Joint Air-to-Ground Missile (JAGM)

In accordance with DOT&E's FY22 recommendation to perform arctic testing on the Joint Air-to-Ground Missile (JAGM) to assess the effect of sustained exposure to extreme cold, the Army conducted arctic developmental testing at the U.S. Army Cold Regions Test Center in February 2023. Analysis of the findings is ongoing.

SYSTEM DESCRIPTION

The JAGM is a precision munition that combines two sensor technologies – a semi active laser and a millimeter-wave radar – into a single seeker and guidance system while leveraging the warhead, motor, and flight control systems from the Helicopter Launched Fire-and-Forget (HELLFIRE) Romeo missile. Army and Marine Corps commanders will employ the JAGM from helicopters to engage enemy combatants in stationary and moving armored and unarmored vehicles, within building and bunker structures, in small boats, and in the open.

MISSION

Army AH-64E Apache and Marine Corps AH-1Z Viper aircrews will employ the JAGM for the destruction of high-value

stationary, moving, and relocatable land and maritime targets from standoff range in day, night, adverse weather, and obscured battlefield conditions. Crews will utilize the JAGM to engage heavy and light armored vehicles; small boats; and personnel in buildings, in bunkers, and in the open.

PROGRAM

The JAGM is an Acquisition Category IC joint program led by the Army's Program Executive Office, Missile and Space and is executed in conjunction with the Navy's Program Executive Office, Unmanned Aviation and Strike Weapons. DOT&E approved the updated Test and Evaluation Master Plan in August 2022. The Army completed the first phase of IOT&E in 3QFY20 and the Navy completed the second phase in 2QFY22. DOT&E published a combined IOT&E and LFT&E report in July 2022. The Army approved the JAGM to enter full-rate production in 4QFY22.

» MAJOR CONTRACTOR

- Lockheed Martin Corporation – Orlando, Florida

TEST ADEQUACY

The Army completed arctic environment developmental testing in January and February 2023, at the U.S. Army Cold Regions Test Center, Fort Greely, Alaska. This arctic testing fulfills a recommendation from the DOT&E Combined IOT&E and LFT&E Report published in July 2022. The recommendation was for the Army to conduct missile flight testing in the arctic environment to assess the effect of sustained extreme cold temperatures. This developmental testing was conducted in accordance with the DOT&E-approved Test and Evaluation Master Plan and was observed by DOT&E evaluators.

PERFORMANCE

» EFFECTIVENESS

As previously reported, the JAGM is operationally effective when employed from the AH-64E and AH-1Z, exceeding key performance parameter hit requirements.

Analysis from the developmental testing of the JAGM in the arctic environment is ongoing. Initial findings indicate that winter conditions present some unique challenges for aircrews to effectively employ the JAGM.

The Army and Marine Corps are continuing to develop and field a JAGM Captive Aircrew Training Missile (CATM) for the AH-64E and the AH-1Z. The CATM is a training device allowing aircrews to train and develop JAGM system unique tactics, techniques, and procedures (TTP) without carrying live ordinance. The Marine Corps completed testing during IOT&E in 2QFY22 and is in the process of fielding initial production CATMs for the AH-1Z. The Army is scheduled to receive their initial production CATM for the AH-64E in 3QFY24.

Effectiveness is reduced under high pilot workloads or in time-constrained conditions when the JAGM is employed from the AH-1Z, primarily due to interoperability deficiencies and a cumbersome pilot-vehicle interface (PVI). The Navy continues to conduct root cause analysis to determine the necessary corrections needed to improve AH-1Z interoperability.

» LETHALITY

As previously reported, the JAGM is lethal when employed from the AH-64E and AH-1Z and is more lethal than the HELLFIRE Romeo missile against tanks and light armored vehicles.

The Army is continuing to develop software enhancements to improve height-of-burst lethality. These enhancements may prove effective against vehicle active protection systems. The Army plans to perform verification testing to assess revised software performance.

» SUITABILITY

As previously reported, the JAGM is operationally suitable when employed from the AH-64E Apache but not when employed from the AH-1Z Viper due to shortcomings in aircraft-missile interoperability and the PVI.

The arctic conditions found at the U.S. Army Cold Regions Test Center had no impact on JAGM reliability. The test center stored missiles in an exposed munitions

storage area for 6 months prior to testing, in temperatures as cold as -43 degrees Fahrenheit.

» SURVIVABILITY

As previously reported, the JAGM is survivable against a nascent or limited cyber attacker. JAGM is not survivable against a moderate-to-advanced capability threat.

RECOMMENDATIONS

The Joint Program Manager and Navy should:

1. Continue development and integration testing to correct AH-1Z deficiencies and conduct follow-on testing to verify that they have been adequately addressed.
2. Continue to develop an efficient PVI on the AH-1Z to reduce excessive pilot workloads.
3. Continue development and integration testing of the JAGM Captive Aircrew Training Missile while developing unique TTP to ensure aircrew effectiveness.
4. Develop TTP for JAGM employment in winter conditions to optimize effectiveness.
5. Continue to conduct additional tests to refine height-of-burst lethality.
6. Assess the performance of JAGM against vehicles equipped with active protection systems.