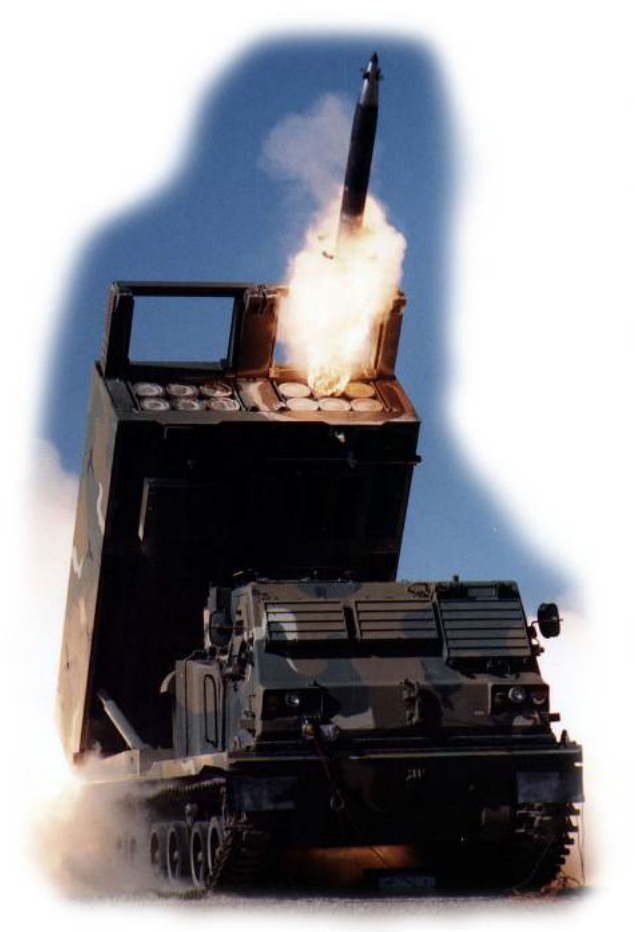
Extended Range (ER) Guided Multiple Launch Rocket System (GMLRS)

Executive Summary
- The Guided Multiple Launch Rocket System (GMLRS) is comprised of three fielded variants: Dual-Purpose Improved Conventional Munitions (DPICM), Unitary, and Alternative Warhead (AW).
- On May 19, 2017, the Army Acquisition Executive (AAE) signed a Modification Authorization Memorandum to execute Extended Range (ER) GMLRS as an Engineering Change Proposal (ECP) to the current production of GMLRS Unitary and AW. ER GMLRS offers an extended range in all weather conditions.
- In October 2019, the Army executed legacy GMLRS test shots against jamming countermeasures to increase their modeling and simulation (M&S) capabilities.
- On August 3, 2020, DOT&E approved the ER GMLRS Test and Evaluation Master Plan (TEMP) Annex.
- The Army plans to execute the first ER GMLRS Engineering Developmental Test shots in early November 2020, followed by integrated test/system qualification test shots against representative targets beginning in May 2021 and IOT&E beginning in November 2021. DOT&E will write a combined operational and live fire test report.

System
- The GMLRS is comprised of three fielded variants: DPICM, Unitary, and AW.
- The proposed ER GMLRS ECP expands the rocket motor diameter to increase range, modifies the control section for enhanced maneuverability, and incorporates a side-mounted proximity sensor to enable higher height-of-burst.
- The ER GMLRS uses a GPS-aided inertial navigation system, aft-mounted control actuation system, and either a Unitary or AW warhead variant to engage point and area targets.
- Army units will fire the ER GMLRS rockets from the wheeled M142 High Mobility Artillery Rocket System and M270A2 launcher.

Mission
Commanders will use the ER GMLRS rockets to engage long-range point or area-located targets including air defense, command posts, and high value targets without the hazard of unexploded sub munitions.



Major Contractor
Lockheed Martin Missiles and Fire Control – Grand Prairie, Texas; assembled in Camden, Arkansas

Activity
- On May 19, 2017, the AAE signed a Modification Authorization Memorandum to execute ER GMLRS as an ECP to the current production of GMLRS Unitary and AW variants. ER GMLRS offers an extended range in all weather.
- In October 2019, the Army executed legacy GMLRS test shots against jamming countermeasures to increase their M&S capabilities.

- On August 3, 2020, DOT&E approved the ER GMLRS TEMP Annex.
- The scheduled test plan shifted 6 months due to the impacts of the coronavirus (COVID-19) pandemic and long lead hardware availability.
- The Army plans to execute the first ER GMLRS Engineering Developmental Test shots in early November 2020, followed by integrated test/system qualification test shots against representative targets beginning in May 2021 and IOT&E beginning in January 2022. Integrated testing will use operationally realistic targets.
- The ER GMLRS test program will provide sufficient data for DOT&E to evaluate the operational effectiveness and mission processing tactics, techniques, and procedures. DOT&E will use a combination of lethality damage assessments, M&S results, and observations of a targeting cell to evaluate the lethality and operational effectiveness of the ER GMLRS.
- The IOT&E consists of a command post exercise phase and a flight phase to provide an operationally realistic context for evaluating the timely and accurate employment of ER GMLRS.
- The ER GMLRS program plans to leverage cybersecurity testing of the ER GMLRS munition, launcher fire control system, launcher and munition test device, and Advanced Field Artillery Tactical Data System (AFATDS). The program is planning to leverage a system-of-system architecture for cybersecurity.
- The Army's test program includes a combined cooperative vulnerability and penetration assessment and an adversarial assessment event in conjunction with AFATDS programs in 4QFY21. The convergence of supporting fire control system and AFATDS software releases will drive the timing of these events. DOT&E is working with the Army to plan AFATDS software testing if not conducted during IOT&E.
- The test plan includes a High Mobility Artillery Rocket System with the updated fire control system. The current test plan does not include the M270A2 launcher with the updated fire control system. DOT&E is working with the Army to plan M270A2 launcher testing if not conducted during IOT&E.
- The current test program does not include firing the ER GMLRS Unitary delay mode. The flight termination system is required when firing in the continental United States. The flight termination system will not fit in the Unitary delay mode. DOT&E is working with the Army to find a test venue outside of the continental United States to test this variant.

Assessment

- The legacy GMLRS shots against GPS jamming produced data that can be used to verify the Army's M&S efforts.
- The scheduled test plan shifted 6 months due to the impacts of COVID-19 and long lead hardware availability; based on the scheduled integrated testing, DOT&E will have an assessment in FY22.

Recommendations

The Army should:

1. Develop a plan to test the ER GMLRS unitary delay mode in an operational realistic environment.
2. Synchronize AFATDS software releases and the development of the M270A2, and new fire control system to incorporate these platforms in the integrated operational testing.
3. Consider additional GPS jamming in integrated testing.
4. Conduct follow-on testing in the event AFATDS software testing and M270A2 launcher with the updated fire control system are not completed during IOT&E.