

F/A-18 Infrared Search and Track (IRST) Block II



F/A-18 Infrared Search and Track (IRST) Block II operational testing is delayed until 2QFY24 due to hardware and software delivery delays. To be operationally effective, the IRST Block II program needs to resolve several open deficiencies from previous IRST versions, as well as those discovered during Block II developmental testing with prototype systems. The proposed schedule allows minimal time for problem discovery and deficiency resolution prior to the planned start of IOT&E, which could delay delivery of production-representative software and have a negative impact on effectiveness and suitability during IOT&E. The Navy did not conduct test events during FY22.

SYSTEM DESCRIPTION

The ASG-34A(V)1 F/A-18E/F IRST is a centerline-mounted pod with a long-wave infrared

sensor which provides a passive fire control system intended to search, detect, track, and engage airborne targets at long range. The IRST sensor assembly integrates onto the front of the redesigned FPU-13/A centerline fuel tank

assembly, thus reducing the fuel capacity of the FPU-13/A to 340 gallons compared to the 480-gallon FPU-12/A centerline fuel tank it replaces. Therefore, IRST integration results in less fuel available and reduced time-on-

station for the F/A-18E/F. The IRST acts as a complementary sensor to the AN/APG-79 fire control radar in a heavy electronic attack or radar-denied environment. It operates autonomously, or in combination with other sensors, to support the guidance of beyond-visual-range air-to-air missiles, including the AIM-120 Advanced Medium-Range Air-to-Air Missile and AIM-9X Sidewinder Block II.

PROGRAM

The F/A-18 IRST Block II is an Acquisition Category IC program. DOT&E approved the Milestone C Test and Evaluation Master Plan in May 2021. IOT&E is scheduled to begin in 2QFY24 in support of full-rate production. The Navy intends to field the IRST Block II system to carrier-based F/A-18E/F Super Hornet squadrons to improve lethality and survivability in air superiority missions against advanced threats.

MAJOR CONTRACTORS

- Lockheed Martin Corporation
– Orlando, Florida
- The Boeing Corporation,
Defense Space Security
– St. Louis, Missouri

TEST ADEQUACY

The Navy plans to conduct IOT&E between March and July 2024 and has not yet submitted the IOT&E plan to DOT&E for approval.

PERFORMANCE

» EFFECTIVENESS

To be operationally effective, the IRST Block II program needs to resolve several deficiencies existing from previous IRST versions, as well as those noticed during Block II developmental testing (DT) of prototype systems. Additionally, the Navy must improve the Super Hornet's operating software and correct existing deficiencies to enable IRST to be an effective contributor to aircraft fire control solutions. The IRST Block II prototype pod demonstrated tactically relevant detection ranges against operationally relevant targets during initial DT events. However, integration into the overall F/A-18E/F software solution must convert long-range target detections into stable system tracks to facilitate weapons employment. The ability of the Navy and the contractor to fix the critical issues on schedule is the most significant performance risk to successful IOT&E.

» SUITABILITY

IRST Block II prototype systems used in DT demonstrated reliability well below the Navy's requirements. Additionally, the prototype systems do not possess fault detection and identification, which makes troubleshooting and fault correction verification detection difficult for maintainers and aircrew. The production-representative versions of the system slated for use in IOT&E

are delayed, which creates uncertainty for maintenance process maturity and reliability growth and could negatively affect suitability during IOT&E.

» SURVIVABILITY

IRST Block II contributes to the survivability of the F/A-18E/F by providing target tracks in a contested and congested electromagnetic spectrum environment, but it has yet to be tested in an operational environment.

The survivability of the IRST Block II will be evaluated in a cyber-contested environment as part of IOT&E.

RECOMMENDATIONS

The Navy should:

1. Address the known IRST Block II and Super Hornet operating hardware and software deficiencies.
2. Continue to test unproven capabilities in developmental testing to prepare the system for IOT&E in order to adequately demonstrate operational effectiveness, suitability, and survivability.