

## Large Aircraft Infrared Countermeasures (LAIRCM)

### Executive Summary

- The Large Aircraft Infrared Countermeasures (LAIRCM) Phase I system is fielded and is operationally effective and suitable and enhances aircraft survivability.
- The new Air Force Acquisition Strategy for the Guardian Laser Turret Assembly (GLTA) eliminated the Air Force's milestone decisions for the GLTA upgrade, allowing entry into full production without milestone decision points.
- The revised Air Force acquisition strategy will exceed 20 percent of the total planned procurement quantities before the Air Force conducts the LAIRCM Phase II IOT&E in 4QFY10. This strategy accepts risk in reliability, availability, and maintainability since these have not been proven with the current design.
- DOT&E concurs with the Air Force Operational Test and Evaluation Center's (AFOTEC) Operational Assessment (OA) report that the Next Generation Missile Warning System (NexGen MWS) demonstrated capabilities are adequate to support making a low-rate initial production (LRIP) decision.

### 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 systems.

- LAIRCM Phase I is fielded.
  - 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 compared to the Phase I MWS and improved reliability in the jammer subsystem.
  - The new two-color infrared MWS is called the NexGen MWS.



- The new jammer is the 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.
- The Air Force plans to integrate the GLTA on AC-130U, MC-130H, EC-130J, CV-22, and C-130J 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.

### Prime Contractor

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

### Activity

#### LAIRCM Phase I

- The Air Force fielded LAIRCM Phase I in FY05; no significant testing of the Phase I system with the SLTA took place in FY09.

#### LAIRCM Phase II

- LAIRCM Phase II has completed the System Development and Demonstration phase.
- The Air Force selected Northrop Grumman to provide the NexGen two-color infrared MWS and awarded a LRIP contract in 1QFY09.

- The Air Force completed additional integration testing of LAIRCM Phase II on the C-40 in April 2009 to verify correction of previously found deficiencies.
- The Air Force is planning to complete the developmental testing of LAIRCM Phase II on the C-17 in 1QFY10.
- AFOTEC is planning to conduct the IOT&E of LAIRCM Phase II in 4QFY10.
- The Air Force also completed flight testing of the new block-cycle update Operational Flight Program 14 software to

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be used by all platforms with either the Phase I or the Phase II system.

- The LAIRCM Program Office is implementing several hardware and software changes designed to improve the reliability of the laser and both the SLTA and GLTA. These changes are intended to support the current operational tempo of transport aircraft with LAIRCM and to reduce depot maintenance demands.
- The new Air Force Acquisition Strategy for GLTA eliminated the Air Force's milestone decisions for the GLTA upgrade, allowing entry into full production without milestone decision points.
- The Air Force conducted LAIRCM developmental and integration testing in FY09 in accordance with the current DOT&E-approved TEMP.

## Assessment

### LAIRCM Phase I

- The LAIRCM Phase I system is fielded, is in full-rate production, and, as stated in DOT&E's FY05 report to Congress, is operationally effective and suitable.

### LAIRCM Phase II

- DOT&E concurs with the AFOTEC OA report that the NexGen MWS demonstrated capabilities are adequate to support making a LRIP decision.
- The LAIRCM Reliability Integrated Product Team (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.

- The revised Air Force acquisition strategy will exceed 20 percent of the total planned procurement quantities before the Air Force conducts the LAIRCM Phase II IOT&E in 4QFY10. This strategy accepts risk in reliability, availability, and maintainability since these have not been proven with the current design. In order to mitigate this risk, the program will provision for a Reliability Improvement Program and document the details of the reliability plan in a Test and Evaluation Master Plan (TEMP) update.
- The LAIRCM Program Office has not updated the January 2007 DOT&E-approved TEMP to reflect the program's revised Acquisition Strategy.

## Recommendations

- Status of Previous Recommendations. The Air Force addressed one of the three previous recommendations.
- FY09 Recommendation.
  1. The Air Force should provide a revised TEMP that incorporates changes to the LAIRCM Acquisition Strategy, details a Reliability Improvement Program, and defines the effectiveness and suitability testing to support the 4QFY10 LAIRCM Phase II IOT&E.