Modernized Selected Acquisition Report (MSAR)

Integrated Defensive Electronic Countermeasures (IDECM)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

Table of Contents

(U) Common DoD Abbreviations

$B	Billions of Dollars
$K	Thousands of Dollars
$M	Millions of Dollars
ACAT	Acquisition Category
Acq O&M	Acquisition-Related Operations and Maintenance
ADM	Acquisition Decision Memorandum
APA	Additional Performance Attribute
APB	Acquisition Program Baseline
APPN	Appropriation
APUC	Average Procurement Unit Cost
BA	Budget Authority or Budget Activity
Blk	Block
BY	Base Year
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCE	Component Cost Estimate
CCP	Component Cost Position
CDD	Capability Development Document
CLIN	Contract Line Item Number
CPD	Capability Production Document
CY	Calendar Year or Constant Year
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
DAES	Defense Acquisition Executive Summary
DAVE	Defense Acquisition Visibility Environment
DoD	Department of Defense
DSN	Defense Switched Network
EMD	Engineering and Manufacturing Development
EVM	Earned Value Management
FD	Full Deployment
FDD	Full-Deployment Decision
FMS	Foreign Military Sales
FOC	Full Operational Capability
FRP	Full-Rate Production
FY	Fiscal Year
FYDP	Future Years Defense Program
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
Inc	Increment
IOC	Initial Operational Capability
IT	Information Technology
JROC	Joint Requirements Oversight Council
KPP	Key Performance Parameter
KSA	Key System Attribute

LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MILCON	Military Construction
N/A	Not Applicable
O	Objective
O&M	Operations and Maintenance
O&S	Operating and Support
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
PAUC	Program Acquisition Unit Cost
PB	President's Budget
PE	Program Element
PEO	Program Executive Officer
PM	Program Manager
POE	Program Office Estimate
R&MF	Revolving and Management Funds
RDT&E	Research, Development, Test, and Evaluation
SAR	Selected Acquisition Report
SCP	Service Cost Position
T	Threshold
TBD	To Be Determined
TY	Then Year
U.S.	United States
U.S.C	United States Code
UCR	Unit Cost Reporting
USD(A&S)	Under Secretary of Defense (Acquisition and Sustainment)

(U) Program Description

Full Name
Integrated Defensive Electronic Countermeasures

PNO
418

Lead Component
Department of the Navy

Joint Program
No

Adaptive Acquisition Pathway
Major Capability Acquisition

Acquisition Category
IC

Acquisition Status
Active Acquisition

Short Name
IDECM

Decision Authority
Component Acquisition Executive

Program Executive Office
PEO Tactical Air

Acquisition Type
Major Defense Acquisition Program

Acquired Systems
IDECM Block 4

Subprograms

Full Name	Short Name	Acquisition Status	In Report?	Acquired Systems
IDECM Block 4	IDECM Block 4	Active Acquisition	Yes	IDECM Block 4
IDECM Blocks 2/3	IDECM Blocks 2/3	Sustainment (Full Capability)	No	IDECM Block 2/3

Mission
The Integrated Defensive Electronic Countermeasures (IDECM) System is a Radio Frequency (RF), self-protection electronic countermeasure suite on the F/A-18 aircraft. IDECM improves the survivability of the F/A-18 aircraft against RF guided threats during Air-to-Ground/Surface and Air-to-Air missions. The system is comprised of onboard components, which receive and process radar signals, along with onboard and offboard jammer components that transmit appropriate RF jamming responses. There are four IDECM variants in development, production, or sustainment. Blocks 1-3 are compatible with F/A-18E/F aircraft only and are no longer in reporting. Block 4 is compatible with F/A-18C-F aircraft. IDECM Block 1: A federated suite, consisting of the ALQ-165 On-Board Jammer (OBJ) and ALE-50 expendable decoy. IDECM Block 2: An integrated suite, consisting of the ALQ-214 OBJ and ALE-50 expendable decoy. IDECM Block 3: An integrated suite, consisting of the ALQ-214 OBJ and ALE-55 Fiber Optic Towed Decoy. IDECM Block 4: A hardware Engineering Change Proposal to the ALQ-214 OBJ to render it suitable for operation on F/A-18C/D aircraft, while retaining all functionality, when installed on F/A-18E/F. ALQ-214 Software Improvement Program (SWIP): ALQ-214 Software/ Firmware updates that will enhance F/A-18 mission execution and improve mission survivability against modern air, land and naval threat systems by degrading (denying/delaying) threat ability to engage. ALQ-214 Adaptive Radar Countermeasures (ARC): ALQ-214 ARC will provide the

ALQ-214 with improved RF Threat Detection algorithms and jamming against modern threat radars not programmed in mission data files (unknowns).

(U) Responsible Office

Program Executive Officer
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(U) Executive Summary

IDECM Block 4 Subprogram

Program Highlights Since Last Report

This is the final MSAR submission for the IDECM MDAP because it has made 90 percent of planned expenditures of its estimated acquisition cost.
IDECM Block-4 (IB-4) ALQ-214 Software Improvement (SWIP):
SWIP fielding decision occurred May 2021. System stability and Wingman Compatibility improvements demonstrated in developmental test. SWIP Technical Directive Validation and Verification was completed June 2022. SWIP fleet introduction began in Q3 FY 2023 with the introduction of the AN/ALQ-214A(V)4 hardware configuration baseline on F/A-18 E/F and the AN/ALQ-214B(V)5 software baseline on F/A-18 C/D.
Adaptive Radar Countermeasures (ARC):
Contractual deliveries of the ARC SW/FW have been delayed due to development task complexity, Contractor Subject Matter Expert Availability Constraints and IDECM Systems Integration Lab Subsystem Component constraints. Delays experienced during development of Build 1 have impacted the programs critical path and caused delays in the overall programs completion. The USG has awarded a contract modification for ARC Mainline Integration effort, in order to accommodate completion of the development and integration of the ARC survivability enhancement. An over target budget re-baseline was conducted and is fully captured in the Cost Performance Report dated December 2023.
IDECM Block-4 (IB-4) Production:
As of March 11, 2024, L3Harris shipped in place, at the Original Equipment Manufacturer (OEM) and in accordance with the Request for Variance, 172 FRP 14-16 ALQ-214A(V) production systems (APN-1/-5 Funded Assets; Excludes FMS and APN-6). Additionally, 12 FRP 17-18 ALQ-214A(V) production systems have been delivered (shipped in place). Out of the 184 systems delivered (shipped in place), 74 AN/ALQ-214A(V)4 systems have been installed in fleet aircraft.
L3Harris has proposed a schedule modification for FRP 14-16 and FRP 17-18 deliveries due to production test bench obsolescence. Despite lagging deliveries, L3Harris has continued to ship hardware in place at lower than contracted quantities. The most recently proposed FRP 14-16 deliveries are projected to complete Q3 FY 2024 and FRP 17-18 deliveries are projected to complete by Q1 FY 2025.
The Program Office reported an O&S cost deviation with regards to the IDECM Block 4 APB. A Program Deviation Report (PDR) was submitted and a revised APB was approved February 2024. Major cost driver for the PDR was due to an increase in flight hours and system utilization by 35%.
Defense Cost and Resource Center Cost and Software Data Reporting Compliance Rating: Yellow.
There are no significant software-related issues with this program at this time.

(U) History of Significant Developments Since Program Inception

Date	Description
February 2024	The Program Office reported an O&S cost deviation with regards to the IDECM Block 4 APB. A Program Deviation Report (PDR) was submitted and a revised APB was approved February 2024. Major cost driver for the PDR was due to an increase in flight hours and system utilization by 35%.
June 2023	AN/ALQ-214A(V)4 fielding began
May 2023	AN/ALQ-214A(V)4 VAL/VER Completed and SWIP fleet introduction began in Q3 FY2023 with the introduction of the AN/ALQ-214A(V)4 hardware configuration baseline on F/A-18 E/F and the AN/ALQ-214B(V)5 software baseline on F/A-18 C/D.
June 2022	Digital Receiver Techniques Generator 2 (DRTG 2) fielding decision and SWIP Technical Direction Validation and Verification completed.
March 2022	AN/ALQ-214 IDECM configuration change memo was approved by ASN(RD&A) on March 04, 2022. This change is the result of USMC removing the requirement for the integration of Adaptive Radar Countermeasures (ARC) on USMC F/A-18C/Ds.
September 2021	A revised APB, approved on September 24, 2021, adjusted total program quantity to 425 (APN-1 and APN-5 USN and USMC systems) as previously approved in the IDECM Gate 6 review conducted July 13, 2020. The requirement was documented in the Gate 6/CSB minutes, approved by N98 and ASN(RD&A) PMD on September 4, 2020 and OPNAV Ser N98/20U144718 dated August 4, 2020. This is the first APB that includes all USN and USMC IDECM systems.
May 2021	IDECM SWIP fielding decision occurred May 2021. System stability and architectural enhancements required to support ARC were demonstrated. SWIP Fleet Release (USN) planned March 2022.
July 2020	An IDECM Gate 6 review was conducted on July 13, 2020. During this review, the USN quantity was reduced from 389 to 350 (APN-1 and APN-5 systems) and the USMC quantity was reduced from 100 to 75 for a total of 425 systems. An updated APB is in routing to update total program quantity to reflect that change, which was documented in the Gate 6/CSB minutes, approved by N98 and ASN(RD&A) PMD on September 4, 2020.
June 2018	Adaptive Radar Countermeasures (ARC) is an upgrade to the on-board component of the IDECM suite. The RDT&E associated with ARC, funded in PB 2019, was significant enough to cause an RDT&E deviation for IDECM Block 4. The Program Office documented this deviation in a Program Deviation Report (PDR).The RDT&E associated with ARC was incorporated into the APB approved on June 29, 2018.
June 2018	IDECM Block 2/3 reported a critical Nunn-McCurdy in the December 2017 SAR. The root cause analysis determined the Nunn-McCurdy to be quantity based and unrelated to the execution of the program. On May 10, 2018, the SAE approved a program restructure to include only the quantity required to reach IOC within the APB. Moving forward, the ALE-55 will be managed solely through the Naval Munitions Requirements Process (NMRP) in accordance with OPNAVINST 8011.9B. On May 28, 2018 the Nunn-McCurdy program certification was submitted to Congress. A new APB was approved June 29, 2018. Based on the program restructure, IDECM Block 2/3 is considered 100% delivered/expended.
August 2017	IDECM Block 2/3 reported deviations in the December 2015 and 2016 Selected Acquisition Report (SARs) for procurement costs as a result of funding/budget reductions, which stretched out the program duration. In the December 2016 SAR, the IDECM program office recommended managing the expendable requirements through the Naval Munitions Requirements Process (which aligns with Department of Defense Instruction (DoDI) 3000.04) along with all other countermeasure expendables in the Department of Navy (DoN) Inventory. In August 2017, the Navy supported the recommendation, via an Acquisition Decision Memorandum, which directed PMA-272 to manage the ALE-55 expendable Fiber Optic Towed Decoy solely through the NMRP.The 2019 President's Budget includes the requirement for a Dual Band Decoy (DBD) to counter future threats and is funded (RDT&E in FY2019 and Procurement (PANMC) in FY2022). DBD will not be part of IDECM Block 2/3 or Block 4 subprograms. In the process of aligning/planning the

Date	Description
	FYDP funding, DBD is planning for production readiness in FY2022 resulting in no future requirements for ALE-55 beyond FY2021. As a result of DBD planning/funding, the quantity projections for ALE-55 are drastically reduced and create a critical Nunn-McCurdy breach against both the original and current baseline of IDECM Block 2/3. This breach is due solely to reducing the quantity of ALE-55 by 69%.
August 2017	On August 18, 2017, via ADM, PMA-272 was authorized to route a revised APB to reflect IDECM Block 4 changes to Procurement and O&S parameters due to an increase in quantities, from 190 units to 324 units. A revised APB, which reflects the current cost estimates, was signed February 12, 2018.
September 2015	The Navy completed an IDECM SWIP operational assessment (OA) on September 30, 2015.
May 2015	IB-4 Hardware ECP Initial Operational Capability (IOC) achieved May 2015.
March 2015	On March 10, 2015, PMA 272 submitted a PDR for the ECP portion of the IB-4 program due to a flight test schedule breach. OT had been delayed due to a lack of aircraft and threat simulator availability at the test range. The previous electronically conducted IPR 5, documented stability of the IB-4 ECP hardware and software configuration and the OTRR granted start to OT. Based on IDECM maturity, ASN(RD&A) concurred with the IDECM program plan to award the FY 2015 ALQ-214 production contract and remove the requirement for IPR 6. A revised APB which reflects the current schedule estimates was signed February 17, 2016.
January 2014	An In-Process Review was conducted electronically with ASN(RD&A) from January 10, 2014 to January 24, 2014. The purpose of this IPR was to provide status of IB-4; gain concurrence to exercise the FY 2014 production award; and provide an assessment of the IDECM Configuration Steering Board (CSB) annual requirement. All input criteria were satisfied. The program was directed to return for IPR 6 following completion of OT to support the FY 2015 and planned subsequent annual procurements of the ALQ-214.
April 2013	An In-Process Review was conducted with ASN(RD&A) on April 9, 2013. System software demonstrated a lack of maturity requiring additional time, which resulted in an APB schedule breach of the Operational Test (OT) Start. ASN(RD&A) approved revision of the APB objectives to reflect current estimates for OT Start, IPR 5, IPR 6 and IOC. There was no impact to cost or performance. The IPR resulted in direction to update the IDECM Acquisition Strategy to reflect award of the existing Firm Fixed Price (FFP) production option in FY 2014 following IPR 5 in early FY 2014 and conduct of the final IPR (IPR 6) after completion of Operational Test.
June 2011	As a result of PB12, IB-4 required a cost re-baseline to address an increase of funds over the Future Years Defense Program (FYDP). The RDT&E breach was due to an increase of funds for ALQ-214 SWIP for Deny-Delay jamming functionality. The procurement breach was due to an increase of funds to procure additional IB-4 systems. A Program Deviation Report (PDR) was routed and the IDECM APB Change 3 was approved on June 07, 2011.
May 2010	An IDECM Block 4 ECP Critical Design Review (CDR) was successfully completed in May 2010. As a result of CDR, AIR-4.2 updated the cost estimate and identified an Operations & Support (O&S) cost deviation to the APB. The O&S cost estimate increased due to use of an incorrectly calculated Mean Time Between Failure (MTBF), which resulted in an artificially low estimate of the number of failures and associated repair costs. A Program Deviation Report was routed and the IDECM APB Change 2 was approved on October 18, 2010.
November 2009	An IDECM Block 4 ECP Preliminary Design Review (PDR) was successfully completed in November 2009.
July 2009	The IDECM ACAT IC APB was approved and includes the increments for IB 2/3 and the increment for IB-4.
March 2009	An IDECM Block 4 Program Decision Review was conducted with ASN (RD&A) in March 2009. The IB-4 acquisition and contract strategy, which supported development of a

Date	Description
	Common OBJ for the F/A-18 C/D/E/F aircraft through sole source contract awards to Harris (formerly Exelis) for modifications to the ALQ-214, was presented to ASN (RD&A). An IB-4 APB schedule deviation was recommended to replace IB-4 Milestone B and C events with In -Process Reviews (IPRs) to provide more appropriate oversight of an ECP modification to a system already in FRP. ASN (RD&A) support for the IB-4 strategy was documented by an ADM, dated May 4, 2009. IB-4 cost, schedule and performance requirements were contained in the IDECM APB Change 1, approved July 10, 2009.
March 2009	An IDECM Block 3 Program Decision Review was conducted with ASN (RD&A) in March 2009. The purpose of the review was to evaluate Program Office recommendations to deviate from APB schedules and to include additional IB-3 LRIP awards, allowing for the correction of deficiencies identified during IB-3 IOT&E Report (OT-IIB), prior to FRP. ASN (RD&A) supported the IB-3 acquisition strategy change to include additional LRIP lots specifically LRIP 5 in FY 2009 and LRIP 6 in FY 2010. ASN (RD&A) support for the IB-3 strategy was documented by an Acquisition Decision Memorandum (ADM), dated April 13, 2009. IB-2/3 cost, schedule and performance requirements were contained in the IDECM APB Change 1, approved July 10, 2009.
January 2008	In January 2008, corrective actions (hardware and software) for all anomalies required for IB- 3 to return to OT were incorporated and demonstrated to be effective through DT laboratory and flight testing. IB-3 returned to Initial Operational Test and Evaluation (IOT&E) in February 2008. IB-3 IOT&E completed in September 2008. The OT Report was received on December 19, 2008 with a finding of operationally effective but not operationally suitable.
September 2007	In September 2007, PMA272 requested re-designation of IDECM from Acquisition Category (ACAT) II to ACAT IC. The requirement to re-designate was identified as part of a cost estimate performed by the AIR 4.2 Cost Department in support of the re-baseline effort and in preparation for the IB-3 FRP decision. The analysis identified that continued RDT&E investments over the course of the IBs 1-3 development program resulted in cumulative RDT&E funding, which is above the demarcation line between ACAT II and ACAT I ($365M total in FY 2000$). The request to re-designate as ACAT IC was approved by ASN (RD&A) in March 2008.

(U) Schedule

IDECM Block 4 Subprogram

(U) Schedule Events

Events		APB Change 2 (Current) 2/11/2024 Objective / Threshold		Current Estimate 12/31/2023	Actual
Preliminary Design Review					
ALQ-214 (IB4) IPR (Post- PDR Assessment)(Start)	PDR	Jan 2010	Jul 2010	-	-
ALQ-214 (IB4) IPR (Post- PDR Assessment) (Complete)	PDR	-	-	-	31 Mar 2010
Critical Design Review					
ALQ-214 (IB4) IPR (Post- CDR Assessment)(Start)	CDR	Jul 2010	Jan 2011	-	-
ALQ-214 (IB4) IPR (Post- CDR Assessment) (Complete)	CDR	-	-	-	31 Jul 2010
Full-Rate Production Decision					
ALQ-214 (IB4) IPR (Production Cut-in Review 1)(Start)	FRP Decision	Dec 2011	Jun 2012	-	-
ALQ-214 (IB4) IPR (Production Cut-in Review 1) (Complete)	FRP Decision	-	-	-	31 Mar 2012
ALQ-214 (IB4) IPR (Production Cut-in Review 2)(Start)	FRP Decision	Feb 2013	Aug 2013	-	-
ALQ-214 (IB4) IPR (Production Cut-in Review 2) (Complete)	FRP Decision	-	-	-	30 Apr 2013
ALQ-214 (IB4) IPR (Production Cut-in Review 3)(Start)	FRP Decision	Jan 2014	Jul 2014	-	-
ALQ-214 (IB4) IPR (Production Cut-in Review 3) (Complete)	FRP Decision	-	-	-	28 Feb 2014
Initial Operational Test and Evaluation					
ALQ-214 (IB4) OT (Start)(Start)	IOT&E	Dec 2013	Jun 2014	-	-
ALQ-214 (IB4) OT (Start) (Complete)	IOT&E	-	-	-	30 Jun 2014
Initial Operational Capability					
ALQ-214 (IB4) IOC(Start)	IOC	Nov 2014	May 2015	-	-
ALQ-214 (IB4) IOC (Complete)	IOC	-	-	-	31 May 2015

Notes

Acronyms and Abbreviations:
CDR - Critical Design Review

IB4 - IDECM Block 4
IPR - In-Process Review
MS - Milestone
OPEVAL - Operational Evaluation
OT - Operational Test
PDR - Preliminary Design Review

Schedule Baseline Deviation Explanation

None

(U) Current Significant Schedule Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	Availability of experienced EW personnel
Current	12/31/2021	Availability of adequate threat test assets

(U) Performance

(U) IDECM Block 4 Subprogram

Additional information for this section is provided in the classified annex to this submission.

(U) Performance Attributes

ALQ-214 (IB2/3/4 On-Board Jammer) Ao		KPP
Current Estimate 12/31/2023		0.958
Demonstrated Performance 1/3/2019		0.92
APB Change 2 (Current) 2/11/2024	Objective	0.95
	Threshold	0.9
ALQ-214 (IB2) Operating Envelope		**KPP**
Current Estimate 12/31/2023		LBA
Demonstrated Performance 3/10/2023		LBA
APB Change 2 (Current) 2/11/2024	Objective	LBA
	Threshold	LBA

(U) Requirement Source:

Sponsor(s): United States Navy

1. SOF*, Statement of Functionality (SOF)*
   Validated By: N98, October 12, 2010
2. Operational Requirements Document*, ORD (Bock 4)*
   Validated By: Joint Requirements Oversight Council, November 24, 2003

Notes

Acronyms and Abbreviations:
Ao - Operational Availability
IB-2 - IDECM Block 2
IB-3 - IDECM Block 3
IB-4 - IDECM Block 4
LBA - Limits of Basic Airframe
ORD - Operational Requirements Document

Performance Deviation Explanation

None

(U) Acquisition Budget Estimate

(U) IDECM Block 4 Subprogram

(U) Total Acquisition Estimates and Quantities

Category ($M) Base Year: 2018	APB Change 2 (Current) 2/11/2024 CY$ obs Objective / Threshold		Current Estimate PB 2025 CY$ obs / TY$ obs	
RDT&E	420.5	462.4	413.0	413.9
Procurement	1,181.5	1,299.9	1,178.6	1,215.3
MILCON	0.0	0.0	0.0	0.0
O&M	0.0	0.0	0.0	0.0
R&MF	0.0	0.0	0.0	0.0
Total Acquisition	1,602.0	-	1,591.6	1,629.2
Program Acquisition Unit Cost	3.770	4.147	3.745	3.833
Average Procurement Unit Cost	2.780	3.058	2.773	2.860
Program End-Item Quantity				
Development	0		-	
Procurement	425		425	
O&M-Acquired	-		0	

Budget Notes

Cost includes APN-1, APN-5 and APN-6. Excludes FMS.

Quantity Notes

Quantity includes APN-1 and APN-5 USN and USMC systems. Excludes FMS and APN-6.

Cost Baseline Deviation Explanation

None

(U) Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2023)	
1	The current procurement cost estimate reflects the NAVAIR Cost and Scheduling Department estimate used as the basis of the IDECM President's 2025 Budget. The current baseline estimate remains current and unchanged.
Current Baseline Risks (2/11/2024)	

None
Revised Original Baseline Risks (6/29/2018)
The current baseline estimate reflects the AIR 4.2 Cost Department estimate used as the basis of the IDECM President's 2019 Budget. The current baseline is based upon a cost risk adjusted model that reflects costs at the 50% Confidence level to account for schedule uncertainty, production uncertainty and other risks and uncertainties.

(U) Unit Costs

(U) IDECM Block 4 Subprogram

(U) Current Estimate Compared with Current Baseline

Category (CY$M) Base Year: 2018	Current Baseline 02/11/2024	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	1,602.0	1,591.6	
Program Quantity	425	425	
PAUC	3.770	3.745	-0.65%
Average Procurement Unit Cost			
Procurement Cost	1,181.5	1,178.6	
Procurement Quantity	425	425	
APUC	2.780	2.773	-0.25%

(U) Current Estimate Compared with Original Baseline

Category (CY$M) Base Year: 2018	Original Baseline 06/29/2018	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	1,305.2	1,591.6	
Program Quantity	324	425	
PAUC	4.028	3.745	-7.03%
Average Procurement Unit Cost			
Procurement Cost	895.5	1,178.6	
Procurement Quantity	324	425	
APUC	2.764	2.773	0.33%

(U) Cost Growth Details

Impacts of Schedule Changes on Unit Cost

No impacts of schedule changes. All schedule events on the APB have been achieved.

Impacts of Performance Changes on Unit Cost

No impacts of performance changes. All performance characteristics have been achieved.

Status of Each Major Contract and Significant Factors Contributing to Cost and Schedule Variance; Projected Effects on Future Program Costs

See Contracts section.

Notes

The percent Change in PAUC and APUC from Original APB to Current Estimate is due to the adjusted total program quantity (and associated procurement costs) from 324 to 425 systems.

(U) Life-Cycle Costs

(U) IDECM Block 4 Subprogram

(U) Operating and Support and Disposal Cost Estimates Compared with Baseline

Category ($M) Base Year: 2018	APB Change 2 (Current) 2/11/2024 CY$ obs Objective / Threshold		Current Estimate CY$ obs / TY$ obs	
Total O&S	728.3	801.1	728.3	1,008.5
Total Disposal	0.0	-	3.4	6.4

(U) Current Cost Estimate Sources

Operating and Support Cost
Type: Program Office Estimate
Approved by: PMA-272/NAVAIR Cost and Schedule Department, May 23, 2023

Disposal/Demilitarization Cost
Type: Program Office Estimate
Approved by: PMA-272/NAVAIR Cost and Schedule Department, May 23, 2023

Operating and Support Baseline Deviation Explanation

None

Cost Notes

Disposal/Demilitarization Cost Estimate and Source of Estimate: While these costs are not part of the O&S 2020 CAPE Cost Element Structure and hence are not included in the totals above, their Life Cycle Cost impact has been estimated at 3.400 BY 2018 $M and 6.4 TY $M.
Sustainment Strategy:
The IDECM Block 4 (IB-4), ALQ-214(V)4/5, is an Engineering Change Proposal to theALQ-214(V)2/3 and as such will follow the same sustainment strategy and infrastructure established for the fielded ALQ-214(V)2/3. The maintenance concept for the ALQ-214(V)4/5 is two levels, Organizational to Depot.
Organizational Level activities will include: removal and replacement of faulty Weapons Replaceable Assemblies (WRAs) identified by Built-In Test (BIT)/Maintenance Service Panel (MSP) Code; loading of Operational Flight Program/Mission Data File with Memory Loader Verifier System as required; retest by BIT to verify repair action; end-to-end testing with Government support equipment (GSE) as required; corrosion control and phase inspections. Maintenance Support for the IB-4 is performed by fleet personnel. There are presently no Contractor Engineering & Technical Services or Navy Engineering & Technical Services representatives. If additional support is required, the Type

Commander can then request technical assistance for the IDECM Deputy Assistant Program Manager Logistics (DAPML). The DAPML will assess the issue and request support from the Fleet Support Team (FST) and/or Original Equipment Manufacturer (OEM).
Depot Level activities will include: removal and replacement of faulty modules/parts to the component or Shop Replaceable Assembly (SRA) level and verification of repair. Depot level maintenance consists of inspection, test, troubleshooting, repair, overhaul and disposal of WRAs/ SRAs which are beyond repair. Depot support is provided by the OEMs managed by the Naval Supply Systems Command Weapon Systems Support, Philadelphia. The ALQ-214(V)4/5 contain a BIT capability consisting of Periodic BIT (PBIT) and Initiated BIT (IBIT). IBIT is used as a preflight and maintenance test on the ground when commanded by the mission computer or other controller. These BIT determine if the ALQ-214(V)4/5 WRAs are operational. PBIT provides automatic and continuous monitoring of mission critical parameters on a background basis during normal system operation. PBIT will not fault isolate but will give clear indications of mission critical failures signaling that IBIT needs to be run. IBIT consists of a series of tests to assess the operational status of the system as well as fault isolate problem hardware. End-to-end testing utilizes a combination of Organizational Support Equipment (OSE) and BIT as required.
A Maintenance Plan (MaPl) for IB-4 is currently available to support the logistics program. The MaPls are updated as necessary to reflect configuration changes. IB-4 MaPl is a deliverable from the Logistics Management Information database and contains all necessary information for interim supply support and development of source data for the F/A-18 Interactive Electronic Technical Manual. The IB-4 MaPl is managed by the FST at Fleet Readiness Center Southeast, In Service Support Center, Jacksonville, Florida.
For Each Acquired System or System Variant:
i. Quantity to Sustain: 425
ii. First Operational Fiscal Year: 2014
iii. Final Operational Fiscal Year: 2045
iv. Unit Expected Service Life: 20 years

(U) Operating and Support Variance with Prior Estimate

(CY$M) Base Year: 2018	Estimate	
Prior Estimate (12/30/2022)	468.6	
Current Estimate	728.3	
Category	**Variance**	**Explanation**
Unit-Level Manpower	-	
Unit Operations	-	
Maintenance	171.2	Variance is driven by 30% increase in flight hours.
Sustaining Support	1.6	Variance is driven by update for actuals in FY22 and projections were extended to FY45.
Continuing System Improvements	86.9	Variance is driven by update for actuals.
Other	-	
Not Categorized	0.0	

(U) Operating and Support Cost Element Structure Estimates by Acquired System

(CY$M) Base Year: 2018							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
IDECM Block 4	-	-	494.8	16.9	216.5	-	**728.3**
Program	-	-	**494.8**	**16.9**	**216.5**	-	**728.3**

(U) Annual Operating and Support Costs per Unit Compared with Antecedent System

(CY$M) Base Year: 2018							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
IDECM Block 4	-	-	0.1	0.0	0.0	-	**0.1**
ASPJ (Antecedent)	-	-	0.1	0.0	0.0	-	**0.1**

(U) Operating and Support Cost Estimate Assumptions

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
IDECM Block 4	425	20.0	System	2014 - 2045
ASPJ (Antecedent)	134	20.0	System	1993 - 2025

Additional O&S Estimate Assumptions

Operating & Support cost is calculated by totaling the specific cost elements from the OSD CAPE O&S Cost Estimating Structure across the entire lifecycle for the defined system. The current baseline was updated in May 2023 followed by the approval of the revised IDECM APB in February 2024.

Antecedent Estimate Assumptions

Antecedent System(s) O&S Costs:
Antecedent program: ASPJ: # of Aircraft Operating Years: 6,480 (Not actual, but used in order to provide a comparison between the ALQ-214(V)4/5 Suite and its antecedent system). The Antecedent Average Annual Cost per System is derived from total cost from Naval VAMOSC database NAMSR divided by the total number of systems in NAMSR. This value is then multiplied by the total number of operating system years associated with ALQ-214(V)4/5 Suite to provide a point of comparison.

O&S Annual Cost Calculation Memo

The Average Annual Cost Per Aircraft for the ALQ-214(V)4/5 Suite is calculated by dividing the Total O&S Cost by the Total Operational System Years for the program. ALQ-214(V)4/5 Total O&S Cost = ALQ-214(V)4/5 Annual O&S Cost per System * Total Operating System Years $728.29M Total O&S Cost = $98K / System / Year * 7,437 Operating Years

(U) Technologies and Systems Engineering

(U) IDECM Block 4 Subprogram

(U) Current Significant Technical Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	Availability of experienced EW personnel
Current	12/20/2021	Availability of adequate threat test assets

(U) Performing Activities and Contracts

(U) IDECM Block 4 Subprogram

(U) External Government Activities

None

(U) Contracts and Efforts

Contract Title	Contract Number / Effort	Contractor	Phase
ALQ-214 Adaptive Radar Countermeasures (ARC)	N00019-19-C-0051	Leidos, Inc	Production
IDECM Block IV (ALQ-214) FRP 14-16	N00019-17-C-0090	L3Harris Technologies, Inc	Production
IDECM BLOCK IV (ALQ-214) FRP 17/18	N00019-20-C-0002	L3Harris Technologies, Inc	Production

(U) Contract and Effort Identification, Price, Quantity and Performance

Contract Number:	N00019-19-C-0051	**Order Number:**	-
Contract Title:	ALQ-214 Adaptive Radar Countermeasures (ARC)	**Strategy:**	FAR 15: Negotiated Contracts
CAGE:	5UTE0 - Leidos, Inc	**Contracting Office:**	N00019
City, State/Province:	Reston, VA		
Effort Number:	-	**Supported Phase:**	Production
Type:	Other	**Award Date:**	February 25, 2019
Latest Modification Date:	February 6, 2024	**Definitization Date:**	February 25, 2019
Latest Modification No.:	P00016	**Work Start Date:**	-
Technical Data Rights:	Limited Rights		
Notes:	In response to the overrun experienced on the ARC Contract, a contract modification was awarded 16 June 2023.		

Initial Price (TY$M) Target / Ceiling		Current Price (TY$M) Target / Ceiling		Est. Price at Completion (TY$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
11.6	11.6	97.5	97.5	97.5	97.5	-	-	-

Work Completed (%):	82.75%
Cost Variance (TY$M):	-1.4
Schedule Variance (TY$M):	-0.3

Factors Contributing to Cost Variance and Projected Effects on Program Costs

No significant cost variance to report.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

No significant schedule variance to report.

(U) Contract and Effort Identification, Price, Quantity and Performance

Contract Number:	N00019-17-C-0090	**Order Number:**	-
Contract Title:	IDECM Block IV (ALQ-214) FRP 14-16	**Strategy:**	FAR 15: Negotiated Contracts
CAGE:	28572 - L3Harris Technologies, Inc	**Contracting Office:**	N00019
City, State/Province:	Clifton, NJ		
Effort Number:	-	**Supported Phase:**	Production
Type:	Firm-Fixed-Price	**Award Date:**	September 27, 2017
Latest Modification Date:	April 5, 2023	**Definitization Date:**	September 27, 2017
Latest Modification No.:	P00029	**Work Start Date:**	-
Technical Data Rights:	Limited Rights		
Notes:	The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of FRP 15 and 16.		

Initial Price (TY$M) Target / Ceiling		Current Price (TY$M) Target / Ceiling		Est. Price at Completion (TY$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
133.2	-	542.2	-	542.2	542.2	50	252	249

(U) Contract and Effort Identification, Price, Quantity and Performance

Contract Number:	N00019-20-C-0002	**Order Number:**	-
Contract Title:	IDECM BLOCK IV (ALQ-214) FRP 17/18	**Strategy:**	FAR 15: Negotiated Contracts
CAGE:	28572 - L3Harris Technologies, Inc	**Contracting Office:**	N00019
City, State/Province:	Clifton, NJ		
Effort Number:	-	**Supported Phase:**	Production
Type:	Firm-Fixed-Price	**Award Date:**	July 31, 2020
Latest Modification Date:	March 6, 2023	**Definitization Date:**	July 31, 2020
Latest Modification No.:	P00011	**Work Start Date:**	-
Technical Data Rights:	Limited Rights		
Notes:	The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of FRP 18 and the exercise of field support CLINs. FRP18 is the final production lot of the AN/ALQ-214.		

Initial Price (TY$M) Target / Ceiling		Current Price (TY$M) Target / Ceiling		Est. Price at Completion (TY$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
104.0	-	179.2	-	179.2	179.2	35	54	12

(U) Deliveries and Expenditures

(U) IDECM Block 4 Subprogram

(U) Acquisition Funding

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	18	18	100.0%
Appropriations (TY, $M)	1,629.2	1,629.2	100.0%
Expenditures (TY, $M)	1,629.2	1,477.4	90.7%

(U) End Items Delivered

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Procurement	425			
IDECM Block 4		382	380	
Total	**425**	**382**	**380**	**89.4%**

Notes

None

(U) International Program Aspects

General Memo

None

Exportability and Business Issues

N/A

Is design for international exportability planned?	-
Industry/Partner Exportability Cost-Sharing?	-

Program Protection: Technology Security and Foreign Disclosure Issues

N/A

(U) Agreements

No International Agreements have been defined for IDECM

(U) IDECM Block 4 Subprogram

General Memo

None

Exportability and Business Issues

N/A

Is design for international exportability planned?	-
Industry/Partner Exportability Cost-Sharing?	-

Program Protection: Technology Security and Foreign Disclosure Issues

N/A

(U) Agreements

No International Agreements have been defined for IDECM Block 4

Modernized
Selected Acquisition Report
Supplement

Integrated Defensive Electronic Countermeasures
(IDECM)

FY 2025 President's Budget
As of: December 31, 2023

MSAR Supplement Sections

Program Description

Program Use of the Adaptive Acquisition Framework

Technologies and Systems Engineering

Funding Sources (Acquisition)

Funding Sources (Operating and Support)

Acquisition Estimate and Quantity Summary

Annual Acquisition Estimates by Appropriation Account

Acquired System Annual End-Item Quantities by Appropriation Account

Nuclear Costs

Operational Fielding Plan

O&S Independent Cost Estimate

Annual Operating and Support Estimates by Cost Element

Program Description

Full Name
Integrated Defensive Electronic Countermeasures

Short Name
IDECM

PNO
418

Lead Component
Navy

AAF Pathway
MCA

Acquisition Type
MDAP

Acquired Systems

Subprograms

Full Name	Short Name	Acquired Systems
IDECM Block 4	IDECM Block 4	IDECM Block 4

Related Programs

Full Name	PNO	Pathway	Type	ACAT/ BCAT	Acquisition Status	Costs in SAR? Acq	O&S

Program Use of the Adaptive Acquisition Framework

This acquisition is accomplished by a single program in the Major Capability Acquisition Pathway.

Technologies and Systems Engineering

IDECM Block 4 Subprogram

Major Software Efforts

Title	Status	Fielding Date	Description
Adaptive Radar Countermeasures (ARC)	Development	Aug 2025	ARC will provide the ALQ-214 with improved RF Threat Detection algorithms and jamming against modern threat radars not programmed in mission data files (unknowns).

Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts

Funding Sources (Acquisition)

Acquisition Funding Notes

None

IDECM Block 4 Subprogram

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
RDT&E	1319N	05	0604270N - Electronic Warfare Development	0604270N	2175 - Tactical Air Electronic Warfare	x	
Note:	The project also funds Dual Band Decoy (DBD) ACAT III development efforts						
Procurement	1506N	05	0576 - Common ECM Equipment	0204161N	-	x	
Note:	This line item funds other aircraft modification efforts.						
Procurement	1506N	06	0605 - Spares and Repair Parts	0204161N	-	x	
Note:	This line item funds other spares procurement efforts.						
Procurement	1506N	05	0525 - F-18 Series	0204136N	-	x	
Note:	The line item funds other ancillary equipment within the F-18 program office.						
Procurement	1506N	01	0145 - F/A-18E/F (Fighter) Hornet	0204136N	-	x	
Note:	The line item funds other ancillary equipment within the F-18 program office						

Funding Sources (Operating and Support)

Note: Budget lines fund activites executed by the Program Office or Sustainment Office.

Operating and Support Funding Notes

None

IDECM Block 4 Subprogram

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
Procurement	1506N	05	0576 - Common ECM Equipment	0204161N	-	x	
Note: This line item funds other aircraft modification efforts							
O&M	1804N	01	1A1A - Mission and Other Flight Operations	0204453N	-	x	
O&M	1804N	01	1A4N - Air Systems Support	0204453N	-	x	

Acquisition Estimate and Quantity Summary

IDECM Block 4 Subprogram

Acquisiton Estimates

Category	PB 2025	TY ($M)	Current Base Year CY2018 ($M)	Original Base Year CY2018 ($M)	Report Fiscal Year CY2024 ($M)
RDT&E		413.9	413.0	413.0	504.3
Procurement		1,215.3	1,178.6	1,178.6	1,438.9
MILCON		-	-	-	-
O&M		-	-	-	-
Total Acquisition		1,629.2	1,591.6	1,591.6	1,943.1
PAUC		3.833	3.745	3.745	4.572
APUC		2.860	2.773	2.773	3.386

Acquisiton End-Item Quantities

System	PB 2025	Development	Procurement
IDECM Block 4		-	425
Total		**-**	**425**

Unit Description

IDECM Block 4: An Engineering Change Proposal (ECP) to the ALQ-214 OBJ to render it suitable for operation on F/A-18C/D aircraft, while retaining all functionality, when installed on F/A-18E/F aircraft.

Current and Future Years Defense Program Summary, TY($M)

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	374.4	22.7	16.8	-	-	-	-	-	413.9
Procurement	1,180.8	34.6	-	-	-	-	-	-	1,215.3
MILCON	-	-	-	-	-	-	-	-	-
O&M	-	-	-	-	-	-	-	-	-
PB 2025 Total	**1,555.2**	**57.3**	**16.8**	**-**	**-**	**-**	**-**	**-**	**1,629.2**

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

IDECM Block 4 Subprogram

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1319N - Research, Development, Test & Eval, Navy					
fiscal year		Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2018 ($M)
Total		**413.9**	**413.9**	**-**	**413.0**
2008		5.200	5.2	0.868289	6.0
2009		9.800	9.8	0.879439	11.1
2010		62.300	62.3	0.892630	69.8
2011		49.300	49.3	0.913943	53.9
2012		60.300	60.3	0.929101	64.9
2013		26.900	26.9	0.938857	28.7
2014		13.500	13.5	0.952123	14.2
2015		11.100	11.1	0.964103	11.5
2016		9.100	9.1	0.981996	9.3
2017		7.000	7.0	1.000370	7.0
2018		2.100	2.1	1.024874	2.0
2019		17.000	17.0	1.044613	16.3
2020		21.750	21.8	1.083027	20.1
2021		24.198	24.2	1.131703	21.4
2022		39.160	39.2	1.190826	32.9
2023		15.674	15.7	1.226277	12.8
2024		22.728	22.7	1.254270	18.1
2025		16.753	16.8	1.280877	13.1

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

IDECM Block 4 Subprogram

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1506N - Aircraft Procurement, Navy									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2018 ($M)
Total	**902.4**	**-**	**3.5**	**155.0**	**-**	**154.4**	**1,215.3**	**-**	**1,178.6**
2008							-	0.877238	-
2009							-	0.889458	-
2010							-	0.908056	-
2011							-	0.926078	-
2012	67.958		3.515	8.382		7.100	87.0	0.939394	92.6
2013	123.847			10.139		10.900	144.9	0.949448	152.6
2014	66.488			10.917		4.900	82.3	0.961853	85.6
2015	87.300			12.365		7.000	106.7	0.976931	109.2
2016	117.984			-		3.900	121.9	0.998582	122.1
2017	72.813			10.429		7.160	90.4	1.019898	88.6
2018	121.452			9.417		12.200	143.1	1.040524	137.5
2019	116.136			28.194		19.300	163.6	1.069229	153.0
2020	79.028			22.209		10.100	111.3	1.111405	100.2
2021	49.423			22.940		23.333	95.7	1.162383	82.3
2022				-		15.230	15.2	1.208146	12.6
2023				-		18.730	18.7	1.241505	15.1
2024				19.999		14.556	34.6	1.269283	27.2

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

IDECM Block 4 Subprogram

1506N - Aircraft Procurement, Navy				
fiscal year	IDECM Block 4			Total
Total	**425**			**425**
Undistributed				-
2012	21			21
2013	56			56
2014	25			25
2015	46			46
2016	64			64
2017	40			40
2018	68			68
2019	51			51
2020	35			35
2021	19			19

Nuclear Costs

IDECM Block 4 Subprogram

Program's Use of Department of Energy Resources

None

Operational Fielding Plan

IDECM Block 4 Subprogram

System: IDECM Block 4

Fielding and Inventory Notes

The IDECM Block 4 (IB-4), ALQ-214(V)4/5, is an Engineering Change Proposal (ECP) to the ALQ214(V)2/3 and as such will follow the same sustainment strategy and infrastructure established for the fielded ALQ-214(V)2/3. The maintenance concept for the ALQ-214(V)4/5 is two levels, Organizational to Depot. Organizational Level activities will include: removal and replacement of faulty Weapons Replaceable Assemblies (WRAs) identified by Built-In Test (BIT)/Maintenance Service Panel (MSP) Code; loading of Operational Flight Program/Mission Data File with Memory Loader Verifier Systems as required; retest by BIT to verify repair action; end-to-end testing with Government support equipment (GSE) as required; corrosion control and phase inspections. Maintenance Support for the IB-4 is performed by fleet personnel. There are presently no Contractor Engineering & Technical Services or Navy Engineering & Technical Services representatives. If additional support is required, the Type Commander can then request technical assistance for the IDECM Deputy Assistant Program Manager Logistics (DAPML). The DAPML will assess the issue and request support from the Fleet Support Team (FST) and/or Original Equipment Manufacturer (OEM). Depot level activities will include: removal and replacement of faulty modules/parts to the component or Shop Replaceable Assembly (SRA) level and verification of repair. Depot level maintenance consists of inspection, test, troubleshooting, repair, overhaul and disposal of WRAs/SRAs which are beyond repair. Depot support is provided by OEMs managed by the Naval Supply Systems Command Weapon Systems Support, Philadelphia. The ALQ-214(V)4/5 contain a BIT capability consisting of Periodic BIT (PBIT) and Initiated BIT (IBIT). IBIT is used as a preflight and maintenance test on the ground when commanded by the mission computer or other controller. These BIT determine if the ALQ-214(V)4/5 WRAs are operational. PBIT provides automatic and continuous monitoring of mission critical parameters on a background basis during normal system operation. PBIT will not fault isolate but will give clear indications of mission critical failures signaling that IBIT needs to be run. IBIT consists of a series of tests to assess the operational status of the system as well as fault isolate problem hardware. End-to-end testing utilizes a combination of Organizational Support Equipment (OSE) and BIT as required. A Maintenance Plan (MaPI) for IB-4 is currently available to support the logistics program. The MaPIs are updated as necessary to reflect configuration changes. IB-4 MaPI is a deliverable from the Logistics Management Information database and contains all necessary information for interim supply support and development of source data for the F/A-18 Interactive Electronic Technical Manual. The IB-4 MaPI is managed by the FST at Fleet Readiness Center Southeast, In-Service Support Center, Jacksonville, Florida.

IDECM Block 4 Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					189
2024		110			299
2025		98			397
2026		28			425
2027					425
2028					425
2029					425

O&S Independent Cost Estimate

IDECM Block 4 Subprogram

Independent and Current Cost Estimate Comparison

Category CY2018 ($M)	Independent Cost Estimate	Current Estimate 5/23/2023	Variance with ICE (%)
Unit-Level Manpower		-	-
Unit Operations		-	-
Maintenance		494.8	-
Sustaining Support		16.9	-
Continued System Improvements		216.5	-
Other			-
Total O&S	**-**	**728.3**	**-**

Independent Cost Estimate Source

Event:
Type:
Approved by:
Note: An Independent Cost Estimate does not yet exist for the program.

Current Cost Estimate Source

Type: Program Office Estimate
Approved by: PMA-272/NAVAIR Cost and Schedule Department, May 23, 2023
Note:

Cost Estimate Variance Explanation

Annual Operating and Support Estimates by Cost Element

IDECM Block 4 Subprogram

System: IDECM Block 4

Source for TY-CY Conversion: OMNPur, OMNLFComp, CivPay, APN

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2018 ($M)
Total	**-**	**-**	**494.8**	**16.9**	**216.5**	**-**	**728.3**
2016			-	0.158	-		0.2
2017			-	0.187	-		0.2
2018			1.071	0.187	-		1.3
2019			3.880	0.189	3.415		7.5
2020			3.890	-	0.989		4.9
2021			3.533	-	16.501		20.0
2022			2.597	0.676	9.431		12.7
2023			9.401	0.676	7.731		17.8
2024			14.569	0.676	21.087		36.3
2025			18.259	0.676	16.625		35.6
2026			19.992	0.676	15.613		36.3
2027			19.517	0.676	12.766		33.0
2028			24.230	0.676	12.848		37.8
2029			23.243	0.676	5.305		29.2
2030			24.708	0.676	10.335		35.7
2031			26.218	0.676	5.305		32.2
2032			26.242	0.676	10.335		37.3
2033			27.171	0.676	5.305		33.2
2034			31.665	0.676	10.335		42.7
2035			28.414	0.676	5.305		34.4
2036			25.990	0.676	10.335		37.0
2037			25.183	0.676	5.305		31.2
2038			23.080	0.676	10.335		34.1
2039			22.677	0.676	5.305		28.7
2040			19.951	0.676	10.335		31.0
2041			18.752	0.676	3.297		22.7
2042			16.572	0.676	2.377		19.6
2043			15.216	0.676	-		15.9
2044			13.364	0.676	-		14.0
2045			5.433	0.676	-		6.1