Modernized Selected Acquisition Report (MSAR)

Infrared Search and Track (IRST)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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(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
Infrared Search and Track

Short Name
IRST

PNO
510

Decision Authority
Component Acquisition Executive

Lead Component
Department of the Navy

Program Executive Office
PEO Tactical Air

Joint Program
No

International Partners
Australia

Adaptive Acquisition Pathway
Major Capability Acquisition

Acquisition Type
Major Defense Acquisition Program

Acquisition Category
IC

Acquired Systems
F/A-18E/F IRST

Acquisition Status
Active Acquisition

Mission
The F/A-18E/F (Block II and later aircraft) Infrared Search and Track (IRST) system is a centerline-mounted store consisting of a passive long-wave infrared sensor and aerodynamic structural assembly integrated onto the front end of an external fuel tank. The IRST system will provide the F/A-18E/F an alternative fire control solution with the ability to search for, detect, and track targets in a high electronic attack / radar-denied environment. It will also give the F/A-18E/F the ability to guide Beyond Visual Range missiles to engage those targets.

(U) Responsible Office

Program Executive Officer
PEO Tactical Air
RADM John Lemmon
john.s.lemmon.mil@us.navy.mil (primary)
no phone number provided

Program Manager
Infrared Search and Track PMO
CAPT Michael Burks
michael.j.burks.mil@us.navy.mil (primary)
no phone number provided

(U) Executive Summary

Program Highlights Since Last Report

Significant Accomplishments
In FY 2023 the Infrared Search and Tracking (IRST) program continued to execute within approved APB parameters for cost/schedule/performance. In addition, the IRST pod participated in multiple testing scenarios throughout the FY with positive pod performance outcomes.
Infrared Optimized Configuration (IROC) Production quality issues were resolved and IROC deliveries to support the test effort began on January 11, 2023, with first the developmental flight test on January 26, 2023.
An Acquisition Strategy update to reflect an additional LRIP was approved by the MDA on July 13, 2023.
The last dedicated IRST Developmental Test (DT) flight was conducted on December 11, 2023 with all DT objectives being met.
On December 15, 2023, all IROCs were delivered and flown over 550 DT flight hours and participated in three Large Force Exercises (LFEs); Gray Flag in August 2023, Sentry Aloha in January 2024, and Orange Flag in March 2024.
The IRST program officially entered Initial Operation Test & Evaluation on March 13, 2024.
As of January 2024, the IRST program is rated red critical for Cost and Software Data Reporting (CSDR) compliance because of at least one deliverable more than twelve months overdue for contract N00019-17-C-0024. Though a report was submitted by the contractor, it was rejected by the CAPE/Defense Cost & Resource Center (DCARC) Team. An updated report is expected in April 2024; at which point the CSDR delinquency will be addressed.
Significant Issues:
None

(U) History of Significant Developments Since Program Inception

Date	Description
July 2023	On July 13, 2023 the Acquisition Strategy for IRST was updated to include LRIP VIII.
May 2022	Re-baselined APB approved by MDA.
December 2021	On December 16, 2021, the Program Deviation Report was approved by the MDA.
November 2021	On November 15, 2021, the Acquisition Strategy for IRST was updated to include a new contracting strategy.
July 2020	On July 7, 2020, the Acquisition Strategy for IRST was updated to include a decrease in LRIP quantities.
January 2020	On January 27, 2020, The IRST program had its first initial FMS procurement when the Royal Australian Air Force signed a Letter of Acceptance (LOA) for 12 IRST Units. The 12 RAAF units are included on the IRST LRIP IV procurement, totaling 16 LRIP IV systems.
December 2018	On December 4, 2018, the MS C Decision Review for the IRST program was held to assess program readiness to continue the Block II Production and Deployment phase. All criterion were successfully met, and the program received MS C approval and authorization to procure Block II LRIP units. The IRST Block II LRIP III contract action for six units was awarded in December.

Date	Description
October 2018	1st Quarter FY 2019 The Block I Infrared Optimized Configuration contract for 16 hardware kits awarded in October. Parallel activities were conducted to mature the Block II initial product baseline with successful CDR conducted in November.
April 2018	RST Sensor Sub-Systems (Infrared Receiver and Processor) delta CDR was conducted in May 2018 with the Government Technical Review Board assessing that the design maturity sufficient to justify an accelerated procurement. The IRST Block II Phase 2 development contract to support CDR, non-recurring engineering, and hardware development was awarded in August.
February 2017	An updated APB was approved in February 2017 to reflect the acceleration of the IRST (IOC) by two years. The IRST Block II Phase 1 contract action for six Block II engineering change proposal test assets was awarded in May.
November 2015	In November 2015, USD (AT&L) approved the IRST APB, delegated the MDA for the IRST program to the Navy, and designated the program as an ACAT IC due to the reprogramming of APN-5 funds to RDT&E for Block II development. The IRST program completed a successful Navy Gate 6 / In Progress Review.
January 2015	As a result of the successful MS C event, the IRST Block I LRIP I contract for six systems was awarded in January. In March, ASN (RDA) released the ADM authorizing entry into the Production and Deployment phase and the procurement of LRIP Lot I units.
October 2013	IRST Block I entered the Production and Deployment phase after a successful MS C event.
July 2013	The IRST program conducted a Delta CDR in April and Test Readiness Review in July.
October 2011	The IRST Block I initial product baseline was established at the Critical Design Review (CDR).
October 2010	The Preliminary Design Review (PDR) was held in November. The system PDR reflected a major change driven by funding reductions for Program Objective Memorandum, which rendered the planned program un-executable. The IRST program implemented a phased, evolutionary approach to delivery of required IRST capability and the program was reclassified as an ACAT II program. The IRST CDD was updated to capture an evolutionary acquisition approach and approved in April 2011. In June 2011, the IRST program completed a successful Milestone (MS) B and entered the EMD phase. The resultant EMD contract was awarded to Boeing.
May 2010	The IRST program completed the System Functional Review in May.
October 2007	The F/A-18E/F IRST program was designated as an ACAT III new start. In the Summer of 2008, early prototyping of the IRST system was underway. With the use of independent research and development funding, The Boeing Company used the F-14D baseline IRST with improved hardware to demonstrate passive ranging proof of concept. An ADM was issued by PEO for Tactical Aircraft Programs, approving the IRST system entry into the Technical Development (TD) phase. As a result of the ADM, System Requirements Reviews 1 and 2 were conducted. A funding reduction resulted in the baseline changing from planned delivery of the CDD-required 92 to 68 units.

(U) Schedule

(U) Schedule Events

Events		Untitled Baseline (Current) 5/12/2022 Objective / Threshold		Current Estimate 12/31/2023	Actual
Block I Milestone B Review	MS B	Jun 2011	Dec 2011	-	12 Jul 2011
Block I Milestone C Review	MS C	Mar 2015	Mar 2015	-	24 Mar 2015
Block II Milestone C Review	Other	Dec 2018	Dec 2018	-	14 Dec 2018
Block II Pre-Development IPR	Other	Oct 2017	Oct 2017	-	17 Oct 2017
Initial Operational Test & Evaluation (Start)(Start)	IOT&E	-	-	Mar 2024	-
Initial Operational Test & Evaluation (Start) (Complete)	IOT&E	Aug 2023	May 2024	-	13 Mar 2024
Full Rate Production Decision Review (FRPDR)	FRP Decision	Apr 2024	Jan 2025	Oct 2024	-
Initial Operational Capability	IOC	Mar 2024	Dec 2024	Sept 2024	-

Notes

Risk Note: Risks that are captured are done so for MS B/MS C/Current significant schedule risks. Program has a new APB therefore no current significant schedule risks.

Schedule Baseline Deviation Explanation

Actual current estimate for IOC is CUI.

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

Event	Date	Description
MS B	4/1/2011	Schedule risk of the EMD phase was assessed as moderate. Preliminary trade studies, modeling and simulation, more than ten demonstration flights with a representative prototype sensor flying on F/A-18E/F aircraft, and the extensive use of non-developmental item design and hardware all work to minimize risk. The program could only afford a limited number of flight test assets with spare weapon replaceable assemblies being supplied on an as-needed basis by borrowed laboratory assets. Test assets were aggressively managed throughout the program to mitigate the schedule risk caused by this asset limitation.

(U) Performance

(U) Performance Attributes

Operational Availability		KPP
Current Estimate 12/31/2023	>/0.95	
Demonstrated Performance 2/14/2023	0.90	
null (Current)	Objective	>/0.95
5/12/2022	Threshold	>/0.8

(U) Requirement Source:

Sponsor(s): United States Navy

1. Capability Production Document, *Capability Development Document for F/A-18 Infrared Search and Track (IRST)*
   Validated By: N8, October 20, 2014
   Notes: IRST CPD through JROC was not applicable.

Notes

The current performance achieved for the limited flight testing performed to date with the Block II system. With the expected Reliability Growth as we execute Developmental Test and identify and correct failures and put significant additional flight hours on the system, we expect the Operational Availability to improve to >/0.95 when the system is operational in the Fleet.

Performance Deviation Explanation

None

(U) Acquisition Budget Estimate

(U) Total Acquisition Estimates and Quantities

Category ($M) Base Year: 2008	(Current) 5/12/2022 CY$ obs Objective / Threshold		Current Estimate PB 2025 CY$ obs / TY$ obs	
RDT&E	815.7	897.3	822.1	978.4
Procurement	1,340.5	1,474.5	1,222.4	1,718.6
MILCON	0.0	0.0	-	-
O&M	0.0	0.0	-	-
R&MF	0.0	0.0	-	-
Total Acquisition	2,156.2	-	2,044.5	2,697.0
Program Acquisition Unit Cost	12.464	13.710	11.818	15.590
Average Procurement Unit Cost	7.885	8.674	7.191	10.109
Program End-Item Quantity				
Development	3		3	
Procurement	170		170	
O&M-Acquired	-		-	

Budget Notes

Congressional adjustments:
FY 2021: -$9.654M Installation equipment excess growth (APN-5)
FY21: -$30.269M Restoring acquisition accountability: Reduce concurrency IRST pods (OSIP 04-14) (APN-5)
FY21: -$20.706M Support equipment excess growth (APN-5)
FY22: -$18.450M Reduction of four units/limit production growth (APN-5)
Current estimate in accordance with PB25.

Quantity Notes

None

Cost Baseline Deviation Explanation

None

(U) Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2023)	
1	None

Current Baseline Risks (5/12/2022)
None
Original Baseline Risks (2/13/2017)
Cost risk for the EMD Phase is assessed as moderate. The IRST system is being developed as an evolutionary Block I / II program due to funding limitations. The Block I IRST system has been developed to support IOC. Due to budget constraints, Block II is not currently funded. The program currently carries one moderate-level cost risk relating to dome reliability. There is a risk that the current dome coating will wear faster than was originally planned, requiring more dome replacements. Maintenance costs incurred for dome replacement will contribute to higher life-cycle costs.

(U) Unit Costs

(U) Current Estimate Compared with Current Baseline

Category (CY$M) Base Year: 2008	Current Baseline 05/12/2022	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	2,156.2	2,044.5	
Program Quantity	173	173	
PAUC	12.464	11.818	-5.18%
Average Procurement Unit Cost			
Procurement Cost	1,340.5	1,222.4	
Procurement Quantity	170	170	
APUC	7.885	7.191	-8.81%

(U) Current Estimate Compared with Original Baseline

Category (CY$M) Base Year: 2008	Original Baseline 02/13/2017	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	1,914.6	2,044.5	
Program Quantity	179	173	
PAUC	10.696	11.818	10.49%
Average Procurement Unit Cost			
Procurement Cost	1,150.6	1,222.4	
Procurement Quantity	170	170	
APUC	6.768	7.191	6.24%

(U) Cost Growth Details

Impacts of Schedule Changes on Unit Cost

Program is executing within APB parameters for schedule, no cost impact.

Impacts of Performance Changes on Unit Cost

None.

Actions taken or Proposed to Control Future Cost Growth

None required.

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

See Contracts section.

Notes

None

(U) Life-Cycle Costs

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

Category ($M) Base Year: 2008	(Current) 5/12/2022 CY$ obs Objective / Threshold		Current Estimate CY$ obs / TY$ obs	
Total O&S	906.8	997.5	955.6	1,710.2
Total Disposal	-	-	4.2	7.9

(U) Current Cost Estimate Sources

Operating and Support Cost
Type: Component Cost Estimate
Approved by: NAVAIR Cost & Schedule Analysis Department, March 11, 2024
Note: a. Disposal/Demilitarization Cost Estimate and Source of Estimate: $4.24M CY 2008: $7.93 TY; POE
b. Sustainment Strategy:
IRST is set to operate in F/A-18E/F squadrons and the service life of the IRST system is limited only by the existence of those squadrons. The estimate utilizes the Naval Synchronization Toolset data version 2023-03 to model F/A-18 E/F aircraft and TACAIR squadron availability. The current plan is for six IRST assets per squadron to be fielded to 24 operating F/A-18E/F squadrons. These squadrons are to be located at Naval Air Station (NAS) Oceana, NAS Lemoore and Marine Corps Air Station Iwakuni; and will deploy aboard aircraft carriers based on the most current operational schedule.

The IRST program is an evolutionary acquisition program with Block I and Block II systems. Procurement involves the acquisition of 18 Block I systems, followed by 152 Block II systems and retrofits of the 18 Block I systems to the Block II configuration. The 18 Block I LRIP systems will be used to initially support IRST tactics development, aircrew familiarization, test and evaluation, maintainer training, software configuration set testing, and early fleet demonstration. Block I systems are not intended to be permanently fielded to fleet squadrons. The program will reach Initial Operating Capability (IOC) upon delivery of the first six Block II IRST systems in late FY2024.

The IRST system logistics concept will leverage off logistics support processes currently in place for the F/A-18E/F aircraft. No specialized logistics processes should be required to support the IRST system.

c. For Each Acquired System or System Variant: IRST
i. Quantity to Sustain: 170
ii. First Operational Fiscal Year: 2024
iii. Final Operational Fiscal Year: 2046
iv. Unit Expected Service Life: 14.5

d. Antecedent System(s) O&S Costs:
i. There is no antecedent for this system.

Disposal/Demilitarization Cost

Type: No estimate. Not Applicable

Operating and Support Baseline Deviation Explanation

None

Cost Notes

O&S cost estimate includes a schedule shift of MSD from FY2025 to FY2026 which accompanied a shift to the right of the program acquisition schedule along with the extension of service life from 2040 to 2046, following the service life of the F/A-18E/F TACAIR Mission. The start of I-level support of the IRR and ECU shifted from 2026 to 2028 due to delays in OTPS development. Additionally, updated flight hours, prices, and reliabilities were incorporated.

(U) Operating and Support Variance with Prior Estimate

(CY$M) Base Year: 2008	Estimate	
Prior Estimate (2/1/2023)	702.7	
Current Estimate	955.6	
Category	**Variance**	**Explanation**
Unit-Level Manpower	-	
Unit Operations	-	
Maintenance	166.4	Cost variance is driven by additional years of maintenance due to the extension of IRST service life from 2040 to 2046, following the F/A-18E/F service life extension. The push of Intermediate-Level maintenance support from 2026 to 2028 also adds some cost in the near term.
Sustaining Support	4.6	Cost variance is driven by additional years of sustaining support due to the extension of F/A-18E/F and IRST service life to 2046.
Continuing System Improvements	81.9	Cost variance is driven by additional years of continued system improvements due to the extension of F/A-18E/F and IRST service life to 2046.
Other	-	
Not Categorized	0.0	

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

(CY$M) Base Year: 2008

System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
F/A-18E/F IRST	-	-	577.1	82.1	296.4	-	**955.6**
Program	**-**	**-**	**577.1**	**82.1**	**296.4**	**-**	**955.6**

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

No Data

(U) Operating and Support Cost Estimate Assumptions

No Data

Additional O&S Estimate Assumptions

None

Antecedent Estimate Assumptions

None

O&S Annual Cost Calculation Memo

None

(U) Technologies and Systems Engineering

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

Event	Date	Description
Current	3/11/2024	Technical risk of reliability and maturity of Build in Test (BIT) to support reliance on it for O-level maintenance at IOC. BIT must be sufficiently matured by V3 Build 2.0 final to support O-level maintenance until O-level test sets can be delivered to fleet squadrons equipped with IRST. Mitigation steps include potential opportunities to pull BIT maturation activities to the left in the development schedule to accelerate maturation, usage of contractor logistics support field service representatives to compensate for lack of fielded O-level maintenance capability and release of software updates in the field as BIT maturation continues post IOC.
MS C	12/22/2018	Technical risk for Impact of Processor Stability on System Performance. Mitigation begins with Critical Design Review (CDR) showing compliant design (timing, memory, processing and throughput), lab testing with flight data and off-nominal flight data, static analysis and corrections prior to flight tests.
MS C	12/22/2018	Technical risk for Impact of Built In Test (BIT) False Alarms on Reliability. Mitigation includes BIT design characterization analysis and compliance prediction at critical design review (CDR), verification that correction of Block I BIT false alarms translate to Block II, verifies correction in flight test, implements fixes for new BIT false alarms occuring in Block II flight test, verifies correction in F/A-18 prototype flight test, conduct scored OA event, and demonstrate threshold value in OPEVAL (1L/4C).
MS B	4/21/2011	Performance risk was assessed as moderate. Initial Infrared Search and Track (IRST) technical risk assessments by the prime contractor revealed only low and medium risks. The technology behind the legacy F-14D IRST system is well documented over its history. Hardware improvements being incorporated from other platforms are, likewise, known sub-systems. The primary source of technological risks came from software development and aircraft integration. Of the medium category risks, the only hardware-related item was the centerline pod environment. Other medium risks were integration and software issues such as Multi-Source Integration, data processing throughput, Inertial Measurement Unit integration, new technology compatibility, and false alarm rate. Therefore, future risk reduction activities were centered on these areas as both the prime contractor and sub-contractor offer considerable experience on the F/A-18 and other aircraft.

(U) Performing Activities and Contracts

(U) External Government Activities

None

(U) Contracts and Efforts

Contract Title	Contract Number / Effort	Contractor	Phase
IRST LM LRIP V	N0001920G0029 / 8	Lockheed Martin Corporation	Development
IRST LM LRIP VI and VII	N0001920G0029 / 5	Lockheed Martin Corporation	Development
Block II LRIP III and IV	N00019-19-C-0019 / 7	The Boeing Company	Production
Block II Phase II	N00019-18-C-1022 / 5	The Boeing Company	Production
Infrared Optimized Configuration (IROC)	N00019-16-G-0001 / 6	The Boeing Company	Production

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

Contract Number:	N0001920G0029	**Order Number:**	N0001921F0316
Contract Title:	IRST LM LRIP V	**Strategy:**	-
CAGE:	04939 - Lockheed Martin Corporation	**Contracting Office:**	N00019
City, State/Province:	Orlando, FL		
Effort Number:	8	**Supported Phase:**	Development
Type:	Firm-Fixed-Price	**Award Date:**	July 27, 2021
Latest Modification Date:	February 28, 2023	**Definitization Date:**	July 27, 2021
Latest Modification No.:	P00003	**Work Start Date:**	-
Technical Data Rights:	-		
Notes:	This contract is for nine Infrared Receivers (IRRs) and nine Processors plus one unit under test. The Lockheed Martin WRAs will be provided to Boeing as GFE for incorporation into the all-up pod. 2 RAAF IRRs and 2 RAAF Processors were included in this procurement.		

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
48.8	48.8	58.7	58.7	-	-	19	23	-

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

Contract Number:	N0001920G0029	**Order Number:**	N0001922F2503
Contract Title:	IRST LM LRIP VI and VII	**Strategy:**	-
CAGE:	04939 - Lockheed Martin Corporation	**Contracting Office:**	N00019

City, State/Province:	Orlando, FL

Effort Number:	5	**Supported Phase:**	Development
Type:	Firm-Fixed-Price	**Award Date:**	June 30, 2022
Latest Modification Date:	January 31, 2023	**Definitization Date:**	June 30, 2022
Latest Modification No.:	P00001	**Work Start Date:**	-
Technical Data Rights:	-		

Notes: The purpose of modification P00001 is to procure LRIP VII quantities of IRST Weapons Replaceable Assemblies (WRAs), including Infrared Receivers (IRRs), Inertial Measurement Units (IMUs), and System Processors, and associated data. This procurement includes WRAs supporting NAVAIR, NAVSUP, and Air National Guard (ANG).

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
72.1	72.1	133.6	133.6	72.1	133.6	53	138	-

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

Contract Number:	N00019-19-C-0019	**Order Number:**	-
Contract Title:	Block II LRIP III and IV	**Strategy:**	-
CAGE:	76301 - The Boeing Company	**Contracting Office:**	N00019
City, State/Province:	St. Louis, MO		

Effort Number:	7	**Supported Phase:**	Production
Type:	Fixed-Price Incentive (Firm Target)	**Award Date:**	December 28, 2018
Latest Modification Date:	August 30, 2022	**Definitization Date:**	March 27, 2020
Latest Modification No.:	P00004	**Work Start Date:**	-
Technical Data Rights:	-		

Notes: Earned Value Management is only being reported for the LRIP III portion of this Contract. An EVM deviation waiver for the LRIP IV portion of this contract was approved by DASN on August 27, 2020.
The RAAF is included in this contract for a quantity of 12 per case ATP-GQF (RAAF pods, which will deliver after USN LRIP units are included in Contractor's completion estimate but not in PM completion estimate).
The purpose of P00004 modification is to extend the delivery dates of CLIN 0001, 0002, and 0003. In addition, this modification extends the period of performance of CLIN 0004. The Government is due Consideration for the delivery date and period of performance extensions. Consideration is outlined below: 1. Boeing will be providing five Cover Sets (P/N: 74D740535-1001) and six Umbilical Cables (P/N: 74A926269-1002). As a result, CLINs 0005 Cover Sets and 0006 Umbilical Cables are added to this Contract at no cost to the Government. 2. In Section J, this modification deletes and replaces Statement of Work to reflect the updated SOW Attachment 1, dated 27 June 2022. The scope captured in the updated SOW Paragraph 3.21 reflects the incorporation of the Coversets and Umbilical Cables.

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

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
44.7	45.6	156.7	159.8	40.0	44.1	6	22	-

Work Completed (%): 82.39%
Cost Variance (TY$M): -1.7
Schedule Variance (TY$M): -2.2

Factors Contributing to Cost Variance and Projected Effects on Program Costs

EVM and delivery data as of 13 March 2023.
Cost Performance: The cumulative favorable cost variance is mainly due to WBS 1.4.1 (Non-ILS Program Management). This variance is the result of CUM underrun driven by the Engineering Management bulk labor account and Program Management account. The Program Management account will offset as the support will be conducted in the future.
Earned Value Management is only being reported for the LRIP III portion of this Contract. An EVM deviation waiver for the LRIP IV portion of this contract was approved by DASN on August 27, 2020.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

EVM and delivery data as of 13 March 2023.
Schedule Performance: The cumulative unfavorable schedule variance is primarily due to Lockheed Martin, specifically WBS 1.1.1 (IR Receiver Assembly). This variance is driven by late deliveries of telescopes from the supplier. This delay was due to manufacturing issues and failure review boards.

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

Contract Number:	N00019-18-C-1022	**Order Number:**	-
Contract Title:	Block II Phase II	**Strategy:**	-
CAGE:	76301 - The Boeing Company	**Contracting Office:**	N00019
City, State/Province:	St. Louis, MO		
Effort Number:	5	**Supported Phase:**	Production
Type:	Other	**Award Date:**	August 17, 2018
Latest Modification Date:	December 19, 2022	**Definitization Date:**	August 17, 2018
Latest Modification No.:	P00024	**Work Start Date:**	-
Technical Data Rights:	-		
Notes:	The purpose of modification P00024 was to fund a cost overrun in the amount of $8,460,885.00.		

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
152.5	152.5	167.0	-	159.9	176.6	3	3	-

Work Completed (%): 87.00%
Cost Variance (TY$M): -8.1
Schedule Variance (TY$M): -10.7

Factors Contributing to Cost Variance and Projected Effects on Program Costs

EVM and delivery data as of 13 March 2023.
Cost Performance: ($6,612K) The unfavorable cost performance is driven by Lockheed Martin (LM). Schedule delays due to additional design complexity have led to additional Receiver and System Integration support costs beyond the baseline budget. Cost variance expected to degrade as the schedule recovers.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

EVM and delivery data as of 13 March 2023.
Schedule Performance: ($13,664K) The unfavorable schedule performance is driven primarily by LM procurement efforts which are experiencing poor yields. Yield improvement measures are being implemented at sub-tier supplier facilities. Additional delays have occurred due to Quality Assurance (QA) review backlogs. All work is baselined to have completed by 30 April 2022, therefore variance will improve each month as the backlog is reduced. The Period of Performance has been extended to 31 December 2023 however work has not yet been re-baselined to the new target. An Over Target Baseline/Schedule (OTB/OTS) reprogramming request has been submitted by Boeing and approved by the program office and Contracts. Boeing is working to ensure their Latest Revised Estimate includes Lockheed Martin risks accurately.

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

Contract Number:	N00019-16-G-0001	**Order Number:**	N0001919F2410
Contract Title:	Infrared Optimized Configuration (IROC)	**Strategy:**	-
CAGE:	76301 - The Boeing Company	**Contracting Office:**	N00019
City, State/Province:	St. Louis, MO		
Effort Number:	6	**Supported Phase:**	Production
Type:	Fixed-Price Incentive (Firm Target)	**Award Date:**	October 25, 2018
Latest Modification Date:	September 29, 2023	**Definitization Date:**	May 19, 2020
Latest Modification No.:	P00012	**Work Start Date:**	-
Technical Data Rights:	-		
Notes:	The purpose of modification P00012 is to extend the delivery dates of CLINs 0001, 0002, 0003, 0007, and 0009 and to authorize consideration for the delivery date extensions.		

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
112.0	114.0	132.7	135.1	124.4	124.4	16	16	2

Work Completed (%):	83.78%
Cost Variance (TY$M):	-8.2
Schedule Variance (TY$M):	-4.3

Factors Contributing to Cost Variance and Projected Effects on Program Costs

EVM and delivery data as of 13 March 2023.
Cost Performance: The cumulative favorable cost variance is due to WBS 1.2 (Platform Integration, Assembly, Test, and Checkout). This variance is the result of less effort required than originally planned as a result of schedule delays. These delays are pushing scheduled work to the right, limiting completion of successor tasking. The favorable variance is expected to degrade as hardware is built and delivered.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

EVM and delivery data as of 13 March 2023.
Schedule Performance: The cumulative unfavorable schedule variance is primarily due to Lockheed Martin tasks. They have had late deliveries, component failures, and they've needed additional time for failure cause analysis. Lockheed Martin's subcontractors are experiencing delays with Telescopes, Fiber Optic Gyroscopes (FOGs), and Compressors which are leading to further slips in the schedule. The Telescopes are 8 units behind schedule. The FOGs are 14 units behind schedule. The compressors are 2 units behind schedule.

(U) Production

(U) Low-Rate Initial Production

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	43	55
Date	12/4/2018	7/13/2023
Reference	ADM	ADM
LRIP Period	FY 2021 - 2023	FY 2024 - 2027
Total Procurement Quantity	170	170
LRIP Percentage of Total	25.3%	32.4%

Rationale if LRIP Quantity Exceeds 10% of Total Procurement Quantity (Current Determination)

In order to provide production-configured articles for operational tests, establish an initial production base for the system, and to permit an orderly increase in the production rate for the system sufficient to lead to full-rate production upon the successful completion of operational testing, an ADM was approved exceeding the 10 percent of the total number of articles to be produced.

LRIP Notes

None

(U) Deliveries and Expenditures

(U) Acquisition Funding

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	23	19	82.6%
Appropriations (TY, $M)	2,697.0	2,570.1	95.3%
Expenditures (TY, $M)	2,697.0	1,108.7	41.1%

(U) End Items Delivered

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Development	3			
F/A-18E/F IRST		3	3	
Procurement	170			
F/A-18E/F IRST		18	18	
Total	**173**	**21**	**21**	**12.1%**

Notes

18 Block I's were delivered. They have all been converted into Block II EDMs and IROCs.

(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

There is a Program Protection Plan (PPP) in place to address technology security of foreign disclosure issues.

(U) Agreements

No International Agreements have been defined for IRST

Modernized Selected Acquisition Report Supplement

Infrared Search and Track (IRST)

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
Infrared Search and Track

Short Name
IRST

PNO
510

Lead Component
Navy

AAF Pathway
MCA

Acquisition Type
MDAP

Acquired Systems
F/A-18E/F IRST

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

Infrared Search and Track

Major Software Efforts

Title	Status	Fielding Date	Description
n/a			

Major Engineering Changes

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

Funding Sources (Acquisition)

Acquisition Funding Notes

None.

Infrared Search and Track

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
Procurement	1506N	05	0515 - Infrared Search and Track (IRST)	0204136N	-		
Procurement	1506N	05	0525 - F-18 Series	0204136N	-		
Procurement	1506N	06	0605 - Spares and Repair Parts	0204161N	-		
RDT&E	1319N	07	0204136N - F/A-18 Squadrons	0204136N	1662 - F/A-18 Improvement		
RDT&E	1319N	07	0204136N - F/A-18 Squadrons	0204136N	2069 - F/A-18 Infrared Search and Track (IRST)		
RDT&E	1319N	04	0604014N - F/A -18 Infrared Search and Track (IRST)	0604014N	2069 - F/A-18 Infrared Search and Track (IRST)		

Funding Sources (Operating and Support)

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

Operating and Support Funding Notes

Infrared Search and Track

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
Procurement	1506N	05	0515 - Infrared Search and Track (IRST)	0204136N	-		
Procurement	1506N	05	0525 - F-18 Series	0204136N	-		
Procurement	1506N	06	0605 - Spares and Repair Parts	0204161N	-		
RDT&E	1319N	07	0204136N - F/A-18 Squadrons	0204136N	1662 - F/A-18 Improvement		
RDT&E	1319N	07	0204136N - F/A-18 Squadrons	0204136N	2069 - F/A-18 Infrared Search and Track (IRST)		
RDT&E	1319N	04	0604014N - F/A -18 Infrared Search and Track (IRST)	0604014N	2069 - F/A-18 Infrared Search and Track (IRST)		

Acquisition Estimate and Quantity Summary

Infrared Search and Track

Acquisiton Estimates

Category PB 2025	TY ($M)	Current Base Year CY2008 ($M)	Original Base Year CY2008 ($M)	Report Fiscal Year CY2024 ($M)
RDT&E	978.4	822.1	822.1	1,168.2
Procurement	1,718.6	1,222.4	1,222.4	1,737.1
MILCON	-	-	-	-
O&M	-	-	-	-
Total Acquisition	2,697.0	2,044.5	2,044.5	2,905.3
PAUC	15.590	11.818	11.818	16.794
APUC	10.109	7.191	7.191	10.218

Acquisiton End-Item Quantities

System PB 2025	Development	Procurement
F/A-18E/F IRST	3	170
Total	**3**	**170**

Unit Description

The F/A-18E/F (Block II and later aircraft) Infrared Search and Track (IRST) system is a centerline-mounted store consisting of a passive long-wave infrared sensor that searches for, detects, and tracks airborne targets within its field of view. The IRST provides an Alternate Fire Control System (AFCS) in a high threat electronic attack environment. The IRST system gives the aircrew improved situational awareness while supplementing the APG-79 radar, and supports the launch of Beyond Visual Range (BVR) missiles. Additionally, the IRST system will be used to create a Weapons Quality Track (WQT) that will be used to support the launch of air-to-air missiles to engage a confirmed threat aircraft. The IRST system is an aerodynamic structural assembly integrated onto the front end of an external fuel tank, preserving a minimum of 330 gallons of fuel and providing the best field of regard.

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

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	934.1	32.1	8.6	2.7	0.8	-	-	-	978.4
Procurement	851.9	179.2	146.9	176.8	156.0	41.8	42.7	123.3	1,718.6
MILCON	-	-	-	-	-	-	-	-	-
O&M	-	-	-	-	-	-	-	-	-
PB 2025 Total	**1,786.0**	**211.3**	**155.5**	**179.6**	**156.9**	**41.8**	**42.7**	**123.3**	**2,697.0**

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Infrared Search and Track

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($M)	Weighted Rate	Total CY2008 ($M)
Total	**1,718.6**	**-**	**-**	**-**	**-**	**-**	**1,718.6**	**-**	**1,222.4**
2007							-	1.005916	-
2008							-	1.021004	-
2009							-	1.035227	-
2010							-	1.056873	-
2011							-	1.077848	-
2012							-	1.093346	-
2013							-	1.105049	-
2014							-	1.119486	-
2015	89.060						89.1	1.137036	78.3
2016	115.190						115.2	1.162234	99.1
2017	2.470						2.5	1.187044	2.1
2018	134.800						134.8	1.211051	111.3
2019	65.810						65.8	1.244460	52.9
2020	66.430						66.4	1.293548	51.4
2021	136.700						136.7	1.352881	101.0
2022	120.380						120.4	1.406143	85.6
2023	121.039						121.0	1.444969	83.8
2024	179.193						179.2	1.477299	121.3
2025	146.876						146.9	1.508583	97.4
2026	176.827						176.8	1.540264	114.8
2027	156.028						156.0	1.572609	99.2
2028	41.814						41.8	1.605634	26.0
2029	42.701						42.7	1.639352	26.0
2030	41.094						41.1	1.673779	24.6
2031	41.094						41.1	1.708928	24.0
2032	41.096						41.1	1.744815	23.6

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Infrared Search and Track

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($M)	Weighted Rate	Total CY2008 ($M)
Total		**-**	**978.4**	**-**	**822.1**
2007	3.500		3.5	0.992485	3.5
2008	4.800		4.8	1.010589	4.7
2009	16.800		16.8	1.023566	16.4
2010	24.600		24.6	1.038919	23.7
2011	58.000		58.0	1.063725	54.5
2012	40.200		40.2	1.081367	37.2
2013	93.100		93.1	1.092721	85.2
2014	59.700		59.7	1.108162	53.9
2015	45.000		45.0	1.122105	40.1
2016	42.700		42.7	1.142931	37.4
2017	94.090		94.1	1.164316	80.8
2018	68.100		68.1	1.192835	57.1
2019	104.510		104.5	1.215809	86.0
2020	111.050		111.1	1.260519	88.1
2021	80.300		80.3	1.317172	61.0
2022	47.640		47.6	1.385984	34.4
2023	40.022		40.0	1.427246	28.0
2024	32.127		32.1	1.459826	22.0
2025	8.630		8.6	1.490794	5.8
2026	2.727		2.7	1.522100	1.8
2027	0.832		0.8	1.554064	0.5

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

Infrared Search and Track

1506N - Aircraft Procurement, Navy				
fiscal year	F/A-18E/F IRST			Total
Total	**170**			**170**
2011				-
2012				-
2013				-
2014				-
2015	6			6
2016	12			12
2017	-			-
2018	-			-
2019	6			6
2020	4			4
2021	9			9
2022	10			10
2023	10			10
2024	16			16
2025	22			22
2026	28			28
2027	24			24
2028	6			6
2029	6			6
2030	11			11

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

Infrared Search and Track

1319N - Research, Development, Test & Eval, Navy				
fiscal year	F/A-18E/F IRST			Total
Total	**3**			**3**
2011	3			3

Nuclear Costs

Infrared Search and Track

Program's Use of Department of Energy Resources

None

Operational Fielding Plan

Infrared Search and Track

System: F/A-18E/F IRST

Fielding and Inventory Notes

Projections are based on current LRIP production delivery schedules. Program fielding rate may increase during production ramp up period leading up to Full-Rate Production deliveries which could begin as early as FY27

F/A-18E/F IRST Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					-
2024		10			10
2025		16			26
2026		15			41
2027		12			53
2028		29			82
2029		36			118

O&S Independent Cost Estimate

Infrared Search and Track

Independent and Current Cost Estimate Comparison

Category CY2008 ($M)	Independent Cost Estimate 12/14/2018	Current Estimate 3/11/2024	Variance with ICE (%)
Unit-Level Manpower		-	-
Unit Operations		-	-
Maintenance	855.7	577.1	-33%
Sustaining Support	98.5	82.1	-17%
Continued System Improvements	345.4	296.4	-14%
Other			-
Total O&S	**1,299.6**	**955.6**	**-26%**

Independent Cost Estimate Source

Event: MS-C
Type: Independent Cost Estimate
Approved by: OSD Cost Assessment & Program Evaluation, December 14, 2018
Note: Milestone C cost estimate from 2018.

Current Cost Estimate Source

Type: Component Cost Estimate
Approved by: NAVAIR Cost and Schedule Analysis Department, March 11, 2024
Note: Current cost estimate includes a schedule shift of MSD from FY25 to FY26 which accompanied a shift to the right of the program acquisition schedule along with the extension of service life from 2040 to 2046 following the service life of the F/A-18E/F TACAIR mission. The start of I level support of the IRR and ECU shifted from 2026 to 2028 due to delays in OTPS development.

Cost Estimate Variance Explanation

The primary contributor to the variance in maintenance cost between the last ICE and the current estimate was an update to the calculation of IRST Pod flight hours. The old method used all F/A-18E/F flight hours. The new method analyzes the historic mission types of the F/A-18E/F aircraft and determines which types of flights IRST will be on using Subject Matter Expert input. This update to methodology reduced the estimated number of IRST Pod flight hours significantly which in turn decreases the estimated cost of maintenance. Other contributors to the difference in estimated maintenance cost include updates to part reliabilities, part repair prices, and projected F/A-18E/F service life and flight hours. The primary contributor to the variance in sustaining support is updated support headcounts due to shifting acquisition schedule and F/A-18E/F service life. Slight changes to the number of years of software maintenance drive the variance in continuing system improvements.

Annual Operating and Support Estimates by Cost Element

Infrared Search and Track

System:

Source for TY-CY Conversion: Latest OSD Inflation

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 CY2008 ($M)
Total	**-**	**-**	**577.2**	**82.2**	**296.6**	**-**	**956.0**
2024			8.300	2.600	1.000		11.9
2025			18.700	3.300	7.500		29.5
2026			29.400	5.300	7.500		42.2
2027			20.100	4.000	8.500		32.6
2028			25.900	4.100	8.800		38.8
2029			24.900	5.800	9.200		39.9
2030			31.700	6.800	21.400		59.9
2031			35.900	7.600	23.000		66.5
2032			34.500	7.000	22.500		64.0
2033			34.400	6.200	22.500		63.1
2034			33.900	4.300	22.500		60.7
2035			32.000	4.000	22.500		58.5
2036			30.200	3.600	22.500		56.3
2037			31.000	3.600	22.500		57.1
2038			31.200	3.600	22.500		57.3
2039			30.100	1.300	21.500		52.9
2040			23.700	1.300	20.000		45.0
2041			22.300	1.300	10.700		34.3
2042			19.500	1.300			20.8
2043			18.300	1.300			19.6
2044			15.600	1.300			16.9
2045			14.200	1.300			15.5
2046			11.400	1.300			12.7