

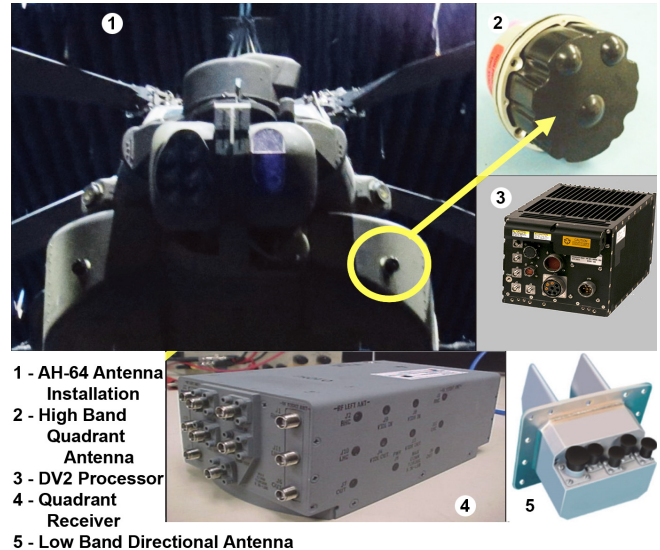
AN/APR-39D(V)2 Radar Signal Detection Set (RSDS)

Executive Summary

- The Army's operational assessment (OA) and FOT&E test results indicate that the Army has resolved the deficiencies from the legacy AN/APR-39 family (A(V)1, A(V)4, and C(V)1) of Radar Warning Receivers (RWRs) on the AH-64 by using the AN/APR-39D(V)2 Radar Signal Detection Set (RSDS).
- Test results show the AN/APR-39D(V)2 as installed on the Army's AH 64D/E platform has an initial Mean Time Between Operational Mission Failures (MTBOMF) of 22.2 hours during the OA and 18.4 hours during the FOT&E. Both are well below the mission-based requirement of 81 hours.

System

- The AN/APR-39D(V)2 is a digital upgrade to the AN/APR-39 family of analog RWRs used by nearly all DOD rotorcraft.
- The AN/APR-39D(V)2 RSDS consists of the following:
 - Four new dual-polarized E- through M-band (high band) antennas, and a C- through D-band (low band) direction of arrival antenna.
 - New quadrant receivers (two to four per aircraft). Each receiver has two channels that can accept signals from two E- through M-band antennas.
 - A new radar data processor with two wideband digital receivers.
 - A crystal video receiver processor and a Quad Core i7-based processor.
- The system uses either a separate display unit or integrates with the onboard aircraft displays to visually and aurally alert the pilots to active threat radars.
- For Navy aircraft, the system also acts as the electronic warfare bus controller.



- The lead Army aircraft is the AH-64 D/E and the lead Navy aircraft is the MV-22B.

Mission

Commanders employ units equipped with the AN/APR-39D(V)2 RSDS to improve the mission survivability of Navy and Army aircraft by identifying radio frequency signals from threat surface-to-air missiles, airborne interceptors, and anti-aircraft artillery through cockpit alerts.

Major Contractor

Northrop Grumman – Rolling Meadows, Illinois

Activity

- The Army completed a developmental test period (DT-2) at the Electronic Combat Range (ECR), China Lake, California, in October 2016.
- The Army completed an OA at the ECR in November 2016.
- The Navy completed three Risk Reduction Data Collection flights on the KC-130T at the ECR in November 2016.
- DOT&E approved the Navy's Test and Evaluation Master Plan (TEMP), which included Army test activities and resources, in February 2017.
- The Navy completed a developmental test of cybersecurity from March 14-16, 2017, at the Electronic Combat Simulation and Evaluation Laboratory (ECSEL) at Point Mugu, California.
- The Army completed FOT&E at the ECR in July 2017. However, cybersecurity testing and the maintenance

demonstration were not attempted and will not begin until 2QFY18.

- All testing was completed in accordance with a DOT&E-approved test plan.
- An FOT&E report will be released after completion of the maintenance demonstration and cybersecurity testing.
- The Army has planned a fielding decision in 4QFY18.

Assessment

- The Army demonstrated in laboratory and open-air testing that the AN/APR-39D(V)2, as installed on the AH-64 (D/E) aircraft, resolved all the Army's legacy APR-39 deficiencies.
- By combining the Army's DT-2 and OA suitability data, the Army demonstrated an MTBOMF of 22.2 hours for the AH-64D/E. Preliminary results show the MTBOMF

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during the FOT&E was 18.4 hours. Both are well below the mission-based derived requirement of 81 hours for the AH 64E.

Recommendations

- Status of Previous Recommendations. The Army and Navy satisfactorily addressed three of the four FY16 recommendations. They still need to plan and fly additional KC-130T and AH-64 flights to accumulate more operational flight hours to better determine system reliability.
- FY17 Recommendation.
 1. The Army and Navy should plan and fly additional KC-130T and AH-64 flights to accumulate more operational flight hours to better determine system reliability.