

ALR-69A Radar Warning Receiver (RWR)

Executive Summary

- The Air Force program office continues to update ALR-69A Radar Warning Receiver software to improve operation in dense and dynamic flight test environments; however, system maturity is still less than expected and the system is not currently ready for IOT&E.
- In April 2010, based upon poor program progress through developmental test, the Air Force directed a pause of ALR-69A developmental test to evaluate the program's overall status and progress toward IOT&E.
- Government flights in late FY09 and FY10 revealed several limitations and deficiencies in the radar warning receiver system. The program's decision to pause developmental tests provides an opportunity to re-assess the program's overall performance and construct a realistic schedule for conducting the remainder of the program, including IOT&E.

System

- The ALR-69A is a Radar Warning Receiver (RWR) that detects, identifies, and locates threat electronic signals.
- The Core ALR-69A RWR is designed to improve performance over the Air Force's primary RWR system, the ALR-69, by enhancing:
 - Detection range and time
 - Accuracy of threat identification
 - Location of threat emitter systems
 - Performance in a dense signal environment
 - Reliability and maintainability
- The system integrates with transport and fighter aircraft. The lead platform is the C-130H, with other platforms possibly to be added at a later date.
- Core ALR-69A RWR components include:
 - Radar Receivers (previously the digital quadrant receivers)
 - Modular Countermeasures Signal Processor (previously the countermeasures computer)



Digital Radar Warning Receiver Replaces Legacy Systems with Modern Wideband Digital Receiver Technology

1 - Legacy ALR-69 Components 2 - Primary ALR-69 Components 3 - Radar Receiver 4 - Countermeasure Signal Processor

- Control indicator
- Azimuth indicator

Mission

- Combatant Commanders will use ALR-69A to enhance the survivability of transport, fighter, and Special Operations aircraft on missions that penetrate hostile areas.
- Commanders use the ALR-69A to provide aircraft self-protection by warning pilots of radar threats, supporting threat avoidance, and/or permitting timely use of defensive countermeasures.

Major Contractor

Raytheon, Space and Airborne Systems – Goleta, California

Activity

- During April 2010 the Air Force conducted several developmental test missions at Eglin AFB, Florida, China Lake, California, and Naval Air Station (NAS) Fallon, Nevada, to evaluate the performance of new ALR-69A software.
- In April 2010, based upon poor program progress through developmental testing, the Air Force directed that developmental testing be paused to evaluate the program's overall status and readiness for IOT&E.
- As part of the pause period, the Air Force program office is performing a root cause analysis effort to identify the source of repeated discrepancies and address system problems.
- The Air Force program office is updating the ALR-69A Test and Evaluation Master Plan to reflect reorganization of the program following substantial delays.
- In August 2010, Raytheon conducted contractor tests at the Integrated Demonstrations and Applications Laboratory at Wright-Patterson AFB, Ohio, in order to further evaluate software updates.
- The Air Force will continue developmental and operational testing, with IOT&E tentatively rescheduled for October 2011 and a full-rate production decision planned for 2012.

AIR FORCE PROGRAMS

Assessment

- Government flights in late FY09 and FY10 revealed several limitations and deficiencies in the RWR system. The program's decision in April 2010 to pause developmental tests provides an opportunity to re-assess the program's overall performance and construct a realistic schedule for completing development.
- The ALR-69A continues to update software to improve operation in dense and dynamic flight test environments; however, system maturity is still less than expected and the program is not ready for IOT&E at this time.

Recommendations

- Status of Previous Recommendations. No recommendations were made in FY09.
- FY10 Recommendations.
 1. The Air Force should review the program's progress and correct shortfalls identified in deficiency reports and flight testing.