

E-2D Advanced Hawkeye



In FY22, the Navy conducted integrated testing (IT) on E-2D Delta System Software Configuration Build 4 (DSSC-4). DSSC-4 improves the Hawkeye’s command and control capability and is the fourth in a series of biennial hardware and software upgrades to the E-2D. The Navy intends to begin operational testing of DSSC-4 in 1QFY23 to support a planned fleet release in 3QFY23.

SYSTEM DESCRIPTION

The E-2D Advanced Hawkeye is a carrier-based, airborne, early warning, and command and control platform. Its sensor and

communication systems are designed to detect, track, and identify air and surface targets in blue-water, littoral, and overland environments. The following subsystems and capabilities enable the Advanced Hawkeye to perform its mission:

- The AN/APY-9 phased array radar that combines mechanical and electronic scan modes
- Tactical Targeting Network Technology data link
- Multi-Functional Information Distribution System

- Cooperative Engagement Capability
- Satellite communications
- Electronic Support Measures
- Electronic Protection
- Aerial refueling

The E-2D Advanced Hawkeye system also includes all simulators, interactive computer media, and documentation to conduct maintenance, as well as aircrew initial and follow-on training.

MISSION

The E-2D Advanced Hawkeye provides all-weather airborne early warning, airborne battle management, and command and control functions, and supports Navy Integrated Fire Control and theater air and missile defense missions for the Carrier Strike Group and Joint Force Commander. Additional missions include surface surveillance coordination, air interdiction, offensive and defensive counter air control, close air support coordination, time-critical strike coordination, search and rescue coordination, and communications relay.

PROGRAM

The E-2D is an Acquisition Category IC program that is in its fourth FOT&E period (OT-D4). DSSC-4 improves beyond line-of-sight communications and sensor integration and

incorporates tactical targeting networking technology. During OT-D4, the Navy intends to assess DSSC-4 upgrades and Hawkeye Integrated Training Systems. DSSC-4 serves as the baseline integration of capabilities that will be fully delivered in DSSC-5 and later upgrades.

In February 2022, DOT&E approved the DSSC-4 and DSSC-5 Test and Evaluation Master Plan and the Navy's data collection plan for DSSC-4 IT. The Navy is finishing development of the DSSC-4 operational test plan and an operational test readiness review is scheduled for early 1QFY23. The evaluation of DSSC-4 will occur through a cumulative collection of integrated and operational test data. IT began in 2QFY22, and operational testing is scheduled to begin in 1QFY23. The evaluation will inform an FY23 deployment decision and determine fielding risks and delivered capabilities for DSSC-4. DSSC-5 is scheduled to begin OT in FY25.

Since the last Annual Report on E-2D, DSSC-3.1 was incorporated into the Advanced Hawkeye. DSSC-3.1 is a minor upgrade that involves the E-2D's Multi-Functional Information Distribution System Joint Tactical Radio System Concurrent Multiple Netting 4 terminal and other navigation and communications systems.

» MAJOR CONTRACTOR

- Northrop Grumman Aerospace Systems – Melbourne, Florida

TEST ADEQUACY

The major IT events executed in FY22 were conducted in accordance with the DOT&E approved data collection plan at White Sands Missile Test Range in May and at Exercise Gray Flag at Point Mugu, California in August. The scenarios at Gray Flag were robust, operationally representative Large Force Exercises involving IT and OT across the joint force and were observed by DOT&E. Data from these events are still being analyzed. An assessment of OT-D4 test adequacy is pending the Navy's completion of the operational test plan.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

Not enough data are yet available to evaluate DSSC-4's operational effectiveness, suitability, and cyber survivability. DOT&E will provide an assessment after operational testing is complete in FY23.

During DSSC-4 IT, shortfalls in aircraft availability and systems reliability have challenged collecting adequate data which contributed to a short delay in beginning DSSC-4 OT. While recent fleet data has demonstrated gradual improvements in reliability, availability, and logistic supportability, improvements in these areas are still warranted.

Developmental testing of DSSC-3.1 (with operational test assistance) was completed in July 2021. The Navy's Operational Test and Evaluation Force completed an assessment of operational capability identifying several deficiencies, the results of which were released in a classified report on March 14, 2022.

RECOMMENDATIONS

The Navy should:

1. Submit an OT-D4 test plan for DOT&E approval that details an adequate test strategy and sufficient test resources to assess the operational effectiveness, suitability, and cyber survivability of DSSC-4.
2. Continue to improve E-2D reliability, availability, and logistic supportability.
3. Continue to correct the deficiencies identified in the classified OPTEVFOR DSSC-3.1 report.