

MQ-4C Triton Unmanned Aircraft System

Executive Summary

The Navy updated and DOT&E approved the MQ-4C Triton Unmanned Aircraft System (UAS) Test and Evaluation Master Plan (TEMP) in January 2017 following instruction given in the August 2016 Milestone C Acquisition Decision Memorandum. The update reflects the realignment of the program's Acquisition Strategy with the development and fielding of the Multiple Intelligence (Multi-INT) configuration.

System

- The MQ-4C Triton is an intelligence, surveillance, and reconnaissance (ISR) UAS 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 with capabilities designed to complement the P-8A Poseidon Multi-mission Maritime Patrol aircraft. It will provide ISR data on maritime and land targets over wide areas of the open ocean and littorals.
- The MQ-4C air vehicle design is based on the Air Force RQ-4B Global Hawk air vehicle with significant modifications that include strengthened wing structures and an anti-ice and de-icing system.
- The Navy intends to establish an Early Operational Capability with the baseline configuration. Mission systems include a maritime surveillance radar to detect, classify, and track surface targets; an electro-optical/infrared (EO/IR) 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 Multi-INT configuration will support Initial Operational Capability (IOC). The Multi-INT configuration provides a signals intelligence capability, and includes sensors, supporting software and hardware, and changes to permit processing of Top Secret and Sensitive Compartmented Information. The Navy intends for the MQ-4C Multi-INT configuration to replace the EP-3 Aries II aircraft for most missions.
- 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 for after IOC include an air traffic collision avoidance radar system.

Mission

- Commanders employ units equipped with MQ-4C to conduct long-endurance maritime surveillance operations and provide high- and medium-altitude intelligence collection.
 - MQ-4C operators will detect, classify, identify, track, and assess maritime and littoral targets of interest and collect imagery and signals intelligence information.
 - Operators disseminate sensor data to fleet units to support a wide range of maritime missions to include surface warfare, intelligence operations, strike warfare, maritime interdiction, amphibious warfare, homeland defense, and search and rescue.

Major Contractor

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

Activity

- The Navy updated and DOT&E approved the MQ-4C TEMP in January 2017 following instruction given in the August 2016 Milestone C Acquisition Decision Memorandum. The update reflects the realignment of the program's Acquisition Strategy with the development and fielding of the Multi-INT configuration. As part of the realignment, the program has moved IOT&E from 4QFY17 to 2QFY21.
- The Navy plans to conduct an operational assessment (OA) of the MQ-4C Multi-INT configuration in 3QFY20 to support a Multi-INT Early Operational Capability in 4QFY20.

FY17 NAVY PROGRAMS

- The Navy plans to conduct an OA of the baseline configuration in FY18 to support early fielding of two MQ-4C aircraft in FY18.

Assessment

- In general, the system demonstrated positive trends for sensor performance and reliability during the FY16 OA supporting the Milestone C decision. However, the OA revealed deficiencies in the following areas: lack of Due Regard capability (capability to independently maintain prescribed minimum separation distances); poor EO/IR sensor control; poor Electronic Support Measures Interface; and difficulty managing the temperature of the radar. DOT&E's classified OA report, dated May 2016, provides specific information on these and other aspects of the assessment.
- The Due Regard capability provides critical mission capability for operation of the MQ-4C in civil and international airspace in support of global naval operations. Any limitation to this capability at IOT&E will reduce the effectiveness of the MQ-4C.

Recommendations

- Status of Previous Recommendations. The Navy still needs to address the following recommendations:
 1. Demonstrate any alternative means of compliance with the Due Regard requirement prior to IOT&E and conduct a Cooperative Vulnerability and Penetration Assessment (CVPA) sufficiently in advance of the Adversarial Assessment (AA) to allow the program to correct any discovered cybersecurity vulnerabilities.
 2. Conduct both the CVPA and AA prior to any early fielding of the MQ-4C.
 3. Resolve deficiencies documented in the DOT&E OA report prior to IOT&E, especially in the following areas: Due Regard capability; EO/IR sensor control; Electronic Support Measures Interface; and temperature management of the radar.
- FY17 Recommendations. None.