

Advanced Threat Infrared Countermeasures / Common Missile Warning System (ATIRCM/CMWS)

Executive Summary

- The Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) designated the Advanced Threat Infrared Countermeasures (ATIRCM)/Common Missile Warning System (CMWS) program as an Acquisition Category (ACAT) 1D program on April 15, 2009.
- The USD(AT&L) also limited the ATIRCM Quick Reaction Capability (QRC) effort to 83 CH-47D/F Chinook helicopters in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) and authorized a new next generation ATIRCM program titled the Common Infrared Countermeasures (CIRCM) system.

CMWS

- The Army is currently upgrading the CMWS to the Generation 3 (GEN 3) version that includes new processing hardware to support advanced threat detection algorithms allowing worldwide operations. The Army plans to conduct operational tests on the system in FY11.

ATIRCM QRC

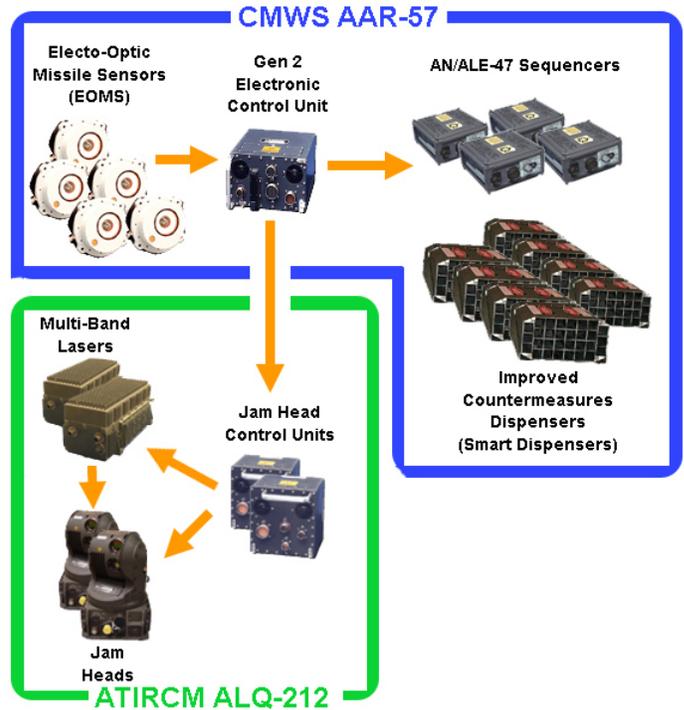
- The Army tested the ATIRCM QRC system throughout FY09 to support a First Unit Equipped date planned for December 2010.

CIRCM

- The CIRCM program is intended to develop a lightweight, low-cost jammer subsystem for installation on DoD rotary-wing and slow moving fixed-wing aircraft.
- The CIRCM program began Broad Agency Announcement demonstration testing involving five competitor systems in June 2009 to support a Milestone B decision planned for 3QFY10. Following completion of the system IOT&E, full-rate production of CIRCM is planned for 2QFY15.

System

- ATIRCM/CMWS is the Army's newest aircraft missile countermeasure system designed to detect incoming surface-to-air infrared missiles, warn pilots of the threat, and command automatic employment of laser and flare infrared countermeasures.
- The CMWS consists of electro-optical missile sensors that detect an oncoming missile threat, and an electronic control unit that informs the crew of the threat and activates countermeasures.
- The production CMWS coupled with flare dispensers is currently fielded on approximately 1,000 Army CH-47, UH-60, AH-64, C-12 series, RC-12, UC 35, and C-23 aircraft. The Army Procurement Objective is currently 2,002 systems.
- ATIRCM adds an infrared laser jammer to the CMWS to provide improved infrared defensive countermeasures. The



Army began a QRC program to field ATIRCM on 83 OIF/OEF CH-47D/F in 2QFY09. ATIRCM will not be fielded on any other aircraft and at the end of the QRC effort, ATIRCM will be terminated.

- The ATIRCM program will be replaced by the new ACAT 1D program called CIRCM. The CIRCM system incorporates Tri-Service Army, Navy, and Air Force requirements. This new program began in April 2009. The DoD strategy is to competitively develop a lightweight, low-cost jammer subsystem for installation on all DoD rotary-wing and slow moving fixed-wing aircraft starting in 4QFY14.

Mission

- Combatant Commanders will use the integrated ATIRCM/CMWS/CIRCM suite to enhance threat warning and improve defensive countermeasures for helicopters and fixed-wing aircraft. The systems will protect aircraft and crews from shoulder-fired, vehicle-launched, and other advanced infrared guided missile threats during vulnerable low-altitude operations.
- Combatant Commanders currently use the fielded version of CMWS and flares to warn pilots and provide limited infrared countermeasures within the design parameters of the system.

ARMY PROGRAMS

Prime Contractors

- CMWS and ATIRCM QRC: BAE Systems, Electronics & Integrated Solutions, Electronic Warfare Division, Nashua, New Hampshire
- CIRCM: Selection anticipated 3QFY10

Activity

CMWS

- The Army is currently conducting full qualification testing of the CMWS to support an Army full material release decision. This testing is required because the CMWS hardware had not completed full qualification testing prior to fielding in FY06.
- The Army tested the threat detection algorithm update, which provides capability enhancements against various threats, at the Tonopah Test Range (TTR), Nevada, in November 2008. The update was fielded in December 2008.
- The Army has continued to field the production CMWS to support immediate warfighter needs while deferring development of a full-threat-capable CMWS. The Army plans to conduct operational testing on the full-threat-capable CMWS supporting worldwide operations in FY11.
- The Army has funded a processor hardware upgrade (CMWS GEN 3) in order to increase the capability of the legacy processor so that it will support the full-threat-capable CMWS. The program began developmental test activities in September 2009 and plans to conclude in early 2010. Contractor and Army reliability demonstration testing will be accomplished as part of the GEN 3 T&E strategy.
- Due to the urgent CMWS threat detection algorithm update and the ATIRCM QRC efforts, Army testing in FY09 differed significantly from the plan approved in the DOT&E-approved Test and Evaluation Master Plan (TEMP). The Army is currently updating the November 2005 TEMP with current test plans and resources.

ATIRCM QRC

- The Army began installing production kits on the Chinooks for the new ATIRCM QRC and CMWS in May 2009 and plans to fully equip the first unit in December 2009. All 83 CH-47D/F Chinooks deploying to Southwest Asia are planned to be equipped with ATIRCM QRC systems by 2QFY10.
- The Army conducted ATIRCM QRC risk reduction missile testing at TTR in November 2008 and jam code evaluation testing at the Guided Weapons Evaluation Facility at Eglin AFB, Florida, in November 2008. Integrated developmental flight testing culminated in the Field System Assessment at Fort Rucker, Alabama, in July 2009. The Army conducted sled testing at the high-speed test track at Holloman AFB,

New Mexico, in June 2009 and production hardware missile testing at the White Sands Missile Range Aerial Cable Range, New Mexico, in August through September 2009. The Army Test and Evaluation Center is reviewing all ATIRCM QRC data and will issue a Capabilities and Limitations Report based on test results.

CIRCM

- The USD(AT&L) authorized the CIRCM program in April 2009.
- The CIRCM program began Broad Agency Announcement demonstration testing involving five competitor systems in June 2009 to support a Milestone B decision planned for 3QFY10.
- Milestone C is planned for 3QFY12 and full-rate production is planned for 2QFY15.

Assessment

CMWS

- The Army has not accredited their end-to-end CMWS simulation model. If accredited, the CMWS simulation model could potentially reduce flight test requirements of follow-on testing.

ATIRCM QRC

- Preliminary results based on testing accomplished to date show satisfactory system performance. Additional reliability data from the field will need to be collected to assess system reliability performance.

Recommendations

- Status of Previous Recommendations. The Army has adequately addressed two of the three FY08 recommendations.
- FY09 Recommendations. The Army should:
 1. Accomplish an updated TEMP supporting the development and testing activities required for CMWS GEN 3 hardware upgrade.
 2. Accomplish a new TEMP supporting the development and testing activities required for CIRCM.
 3. Accomplish accreditation of their end-to-end model for CMWS.