

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



F/A-18 Infrared Search and Track (IRST) Block II is on track to begin operational testing in 2QFY24 as stated in the DOT&E FY22 Annual Report. During FY23, the IRST Block II program made strides towards resolving open deficiencies from previous versions throughout the developmental test (DT) phase. Additionally, updated pod software fixed outstanding anomalies that affected operational suitability. To be operationally effective, the IRST Block II program needs to continue to discover and fix deficiencies during Block II DT in order to produce the intended fleet-releasable software and hardware to begin IOT&E. The proposed schedule allows minimal time for problem discovery and deficiency resolution prior to the planned start of IOT&E in 2QFY24. The Navy did not conduct operational test events during FY23.

SYSTEM DESCRIPTION

The ASG-34A(V)1 F/A-18E/F IRST is a centerline-mounted pod with a long-wave infrared sensor that 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. The fuel capacity of the FPU-13/A is 340 gallons compared to the 480-gallon FPU-12/A centerline fuel tank it replaces. The IRST acts as a complementary sensor to the aircraft's 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.

MISSION

The F/A-18E/F Super Hornet will employ the IRST Block II as a complementary long-wave infrared sensor to the AN/APG-79 fire control radar in a heavy electronic attack or radar-denied environment. IRST Block II provides passive search, detect, track, and engage capabilities against airborne targets at long range and will 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. DT was conducted during FY23, and 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
- Boeing Defense, Space & Security – St. Louis, Missouri

TEST ADEQUACY

The Navy plans to conduct IOT&E between January and July 2024 and has not yet submitted the IOT&E plan to DOT&E for approval. An operational test readiness review is expected in 1QFY24.

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 discovered during Block II DT of prototype systems. Additionally,

the Navy must improve the F/A-18E/F Super Hornet's operating software and correct existing deficiencies to enable IRST to be an effective contributor to aircraft fire control solutions. During FY23, IRST Block II developmental flight test events demonstrated tactically relevant detection ranges against operationally relevant targets and upgraded F/A-18E/F software demonstrated the ability to translate these long-range target detections into stable system tracks to facilitate weapons employment. The ability of the Navy to continue to fix outstanding critical issues on schedule is the most significant performance risk towards achieving an adequate IOT&E.

» SUITABILITY

IRST Block II demonstrated reliability issues below the Navy's requirements early in DT, but software improvements have increased pod reliability during FY23 DT events. Production-representative versions of the system are slated to be delivered prior to the start of IOT&E to determine system suitability. DOT&E will assess suitability based on operational test data at the completion of IOT&E in FY24.

» 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 operationally representative threat environment.

Cyber survivability testing
is slated for 1QFY24.

RECOMMENDATIONS

The Navy should:

1. Continue to address the known IRST Block II and Super Hornet operating software deficiencies.
2. Continue to test unproven Block II DT system capabilities to support an adequate assessment of operational effectiveness, suitability, and survivability during IOT&E.
3. Develop and submit an adequate IOT&E test plan to accommodate a 1QFY24 operational test readiness review with DOT&E.