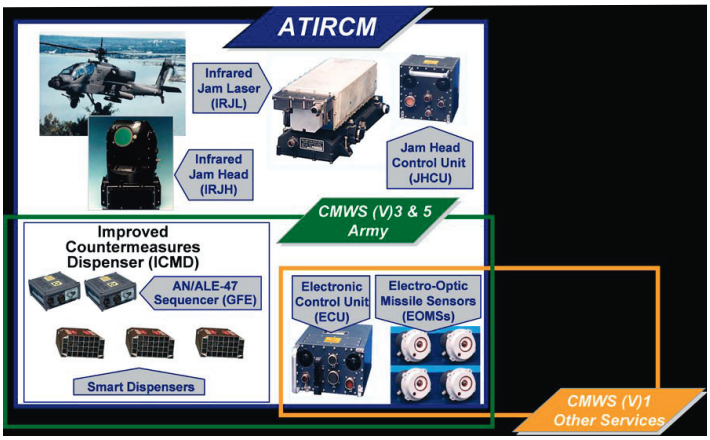
Advanced Threat Infrared Countermeasures/Common Missile Warning System (ATIRCM/CMWS)

Executive Summary
- Due to extensive delays in laser jammer development, the Army separated development and fielding of Common Missile Warning System (CMWS) from Advanced Threat Infrared Countermeasures (ATIRCM).

CMWS
- The Army outfitted approximately 68 aircraft in FY05 with CMWS as an early operational capability to support Central Command combat operations. Due to performance concerns, the Army temporarily restricted use of these new missile warning systems in theater. Once training issues were corrected, the Service reauthorized CMWS use in theater while closely monitoring system performance.
- The newest CMWS version is ready for an FY06 IOT&E.
- The CMWS-only configuration is an interim solution designed to cue flares as an Infrared (IR) missile countermeasure.

ATIRCM
- Developmental testing and plans for operational testing of the ATIRCM system were stopped due to serious performance deficiencies discovered at the White Sands Missile Range, New Mexico, aerial cable range testing in early FY05.

System
- ATIRCM incorporates an active IR laser jammer to provide Army helicopters with improved IR defensive countermeasures. It will be integrated with the CMWS sensor.
- CMWS is the newest Army aircraft missile warning system. It is designed to detect incoming missiles, and then command automatic flare expenditure. Currently flares are the only IR defensive countermeasure used with CMWS.
- A pre-full-rate production CMWS system is currently fielded on some of the Army's CH-47 series, UH-60 series, and C-12 series aircraft.



- The Army plans ATIRCM/CMWS installation on most H-47 Chinook, H-60 Blackhawk, and H-64 Apache helicopters. CMWS will also be installed on Army fixed-wing C-12 and UC-35 series aircraft.

Mission
- Combatant commanders use ATIRCM/CMWS to protect aircraft and crews during normal take-off and landing, assault, attack, resupply, downed aviator pick-up, forward arming, and refueling missions.
- ATIRCM/CMWS protect helicopters against shoulder-fired, vehicle launched, and other IR-guided missile threats.
- The combined ATIRCM/CMWS suite enhances threat warning and improves defensive countermeasures for helicopters and some fixed-wing aircraft.

Activity
- The most significant change to the program this year was the Army's decision to separate the development and fielding of CMWS and ATIRCM. This was a result of extensive delays in ATIRCM laser jammer development.
- Testing in FY05 was conducted in accordance with the DOT&E-approved Test and Evaluation Master Plan (TEMP) and test plans.

CMWS
- CMWS is in the final stages of developmental testing and is ready for a FY06 IOT&E as installed in the CH-47 and UH-60 helicopters.
- The Army authorized a third low-rate initial production contract of 143 CMWS in FY05, raising total low-rate initial production units to 343 of the planned total buy of 1,710

CMWS and ATIRCM systems. Developmental tests using live missile firings against CMWS were conducted at the White Sands Missile Range, New Mexico, aerial cable range in October 2004. This test assessed the missile warning sensor's ability to detect live IR surface-to-air missiles in-flight, and provide timely cueing to the countermeasures dispenser. This test supported the January 2005 early fielding for combat operations and the planned April 2005 IOT&E.

- The Army conducted an early fielding of 13 H-47, 50 H-60, and five C-12 CMWS configured series aircraft in FY05 to the Central Command area of operations. Due to concerns about the observed high false alarm rate of CMWS, the Army terminated its use. Once additional training on CMWS operational training was incorporated, the service reauthorized CMWS use in theater, while instituting close performance monitoring. The Army and contractor began accelerated development of a software upgrade to address the false alarm issue.
- The Army delayed IOT&E until early FY06 because of system modifications resulting from operational experience.
- From May-August 2005, the Army assessed modifications to improve false alarm performance, which also led to the Army adopting a tailored software load designed for current deployed operations.
- The Army revised the ATIRCM/CMWS TEMP to reflect the separation of the CMWS from ATIRCM laser IR jammer program. DOT&E approved the TEMP and IOT&E test plan in October 2005.

ATIRCM

- Developmental testing and plans for operational testing of the ATIRCM system were stopped because of serious performance deficiencies discovered during the aerial cable range testing in early FY05.
- The Army has purchased a total of 37 ATIRCM low-rate initial production units.
- The Army formed an independent team of Infrared Countermeasures program and subject matter experts to assess the system's design maturity, and potential to support the operational requirement.

Assessment

CMWS

- The new missile sensor hardware is mature, the software is improving, and the system is ready for IOT&E.
- The most recent CMWS software modifications are designed to support effective performance against a reduced threat list prioritized for current combat operations. The Army's plan to upgrade the missile warning sensor to be effective against the full threat list is expected to be tested when the system is integrated with ATIRCM in FY07.
- The Army has not accredited their end-to-end CMWS simulation model, which would have reduced the flight test requirements for the FY06 CMWS-only IOT&E.

ATIRCM

- The independent team that assessed ATIRCM design maturity to meet the operational requirements found that although the overarching system architecture is adequate, the system has several limitations and requires hardware and manufacturing design changes. The DOT&E assessment is that there are challenging technical problems that require resolution before the system is ready for IOT&E.

Recommendations

1. The Army should closely monitor the progress of ATIRCM design maturity and development tests. The Army Test and Evaluation Command should report whether the program will meet the full system IOT&E schedule objective in FY07.
2. The Army should continue the verification, validation, and accreditation process for the end-to-end model in order to support the ATIRCM/CMWS developmental and operational testing leading up to the full system IOT&E.