



PROGRAM MANAGER BRIEFING SERIES

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AOC ADVOCACY

Program Manager Briefing Series Read-Ahead

US Army PEO IEW&S

Program Manager, Aircraft Survivability Equipment (PM ASE)

This read-ahead is created by the AOC advocacy team in an effort to provide our attendees with some background information ahead of each session.

The Association of Old Crows (AOC) welcomes COL Kevin Chaney, PM, PEO IEWS Aircraft Survivability Equipment, to begin our 2nd annual Program Managers Briefing Series. PM ASE covers numerous systems and capabilities to protect Army aircraft and aircrews from a range of evolving threats. AOC has long called for Department of Defense (DoD) investment to modernize and optimize legacy platform self-protection systems, especially helicopter ASE systems. This includes developing advanced ASE capabilities for the next-generation family of Future Vertical Lift (FVL) rotorcraft and supporting military service life cycle management initiatives to establish a uniform approach for research, development, and production of EW hardware and software capabilities.

The US Army faces several significant challenges to provide integrated protection and survivability throughout the continuum of conflict in support of large scale combat operations (LSCO). Self-protection plays a vital role in countering modern weapons systems such as infrared (IR) and radio-frequency (RF) guided missiles. Self-protection includes radar warning receivers (RWRs), ASE designed to jam a threat's radar, and dispensed countermeasures, such as chaff, flares, or decoys to confuse or misguide an approaching missile. Additionally, future Army ASE must support the throughput of increasing sums of information across the joint force. Key requirements driving modernization across the PM ASE portfolio are performance, SWaP (size, weight and power), commonality, and multi-function across platform capabilities focused on detection and defeat.

A leading topic for discussion is that the Army is actively pursuing ASE as a fundamental design and development factor for FVL, an Army-led, but joint-Service DoD effort to provide future forces with capabilities that dramatically overmatch enemy air defense systems. In LSCO this includes, at the Corps level, the destruction of enemy systems to set conditions for subordinate Brigades and Divisions, and pursuing threats until enemy forces reach combat ineffectiveness, withdraw, or surrender.

FVL is designed around a series of capability sets to provide improved speed, range, agility, endurance, and sustainability over current rotorcraft. The Army is beginning this effort by focusing on unmanned aerial systems (UAS), or Air-Launched Effects ALEs), followed by future long-range assault aircraft (FLRAA) and eventually heavy air assault and other heavy-lift requirements. For ALEs capabilities, individual or heterogeneous swarms of ALEs fitted with electronic warfare support and electronic attack payloads will be deployed to assist in the penetration and defeat of enemy A2/AD environments. The Army must ensure ASE development and integration remains on schedule with FVL aircraft throughout the delivery of each capability set. Furthermore, the contested EMS environments the Army must fight in today and beyond require ASE suites that are adaptable and agile to not only detect and defeat threats but discern the electromagnetic environment that is densely populated with both military and civilian emitters.

Three Questions

1. What important advancements will the next-generation ASE suite that supports FVL aircraft have over existing capabilities?
2. How does the Army balance the requirements of the concept of operations (CONOPs) to determine how to best design a system-of-systems with both off-board assets such as ALEs and onboard capabilities for self-protection?
3. As threats are becoming more complex, how does PM ASE pursue a holistic approach to detecting, avoiding and defeating them, including enabling the crew to make informed decisions based upon the electronic order of battle?

Portfolio Overview (from PM ASE [website](#))

Advanced Threat Infrared Countermeasures (ATIRCM)

ATIRCM provides a warning of missile approach using the AN/AAR-57 Common Missile Warning System (CMWS), which detects the missile, rejects false alarms, and cues the onboard infrared jamming system's jam head to the missile's location. When the jam head finds the missile with its IR tracking system, it emits a high-energy infrared beam to defeat the missile's infrared seeker. ATIRCM is to be replaced by CIRCM in 2023.

Common Infrared Countermeasure (CIRCM)

CIRCM is the next-generation lightweight, laser-based infrared countermeasure system that will interface with both the Army's Common Missile Warning System (CMWS), Limited Interim Missile Warning System (LIMWS), and any future Missile Warning Systems (MWS) to defeat current and emerging missile threats to target rotary-wing, tilt-rotor and small fixed-wing aircraft across the DoD. CIRCM utilizes Open Systems Architecture, which allows flexibility with software and hardware refreshes to keep pace with future threats. CIRCM is the lighter weight system analogous to the ATIRCM system, which is installed on CH-47F aircraft. CIRCM began full-rate product (FRP) in FY 2020.

Common Missile Warning System (CMWS)

CMWS is an integrated IR countermeasures suite utilizing five sensors to display accurate threat location and dispense decoys/countermeasures, detect missile launch and flight of infrared guided threat missiles and unguided munitions to protect Army aircraft. CMWS

provides passive missile warning and hostile fire indicators (HFI) while operating independently or as a component of the ATIRCM and CIRCM systems. CMWS provides detection of unguided threats and situational awareness to aircrew with visual and aural cueing and protects aircraft by deploying flares or by cueing laser-based countermeasure systems.

Limited Interim Missile Warning System (LIMWS)

The LIMWS Quick Reaction Capability (QRC) allows the Army to rapidly develop, procure, and field a missile detection system with a greater capability than the current CMWS. LIMWS will utilize infrared (IR)-based sensors to detect incoming missiles and unguided hostile fire. The system will integrate fiber optic cables on Army rotary wing aircraft to provide for high-speed data transmission from the sensors to the system processor. LIMWS will protect aircraft from missiles by deploying flares and/or by cueing laser-based countermeasure systems. LIMWS will provide enhanced missile warning capabilities, including increased detection range, improved detection in clutter, and more agile algorithms to rapidly respond to emerging threats, for a limited set of Army and Special Operations aircraft.

Modernized Radar Warning Receiver (MRWR)

The APR-39E(V)2 MRWR will detect, categorize, and prioritize Radio Frequency emitters to provide visual and aural alerts to the aircrew, warning them of targeting by RF-guided weapons. MRWR detects radar threats to aircraft and provides 360-degree coverage around the aircraft. The MRWR provides a full digital capability to enhance threat discrimination capability and increases overall receiver performance against frequency agile RF threats and AESA radars. The system is currently in development and expected to field the end of FY 2024.

Laser Detection Set (LDS)

The AN/AVR-2B LDS, an ACAT IV program, is an airborne self-protection system is a passive laser warning system that receives, processes, prioritizes, and displays threat information. On the UH-60 aircraft the LDS works with the APR-39 RWR and on the CH-47F the LDS works with the AAR-57 CMWS system for display and voice capabilities.

ATW/LAIRCM JUONS

This QRC program detects and defeats rapidly emerging infrared missile threats in the operational areas. The Joint Urgent Operational Needs (JUONs) utilizes the Navy's Large Aircraft Infrared Counter-Measure (LAIRCM) that is composed of the Advanced Threat Warner (ATW) sensor to detect and determine the trajectory of potential threat missile systems and the Guardian Laser Turret Assembly (GLTA) to defeat the threat with directed energy or expendables. The ATW/LAIRCM system is backed-up by the Common Missile Warning System (CMWS) in specific conditions. This program is currently in sustainment and is planned for replacement by Common Infrared Countermeasure (CIRCM) and Limited Interim Missile Warning System (LIMWS).