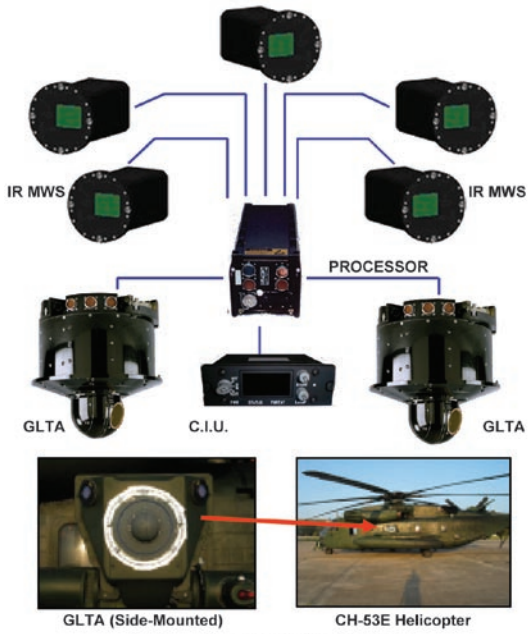
Department of the Navy Large Aircraft Infrared Countermeasures (DoN LAIRCM)

Executive Summary

- The Department of the Navy's Large Aircraft Infrared Countermeasure (DoN LAIRCM) system is a directional, laser-based self-protection system.
- The Navy fielded DoN LAIRCM as an Early Operational Capability in January 2009 on the Marine Corps CH-53E aircraft that had deployed to support Operation Iraqi Freedom/ Operation Enduring Freedom (OIF/OEF). The fielding decision was based on developmental testing and a Quick Reaction Assessment conducted by Commander, Operational Test and Evaluation Force (COTF) from April to August 2008.
- The DoN LAIRCM system is a derivative of the latest variant of the Air Force's Large Infrared Countermeasures (LAIRCM) system. The DoN LAIRCM system incorporates new infrared missile warning sensors and an upgraded laser jammer (the Guardian Laser Transmitter Assembly (GLTA)) compared to the ultraviolet warning sensors and the small laser transmitter assembly used in earlier versions of LAIRCM.
- COTF conducted an IOT&E of DoN LAIRCM on the CH-53E aircraft from March to June 2009 to support both a Milestone C and a full-rate production (FRP) decision planned for 2QFY10. The COTF IOT&E report was released in mid-November 2009. The report concluded the DoN LAIRCM system installed on the CH-53E aircraft is operationally effective and suitable. DOT&E concurs with COTF's assessment.
- The Navy has fielded one CH-53E squadron with an EOC deployed to U.S. Central Command. Subsequent to the verification of correction of deficiencies found in the CH-53E IOT&E, the rest of the CH-53E fleet will be fielded. The Marine Corps' CH-46E and CH-53D aircraft will be fielded with DoN LAIRCM after completion of FOT&E, which is scheduled for the 2QFY10.

System

- The DoN LAIRCM system, a spin-off of the Air Force LAIRCM system, is a defensive system for Marine Corps' helicopters designed to defend against surface-to-air infrared missile threats. It combines the derivative AAR-54 two-color infrared Missile Warning Sensor (MWS) with the GLTA. The GLTA is equipped with a four-axis, stabilized gimbal system, an AN/AAR-24 Fine Track Sensor, and a Viper™ laser. The MWS detects an oncoming missile threat and sends the information to the system processor which, in turn, notifies the crew through the control interface unit and at the same time directs the GLTA to slew to and begin jamming the threat.
- The Navy plans to procure 156 systems, and installation is scheduled on the CH-53E, CH-46E, and CH53D platforms in that order.



C.I.U. - Control Interface Unit
GLTA - Guardian Laser Turret Assembly
MWS - Missile Warning System
IR - Infrared

Mission

Combatant Commanders will use DoN LAIRCM to provide automatic protection of 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 landing, tactical descents, re-supply, rescue, forward arming and refueling, low-level flight, and aerial refueling.

Prime Contractor

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

Activity

- COTF conducted IOT&E on the CH-53E aircraft at the Naval Air Warfare Center, China Lake, California, during March and April 2009, including a formal Maintenance Demonstration, with data analysis being completed June 2009. The IOT&E was accomplished to support both Milestone C and FRP decisions scheduled for 2QFY10. The COTF report was released in mid-November 2009. The report concluded the DoN LAIRCM system installed on the CH-53E aircraft is operationally effective and suitable.
- Developmental testing was accomplished on the CH-46E at Edwards AFB, California, during July and August 2009. The FOT&E for the CH-46E aircraft is planned for 2QFY10.
- Developmental testing on the CH-53D is scheduled for 2QFY10. The FOT&E for the CH-53D aircraft is tentatively planned for 2QFY10.

Assessment

- DOT&E concurs with COTF's assessment that the DoN LAIRCM system installed on CH-53E aircraft is operationally effective and suitable.
- Field data from OIF/OEF is being sent to the operational test team in order to obtain a more robust assessment of reliability. These data show that the DoN LAIRCM system on the CH-53E aircraft is approaching its reliability requirement of 130 hours between mission affecting failures.
- The effectiveness and suitability of the DoN LAIRCM on CH-46E and CH-53D aircraft will be evaluated during the integration tests and FOT&E planned for 2QFY10.

Recommendations

- Status of Previous Recommendations. The Navy and Marine Corps are addressing all of the previous recommendations.
- FY09 Recommendations. The Navy/Marine Corps should:
  1. Ensure deficiencies found in IOT&E are corrected and the updated software is tested on the CH 53E, CH-46E, and the CH-53D aircraft.
  2. Continue with the integration of the DoN LAIRCM system on the CH-46E and the CH-53D aircraft and conduct a comprehensive FOT&E prior to fielding.
  3. Continue to obtain operational data from OIF/OEF.
  4. Conduct live fire missile testing to ensure effectiveness of DoN LAIRCM with the latest software upgrades.