Long Range Fires

The Army continues to pursue the development of the Precision Strike Missile (PrSM) and advances to the Guided Multiple Launch Rocket System (GLMRS) to improve precision fires range and maneuverability, and enable a higher height-of-burst capability. Test planning is ongoing, precluding a preliminary evaluation of the performance of either system. To mitigate the risk to IOT&E and facilitate an adequate evaluation of the operational effectiveness of precision-guided missiles, the Army should continue exploring long-range flight corridors.

System Description

The long range precision fires modernization portfolio currently includes the PrSM and the GLMRS, both surface-to-surface missiles that will provide commanders with options in an all-weather, cluster-munition-compliant capability to attack critical and time-sensitive area and point targets. The PrSM will complement the current suite of GMLRS rockets and replace the Army Tactical Missile System. The GMLRS includes three fielded variants: Dual-Purpose Improved Conventional Munitions, Unitary, and Alternative Warhead (AW). Army units will fire the PrSM and ER-GMLRS rockets from the wheeled Ml42 High Mobility Artillery Rocket System and M270A2 launcher.

Program

The PrSM is a Pre-Major Defense Acquisition IB Program. The Army plans to field four increments of the PrSM missile, Increment 1 being the baseline capability. Future increments will focus on increasing range and engagement against additional targets of interest.

In June 2021, DOT&E approved the Milestone B Test and Evaluation Master Plan (TEMP) supporting the Milestone B decision on 27 September, 2021. The Army expects to have the production-representative missile design completed prior to Production Qualification Test flights. The Army plans to execute a Limited User Test to support an urgent materiel release decision and the fielding of an early operational capability, followed by IOT&E in support of a full materiel release.

The ER-GMLRS is an engineering change proposal to the GMLRS Unitary and AW rockets. DOT&E approved the ER-GMLRS TEMP Annex in August, 2020. The Army plans to conduct IOT&E in support of an engineering change proposal, full-rate production decision.

Major Contractor

Lockheed Martin Missiles and Fire Control - Grand Prairie, Texas; assembled in Camden, Arkansas.

Test Adequacy

In FY21, the PrSM program executed one engineering developmental test shot, while the ER-GLMRS conducted four. In June 2021, DOT&E approved the PrSM Milestone B TEMP with the following recommendations:

- The Army should execute a maximum range, sensor to shooter, surface-to-surface shot as soon as the DOD establishes a long-range flight corridor in the Continental United States to adequately evaluate the operational effectiveness and lethality of long range precision fires against operationally representative targets.
- With the exception of the maximum range shot, the Army should execute the operational test shots in the presence of operationally representative countermeasures using the most updated missile and firing platform software to evaluate the PrSM operational effectiveness and lethality in a contested environment.
- Given the anticipated software changes between limited user testing and IOT&E, and to ensure the Cooperative Vulnerability and Penetration Assessment (CVPA) adequately informs the Adversarial Assessment (AA), the Army should conduct both assessments in support of the limited user testing and IOT&E to enable early identification of any vulnerabilities, and to validate subsequent fixes prior to IOT&E and prior to fielding.

The ER-GMLRS TEMP Annex, approved by DOT&E in August 2020, includes live fire testing with ER GMLRS rockets and modeling and simulation considered adequate to evaluate the ER-GLMRS operational effectiveness and lethality. The TEMP does not include firing of the ER-GMLRS Unitary delay mode because the flight termination system, required when firing in the continental United States, does not fit in the Unitary missile configuration. While this remains a challenge, the Army is exploring firing a Unitary delay mode. The TEMP includes a cybersecurity assessment composed of a CVPA and an AA that will leverage a system of systems architecture, including the two launchers with the updated fire control system.

Performance

Effectiveness

The testing planning for both the PrSM and ER-GMLRS is ongoing, precluding the preliminary evaluation of their operational effectiveness at this time.

Suitability

The testing planning for both the PrSM and ER-GMLRS is ongoing, precluding the preliminary evaluation of their operational suitability at this time.

Survivability

The testing planning for both the PrSM and ER-GMLRS is ongoing, precluding the preliminary evaluation of their survivability in a non-permissive environment, to include a cyber-contested and a contested electromagnetic spectrum environment. The Army has not yet executed their plan to evaluate the PrSM in a contested/denied environment, nor have they yet completed the modeling and simulation runs to evaluate the survivability of the PrSM in a non-permissive kinetic threat environment.

Recommendations

The Army should:

1. Address the recommendations included in the PrSM Milestone B TEMP DOT&E approval memo.
2. Develop a plan to test the ER-GMLRS Unitary delay mode in an operationally realistic environment.
3. Synchronize the advanced field artillery tactical data system software releases and the development of the M270A2, as well as a new fire control system, to incorporate these platforms in the integrated operational testing.
4. Consider employing additional operationally representative countermeasures in integrated testing.