

MQ-4C Triton Unmanned Aircraft System

Executive Summary

- The Navy concluded an operational assessment (OA) in June 2019. The test supported the early fielding decision for the MQ-4C Triton Unmanned Aircraft System (UAS).
- Poor reliability, system immaturity, and weather prevented the Navy from completing the test in accordance with the DOT&E-approved test plan.
- Sensor performance was consistent with that demonstrated during the FY16 OA.

System

- The MQ-4C Triton UAS is an intelligence, surveillance, and reconnaissance (ISR) unmanned aircraft system consisting of the high-altitude, long-endurance MQ-4C air vehicle; sensor payloads; and supporting ground control stations.
- The MQ-4C system is a part of the Navy Maritime Patrol and Reconnaissance family of systems. It will provide ISR on maritime and land targets over wide areas of the ocean and littorals.
- The MQ-4C air vehicle design is based on the Air Force RQ-4B Global Hawk air vehicle with modifications that include strengthened wing structures and provisions for a de-ice system.
- The baseline configuration includes a maritime surveillance radar to detect, classify, and track surface targets; an electro-optical/infrared full motion video sensor; electronic support measures to detect, identify, and geolocate threat radars; and an Automatic Identification System (AIS) receiver to collect AIS broadcasts from cooperative maritime vessels.
- The Initial Operational Capability (IOC) configuration will provide a signals intelligence capability, and includes sensors, supporting software and hardware, and an architecture to process Top Secret and Sensitive Compartmented Information. The Navy intends for the MQ-4C IOC configuration to replace the EP-3 Aries II aircraft.
- Onboard line-of-sight and beyond line-of-sight communications systems provide air vehicle command and control and transmit sensor data from the air vehicle to ground



control stations for dissemination to fleet tactical operation centers and intelligence exploitation sites.

- Future system upgrades planned after IOC include an air traffic collision avoidance radar system.
- Traffic de-confliction and collision avoidance (Due Regard capability) provides critical mission capability for operation of the MQ-4C in civil and international airspace in support of global naval operations.

Mission

Commanders employ units equipped with MQ-4C to conduct a wide range of maritime missions to include surface warfare, intelligence operations, strike warfare, maritime interdiction, amphibious warfare, homeland defense, and search and rescue. MQ-4C operators provide persistent maritime surveillance to detect, classify, identify, track, and assess maritime and littoral targets of interest and collect imagery and signals intelligence information.

Major Contractor

Northrop Grumman Aerospace Systems, Battle Management and Engagement Systems Division – Rancho Bernardo, California

Activity

- The Navy concluded an OA of the baseline configuration in June 2019. The test was executed to support an early fielding decision of the Triton UAS.
- Poor reliability, system immaturity, and weather prevented the Navy from completing the test in accordance with the DOT&E-approved test plan. Between July 2018 and May 2019, the Navy launched five test flights, accruing 58.6 flight hours. The planned test was nine flights totaling

192 flight hours over 3 weeks. DOT&E published a classified OA report in December 2019.

- The Navy intends to deploy two MQ-4C aircraft in the baseline configuration to Andersen Air Force Base, Guam, in FY20, establishing an Early Operational Capability (EOC).
- The Navy has a Due Regard Alternative Means of Compliance (DRAMOC) for the EOC, which will alleviate, but not

FY19 NAVY PROGRAMS

eliminate, constraints on free navigation in the EOC area of operations.

- The Navy intends to conduct integrated testing of the MQ-4C IOC configuration in FY20.

Assessment

- Suitability deficiencies related to reliability, documentation, training, and human-system interfaces interfered with the execution of the OA. These deficiencies also contributed to the loss of aircraft #168461 in a gear-up landing on a test flight on September 12, 2018. Reliability and maintainability problems and logistics delays will likely continue to degrade system availability during the EOC.
- Sensor performance was consistent with that demonstrated during the FY16 OA, which supported the Milestone C decision. The capability to disseminate maritime surface track data via Link 16 or the Global Command and Control System – Maritime was unavailable during the FY19 OA.

The program updated the system software in September 2019 to improve the capability to disseminate track data to fleet users in near real-time. The DOT&E classified OA report of December 2019 provides specific information on system performance.

- The DRAMOC is necessary because without its employment of the MQ-4C will be tightly constrained until delivery of the air traffic collision avoidance radar system estimated for FY24.

Recommendations

The Navy should:

1. Resolve deficiencies documented in the November 2019 OA report prior to the IOT&E, especially those regarding reliability, maintainability, documentation, training, and human-system interfaces.
2. Complete development, testing, and fielding of capabilities allowing MQ-4C crews to effectively disseminate intelligence data and products to fleet users.