

Army Integration of the Department of the Navy (DON) Large Aircraft Infrared Countermeasure (LAIRCM) Advanced Threat Warner (ATW) on the AH-64E

Executive Summary

- The Army is integrating the Department of the Navy (DON) Large Aircraft Infrared Countermeasure (LAIRCM) with the Advanced Threat Warner (ATW) on the AH-64E, CH-47F, HH/UH-60M, and UH-60L in response to a U.S. Special Operations Command (USSOCOM) Joint Urgent Operational Need.
- DON LAIRCM is effective as integrated on the AH-64E and has a suitable pilot-vehicle interface.
- Multiple failures in DON LAIRCM ATW sensors have occurred in theater with Formal Release 2.5 software. Although Northrop Grumman identified the problem and the Army put a pilot procedural workaround in place, the potential still exists for aircrew to fly with a failed sensor since system indication of sensor failures is visual only.
- The Army halted integration on the HH/UH-60 variants and CH-47F platforms due to design flaws in the sensor placement and mount systems. A redesign is required.

System

- The DON LAIRCM system, a variant of the Air Force LAIRCM system, is a defensive system for aircraft, which is designed to defend against surface-to-air infrared missile threats.
- The system combines two-color infrared missile warning sensors with the Guardian Laser Transmitter Assembly (GLTA). The missile warning sensor detects an incoming missile threat and sends the information to the processor which then notifies the aircrew through the control interface unit and simultaneously directs the GLTA to slew to and jam the threat with laser energy.
- The ATW capability upgrades the processor and missile warning sensors to provide improved missile detection, and adds hostile fire and laser warning capability with visual/audio alerts to the pilots.

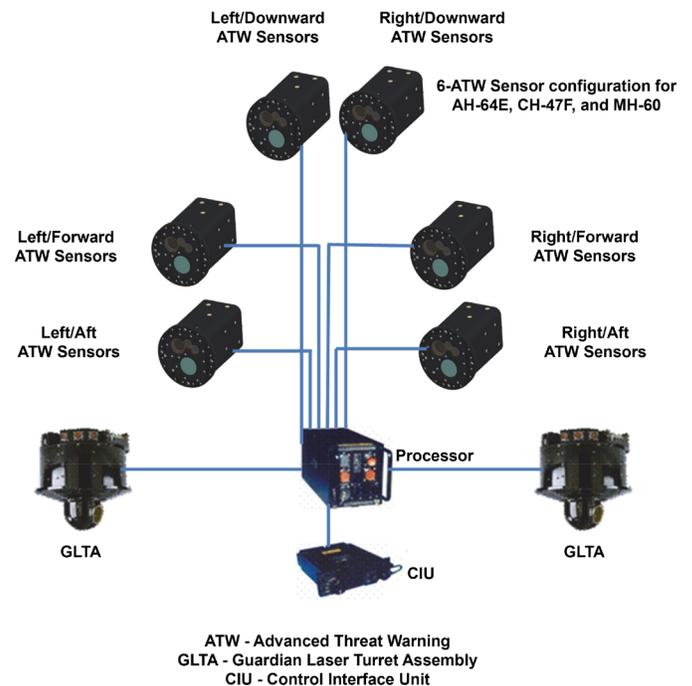
Mission

- Commanders employ Army rotorcraft equipped with DON LAIRCM ATW to conduct medium and heavy lift logistical

Activity

AH-64E

- The Army tested DON LAIRCM ATW on the AH-64E from August 25 to October 13, 2016, at Eglin AFB, Florida; Houston, Texas; and Huntsville, Alabama.



support, medical evacuation, search-and-rescue, armed escort, and attack operations.

- During Army missions, DON LAIRCM ATW is intended to provide automatic protection for rotary-wing aircraft against shoulder-fired, vehicle-launched, and other infrared missiles.

Major Contractor

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

- The Army conducted all flight testing in accordance with the DOT&E-approved test plan.

FY17 ARMY PROGRAMS

- DOT&E published a classified report on the AH-64E integration of DON LAIRCM ATW in January 2017.
- In March 2017, the Army fielded the system with Formal Release 1.0 software on the AH-64E.
- The Army subsequently fielded Formal Release 2.5 software on AH-64E aircraft in theater to enhance system performance.

UH-60L/M and CH-47F

- The Army began airworthiness and safety flights on the UH-60M with DON LAIRCM.
- CH-47F flight testing began in July 2017. This testing was halted because of poor system performance.

Assessment

AH-64E

- DON LAIRCM is effective as integrated on the AH-64E. The Army did not collect reliability data during AH-64E integration testing; however, pilot survey responses showed that the system was suitable for use.
- The Army incorporated an in-theater pilot procedural workaround for DON LAIRCM ATW sensor failures. This procedural workaround creates the possibility of flying with a failed sensor because system indication of sensor failures is visual only and insufficient.
- Multiple failures in DON LAIRCM ATW sensors have occurred in theater with Formal Release 2.5 software. Northrop Grumman determined the failures occurred due to a system communication problem.

- Northrop Grumman intended to correct the problem with Formal Release 3.0 software. However, 3.0 software failed aircraft regression testing.
- Northrop Grumman incorporated further software changes in Formal Release 3.1 to be delivered in October 2017

UH-60L/M and CH-47F

- DON LAIRCM ATW is not properly integrated on the CH-47F or the UH-60 platforms.
 - Structural failure of the UH-60 M/L mounts for the GLTAs requires a redesign.
 - Incorrect ATW sensor placement on the CH-47F aircraft caused poor system performance.
- The Army is in the process of redesigning integration of the DON LAIRCM ATW system on both the UH-60 the CH-47F.

Recommendations

- Status of previous recommendations. This is the first annual report for this program.
- FY17 Recommendations. The Army should:
 1. Redesign the sensor placement and mount systems on the H-60 platforms and CH-47F aircraft and then conduct integration testing before fielding.
 2. Upgrade fielded software to fix sensor reliability problems, and decrease aircraft vulnerability against a growing infrared missile threat.