

Large Aircraft Infrared Countermeasures (LAIRCM)

Executive Summary

- The Large Aircraft Infrared Countermeasures (LAIRCM) Phase II system is operationally effective, but is not suitable as tested. DOT&E's evaluation will be provided in a classified Beyond Low-Rate Initial Production report transmitted in 2012. Automatic LAIRCM Phase II system resets occurred during IOT&E that significantly reduced the system's reliability.
- DOT&E approved the LAIRCM Phase II IOT&E test plan in March 2011, and Air Force Operational Test and Evaluation Center (AFOTEC) conducted the IOT&E in 3QFY11. The Air Force conducted LAIRCM testing in accordance with the DOT&E-approved Test and Evaluation Master Plan (TEMP) and test plans.
- The LAIRCM Reliability Integrated Product Team (R-IPT) has made significant progress obtaining and evaluating reliability and maintainability data from all LAIRCM platforms worldwide. The R-IPT produces detailed monthly reliability, maintainability, and failure rate metrics in order to guide funding for product upgrades.

System

- The LAIRCM system is a defensive system for large transport and rotary-wing aircraft that combines a Missile Warning System (MWS) and infrared laser jammer countermeasure system to protect the aircraft from infrared guided threat missiles.
- LAIRCM Phase I was fielded in 2005.
 - Key components include the AAR-54 ultraviolet MWS, countermeasures processor, and Small Laser Transmitter Assembly (SLTA) infrared laser jammer.
 - Platforms with LAIRCM Phase I include C-5, C-17, C-37, C-40, C-130H, MC-130W, and CV-22.
- LAIRCM Phase II is a spiral upgrade designed to provide higher performance warning and better false alarm rejection compared to the Phase I MWS and improved reliability in the jammer subsystem. The Phase II hardware is identical to the system procured for the Marine Corps by the Department of Navy LAIRCM program.



- The new two-color infrared MWS is called the NexGen MWS.
- The new jammer is the Guardian Laser Turret Assembly (GLTA).
 - The GLTA has already been installed and integration testing has been completed on the C-17, C-40, AC-130H, and C-5 aircraft.
 - Platforms such as the C-5, C-17, and C-130 aircraft have already upgraded to the GLTA. The Air Force plans to integrate LAIRCM on KC-46 aircraft and the Navy plans to integrate LAIRCM on P-8 aircraft.

Mission

Combatant commanders use LAIRCM to provide automatic protection for large transport or rotary-wing aircraft against shoulder-fired, vehicle-launched, and other infrared-guided missiles. Commanders will use such protection during normal take-off and landing, assault landings, tactical descents, air drops, low-level flight, and aerial refueling.

Major Contractor

Northrop Grumman, Electronic Systems, Defensive Systems Division – Rolling Meadows, Illinois

Activity

- The Air Force completed the developmental testing of LAIRCM Phase II on the C-17 in 1QFY11 at Edwards AFB, California.
- DOT&E approved the LAIRCM Phase II IOT&E test plan in March 2011, and AFOTEC conducted the IOT&E in 3QFY11 using the High-Speed Sled Track and the Joint Mobile Infrared Countermeasure Testing System (JMITS) at

Holloman AFB, New Mexico, and the Towed Airborne Plume Simulator (TAPS) at Pensacola Naval Air Station, Florida. In support of the IOT&E, AFOTEC conducted modeling and simulation activities at Eglin AFB, Florida, and at a contractor facility in Dayton, Ohio. AFOTEC conducted a Maintenance Demonstration evaluation at Charleston AFB, South Carolina.

AIR FORCE PROGRAMS

- The LAIRCM R-IPT continues to assimilate detailed data on the reliability and maintainability of the LAIRCM system.
- The Air Force is engineering several hardware and software changes and upgrades designed to improve the LAIRCM Phase I and II systems. These changes include software block-cycle upgrades, the Control Indicator Unit Replacement program, and the LAIRCM System Processor Replacement program.
- The Air Force conducted LAIRCM testing in accordance with the DOT&E-approved TEMP and test plans.
- The LAIRCM Program Office updated the January 2007 DOT&E-approved TEMP to reflect the program's revised Acquisition Strategy.

Assessment

- The LAIRCM Phase II system is operationally effective, but not suitable as tested. Automatic LAIRCM Phase II system resets occurred during IOT&E that significantly reduced the system's reliability.

- The LAIRCM R-IPT has made significant progress in assimilating reliability and maintainability data from all LAIRCM platforms worldwide. The R-IPT produces detailed monthly reliability, maintainability, and failure rate metrics in order to guide funding for product upgrades.

Recommendations

- Status of Previous Recommendations. The Air Force has addressed all previous recommendations.
- FY11 Recommendations.
 1. The Air Force should determine the root cause for the automatic LAIRCM Phase II system resets that occurred during IOT&E, and develop and verify a solution. This will significantly improve system reliability.
 2. Additional recommendations are provided in the classified DOT&E 2012 LAIRCM Phase II Beyond Low-Rate Initial Production report.