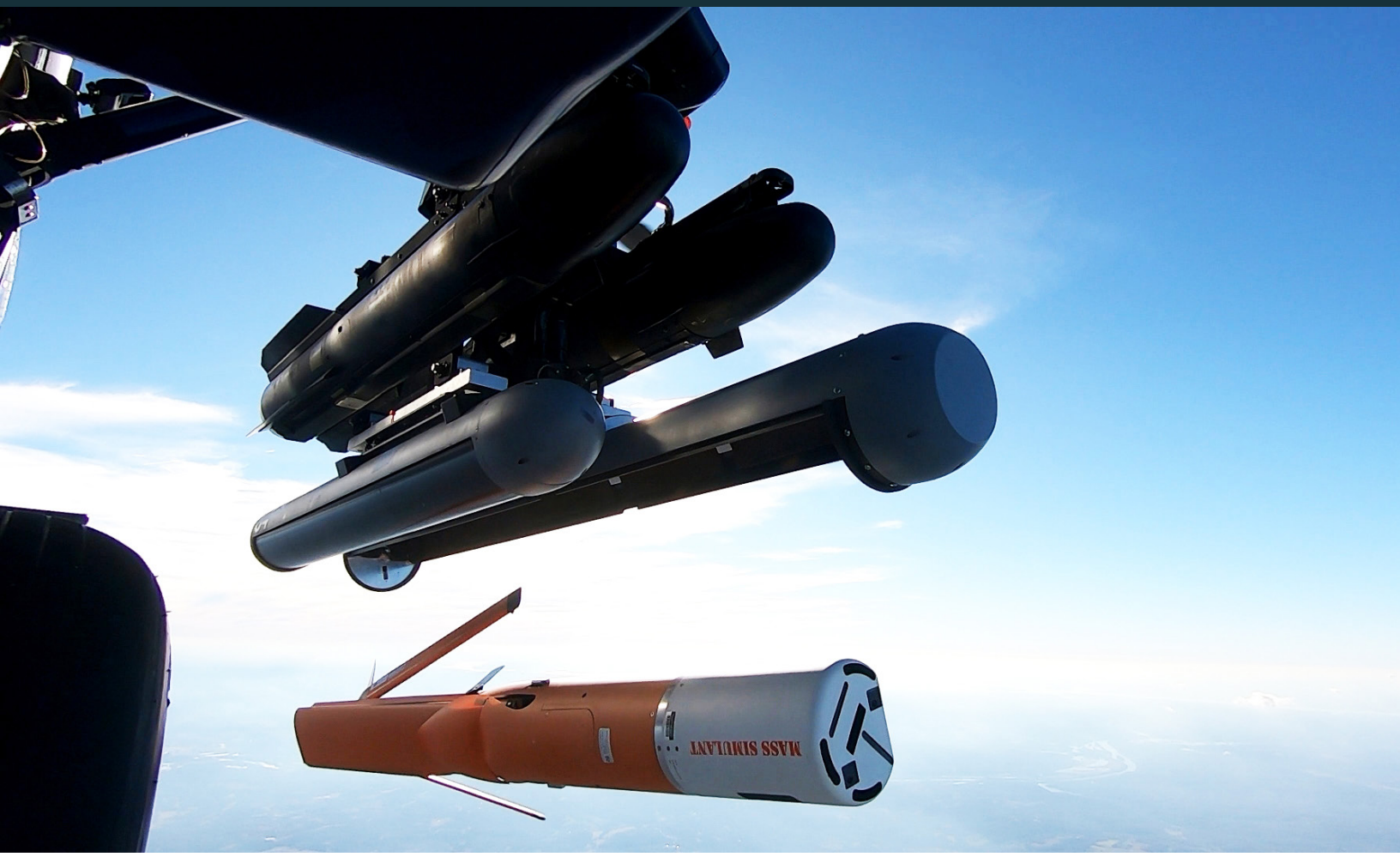
Future Unmanned Aircraft System – Air Launched Effects (FUAS ALE)



In FY24, the Army continued rapid prototyping efforts for the Future Unmanned Aircraft System – Air Launched Effects (FUAS ALE) program through the Middle Tier of Acquisition (MTA) rapid prototyping acquisition strategy. Consistent with their acquisition strategy, the Project Manager Uncrewed Aircraft Systems requested and was granted an extension of the MTA from three years to five years. The updated timeline will enable the program to conduct an operational demonstration (Ops Demo) in 4QFY26. An updated abbreviated Capability Development Document approved in 3QFY24 will inform requirements for this Launched Effects (LE) program.

SYSTEM DESCRIPTION

Air Launched Effects (ALE) are a family of systems designed to autonomously or semi-autonomously deliver effects as a single agent or as a member of a team. ALE is a key element to the success of the Future Vertical Lift ecosystem. ALE provides capabilities beyond a traditional intelligence, surveillance, and reconnaissance role. ALE will address capability gaps in defeating enemy Integrated Air Defense Systems, electronic warfare, and Integrated Fires Complexes, when conducting operations in a peer anti-access/area denial environment.

The defeat of these anti-access/area denial capabilities allows Army Aviation to effectively support large-scale combat operations and multi-domain operations in 2028 and beyond.

ALE will extend tactical and operational reach, lethality, and protection as an attritable or optionally recoverable aircraft. The operational intent of the ALE is to detect, identify, locate, and report threats. Moreover, ALE will present a credible decoy, disrupt threat communications, targeting and acquisition systems, and deliver lethal and non-lethal effects across multiple scenarios and domains in a multi-domain operations environment.

The initial ALE prototype system consists of a common air vehicle, mission system, payloads, laptop equipped with scalable control interface software, and associated support equipment. The payloads are modular and interchangeable and allow the User the ability to adapt to each mission need. Two payloads will be part of the current system, to include a decoy payload and a detect, identify, locate, and report payload. An Anduril Altius roll release canister carries the ALE on the host platform.

MISSION

The ALE is capable of pre-mission planning, dynamic re-tasking, receiving mission updates before and after launch, and providing battlefield updates (including battle damage assessment). ALE can operate as a single asset, or as a member of a coordinated team or swarm. When operating as a swarm, ALE can leverage multiple systems of the same effect, concentrating on a system target or threat from multiple directions to increase the magnitude of the effect. Through high levels of system autonomy, ALE can self-optimize to redistribute tasks upon loss or gain of a team member. ALE executes assigned missions consistent with commander's intent without requiring direct intervention from a manned operator or higher echelon unmanned command platform in the loop. Upon launch, ALE utilizes the Integrated Tactical Network to distribute reconnaissance, surveillance, and target acquisition data to populate the common operational picture shared throughout the battlefield.

ALE is a crucial piece of the advanced teaming concept synergistically enhancing survivability, threat identification, targeting and lethality of Army Combat Aviation Brigades and ground force assets. ALE deploys as the forward most element of the advanced team in areas of expected enemy contact in order to initiate Integrated Air Defense System. During mission execution, the advanced team employs all or some of the ALE capabilities (detect, identify, locate, report, decoy, disrupt, lethal) dependent on the nature of the environment and opposing threat scenarios.

PROGRAM

The FUAS ALE program uses the MTA rapid prototyping approach. DOT&E has not yet approved a TES for FUAS ALE MTA rapid prototyping. An Ops Demo was scheduled for 4QFY24 to inform a transition to an MTA rapid fielding approach. The Ops Demo was canceled. However, the Project Manager Uncrewed Aircraft Systems requested and was granted an extension of the MTA from three years to five years. The updated timeline will enable the program to conduct the Ops Demo in 4QFY26. The residual capabilities of the program upon completion of the MTA rapid prototyping in 4QFY24 are: (1) technical data from the vendors to inform future LE MTA rapid prototyping efforts in support of further developing LE for the Army, (2) 16 air vehicles are slated for be sent to the 160th Special Operations Aviation Regiment for

further testing and development; the number of systems may be reduced based on the number of air vehicles that are salvageable post flight tests.

» MAJOR CONTRACTORS

- Anduril – Atlanta, Georgia
- Collins Aerospace, a subsidiary of RTX – Cedar Rapids, Iowa
- Northrop Grumman Corporation – Northridge, California
- Technology Service Corporation – Huntsville, Alabama
- Aurora Flight Sciences, a subsidiary of The Boeing Company – Manassas, Virginia

TEST ADEQUACY

The lack of program maturity and operational testing precludes DOT&E from making a preliminary assessment of FUAS ALE's test adequacy. The program was not able to conduct a scheduled Ops Demo in FY24, due to unspecified issues with the system. The system went through a vendor-led Host Platform flight test in September 2024. The test successfully demonstrated limited capability of the air vehicle, to include the following capabilities: launch from a MH-60, scalable control interface with dynamic re-tasking, and auto-land recovery.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

The lack of program maturity and operational testing precludes DOT&E from making a preliminary assessment of the operational effectiveness, suitability, or survivability of FUAS ALE.

» LETHALITY

The lack of program maturity and operational testing precludes a preliminary assessment of Future Unmanned Aircraft System-Air Launched Effects lethality. The FUAS ALE program is not intended as a lethal option for the Army, instead this program was directed to produce payloads with capability to serve as a decoy or as a detect, identify, locate, and report effects.

RECOMMENDATION

The Army should:

1. Document lessons learned from the current MTA rapid prototyping efforts and provide those lessons across the enterprise to inform similar rapid prototyping efforts and ensure interoperability that span multiple Program Executive Offices across the Army and the Services.