainment strategy costs includes: prime contractor and government in-service engineering support, continuing engineering support for Navy in-house facilities and software maintenance, depot repairs of CEC equipment, modification kit procurements and installations, and fleet recurring training.

Sustainment Strategy

Sustainment strategy efforts include: Maintenance and repair of CEC fielded systems (AN/USG-2, Land Based Test Sites, AN/USG-3), Integrated Logistics Support, Software Trouble Reports, Original Equipment Manufacturer Design Agent support, In-Service Engineering, Diminishing Manufacturing Supply Material Shortages, Obsolescence Management.

Antecedent Information

No Antecedent

Annual O&S Costs BY2002 $K		
Cost Element	**CEC Average Annual Cost Per System**	**No Antecedent (Antecedent) N/A**
Unit-Level Manpower	0.000	0.000
Unit Operations	8.100	0.000
Maintenance	111.200	0.000
Sustaining Support	96.700	0.000
Continuing System Improvements	175.600	0.000
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	391.600	--

Item	Total O&S Cost $M			
	CEC			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	N/A	N/A	2189.3	N/A
Then Year	N/A	N/A	3045.9	N/A

Equation to Translate Annual Cost to Total Cost

An equation would not accurately depict the total cost since platform (Airborne/Shipboard) service is not always 20 years. The service life per platform (Airborne/Shipboard) varies anywhere from five years to 20 years.

O&S Cost Variance		
Category	**BY 2002 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	1912.8	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	276.5	A revised cost model was used to account for varying service-life years per system which reflects a more accurate O&S cost estimate. This is due to additional platforms with required maintenance. The quantity to sustained changed from 264 to 283 due to increased of 19 systems.
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	276.5	
Current Estimate	2189.3	

Disposal Estimate Details

Date of Estimate: February 05, 2016

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2002 $M): Total costs for disposal of all System are 28.1

Disposal costs are based on an estimated 20-year service-life and not included in the unitized cost.