

## F/A-18E/F Super Hornet

### Executive Summary

- The Navy released System Configuration Set (SCS) H14 for use in the F/A-18E/F Super Hornet and the EA-18G Growler fleets. H14 introduced the following capability upgrades and enhancements: Naval Integrated Fire Control (NIFC), Automatic Dependent Surveillance-Broadcast (ADS-B), Ultrahigh Frequency (UHF) Satellite Communication, Long Range Anti-Ship Missile (LRASM), BLU-109 Laser Joint Direct Attack Munition (JDAM), and an Active Electronically Scanned Array (AESA) Radar Upgrade.
- Operational performance of NIFC capabilities and AESA radar performance improved over previous SCS versions.
- The Navy fielded a small number of F/A-18E/F Infrared Search and Track (IRST) Block I AV6+ pods to expedite fleet delivery of this capability. This early fielding is also intended to inform Block II IOT&E scheduled for FY21.
- The Navy increased testing efficiency by simultaneously operationally testing F/A-18E/F/G SCS H14, E-2D, IRST Block 1 AV6+, LRASM, and NIFC.
- The Navy has not yet completed H14-specific operational cybersecurity testing.

### System

- The F/A-18E/F Super Hornet is the Navy's premier strike-fighter aircraft and is the follow-on replacement to the F/A-18A/B/C/D and the F-14.
- F/A-18E/F Super Hornet Block 2 hardware includes the APG-79 radar (Lots 26+), Advanced Targeting Forward Looking Infrared Systems, Multi-functional Information Distribution System for Link 16 tactical datalink connectivity, Joint Helmet-Mounted Cueing System, and the Integrated Defensive Electronic Countermeasures. Software enables the F/A-18 to perform single pass multiple targeting for GPS-guided weapons, use of off-board target designation, improved datalink for target coordination precision, and the implementation of air-to-ground target aim points.

### System Configuration Set (SCS) Software

- Super Hornet aircraft include SCS operational software to enable major combat capabilities.
  - F/A-18E/F (production Lot 25+) Block 2 aircraft use high-order language software. The Navy began operational testing of SCS H14 in September 2018.



- F/A-18E/F (prior to Lot 25) aircraft use "X-series" software. The Navy released SCS 25X on legacy Hornet and older Super Hornet aircraft in October 2015.
- SCS H14 introduced the following capability upgrades and enhancements: NIFC-Counter Air, ADS-B, UHF Satellite Communication, LRASM, BLU-109 Laser JDAM, and an AESA Radar Upgrade.

### Mission

- Combatant Commanders use the F/A-18E/F to:
  - Conduct offensive and defensive air combat missions
  - Attack ground targets with most of the U.S. inventory of precision and non-precision weapons
  - Provide in-flight refueling for other tactical naval aircraft
  - Provide the fleet with an organic tactical reconnaissance capability

### Major Contractors

- The Boeing Company, Integrated Defense Systems – St. Louis, Missouri
- Raytheon Company – Forest, Mississippi
- General Electric Aviation – Evendale, Ohio
- Northrop Grumman Corporation – Bethpage, New York
- Lockheed Martin – Orlando, Florida

### Activity

- DOT&E approved the F/A-18E/F SCS H14 Test and Evaluation Master Plan on February 1, 2019. The Navy operationally tested SCS H14 throughout 2019 in accordance with the DOT&E-approved test plan.
- During March, April, and August detachments, the Navy simultaneously operationally tested H14, E-2D DSSC-3, IRST AV6+, LRASM, and NIFC.

# FY19 NAVY PROGRAMS

- During February and March 2019, the Navy completed a DOT&E-approved IRST AV6+ early fielding test.
- The Navy released SCS H14 to the F/A-18E/F and EA-18G fleets in 2019.
- The Navy fielded a small number of IRST Block I Low-Rate Initial Production II AV6+ systems in 2019.
- The Navy has not yet conducted comprehensive SCS H14 cybersecurity testing.

## Assessment

- As testing is still ongoing, DOT&E will include a full analysis and assessment of SCS H14 in the classified operational test report in 2QFY20. However, DOT&E notes the following:
  - Operational performance of NIFC capabilities in SCS H14 improved over previous SCS versions as validated by successful end-to-end live fire testing.
  - H14 increased operational performance of the AESA radar over previous SCS versions. AESA reliability has continued to improve since the 2006 IOT&E.

- The IRST Block I AV6+ test demonstrated improvement over the baseline IRST Block I. The IRST Block I AV6+ crew vehicle interface improved over baseline IRST Block I. Testing in preparation for early fielding of a small number of pods has informed the operational test plan for IRST Block II.
- The Navy has yet to accomplish an end-to-end multiple AIM-120 missile test that successfully demonstrates the AESA can support this required capability.

## Recommendations

The Navy should:

1. Conduct the end-to-end testing employing multiple AIM-120 missiles.
2. Conduct a comprehensive SCS H14 cybersecurity operational test.