Distributed Aperture Infrared Countermeasure System (DAIRCM)

Executive Summary

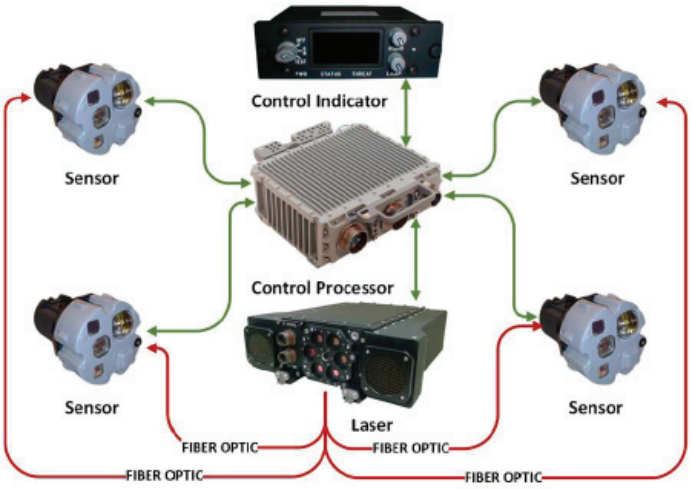
Preliminary results from Air Force and Navy testing indicate the Distributed Aperture Infrared Countermeasures (DAIRCM) system has the capability to defeat the required threat identified in the Joint Urgent Operational Needs (JUON) Statement SO-0010 dated March 30 ,2015, and defeat vehicle-launched infrared-guided missiles and man-portable air-defense systems (MANPADS).

System

- The DAIRCM system is an integrated suite of missile warning, laser warning, hostile fire indicator, and infrared countermeasure (IRCM) components designed to protect rotary-wing aircraft from the threat posed by infrared missiles.
- The system uses a single-centrally installed laser that can feed all of the beam directors. 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 initiates the laser to direct jamming energy at the incoming missile.
- The Navy's Program Office for Advanced Tactical Aircraft Protection Systems, PMA-272, is the lead for developing the DAIRCM System.

Mission

- Commanders employ rotorcraft equipped with the DAIRCM system to conduct medium and heavy lift logistical support, medical evacuation, search-and-rescue, armed escort, and attack operations.



- During missions, the DAIRCM system is intended to provide automatic protection for rotary-wing aircraft against shoulder-fired, vehicle launched, and other infrared missiles.

Major Contractors

- Leonardo Digital/Retrieval Systems (DRS) Infrared Sensors and Systems – Dallas, Texas
- Leonardo DRS Daylight Solutions – San Diego, California

Activity

- The Air Force accomplished effectiveness testing on a limited functionality configuration of the DAIRCM system (software version 1.0) installed on an HH-60G aircraft at Nellis AFB, Nevada, and at Redstone Arsenal, Huntsville, Alabama. The Air Force accomplished infrared environmental clutter testing while flying between Nellis AFB and Redstone Arsenal Range. Testing occurred from May 15 through July 20, 2018, and the Air Force conducted operational testing in accordance with the DOT&E-approved test plan.
- The Navy accomplished live missile firings against a DAIRCM system mounted on a scaffold (not installed on an aircraft) with software version 1.0 to assess the system's ability to identify, track, and defeat actual incoming missiles. Testing was accomplished at Dugway Proving Ground, Utah, from September 10 – 28, 2018.
- The Navy accomplished Electromagnetic Environmental Effects testing with DAIRCM installed on an MH-60 aircraft at the Naval Air Station Patuxent River, Maryland, in October and November 2018.
- The Navy continues to develop and mature the full functionality DAIRCM system (software version 2.0), which includes full built-in-test (BIT) capabilities, for the Navy's planned Quick Reaction Assessment.
- The Navy continues to develop and mature the missile warning digital system model (DSM) at the Air Combat Environment Test and Evaluation Facility (ACETEF) located at Naval Air Station Patuxent River, Maryland.

Assessment

- Preliminary results indicate that the DAIRCM system as installed on the HH-60G has the capability to defeat the required threat identified in the JUON Statement SO-0010 dated March 30, 2015.
- Preliminary results indicate that the DAIRCM system as installed on the HH-60G has the capability to defeat vehicle-launched infrared-guided missiles and MANPADS.

Recommendations

The Navy should:

1. Conduct hostile fire and laser warning testing on the full functionality DAIRCM configuration (software version 2.0).
2. Conduct regression testing for missile warning performance with the full functionality DAIRCM configuration (software version 2.0).
3. Complete the verification and validation of the missile warning DSM.