

Armored Multi-Purpose Vehicle (AMPV)

The 2018 Limited User Test (LUT) did not reveal any significant risks to demonstrating Armored Multi-Purpose Vehicle (AMPV) operational effectiveness as it proceeds to IOT&E scheduled to begin in March 2022. The Army needs to continue to address several deficiencies to mitigate the risk to demonstrating AMPV operational suitability as it proceeds to IOT&E. Final assessment of AMPV operational effectiveness, suitability, and survivability will be provided after the completion of IOT&E and LFT&E to inform the full-rate production scheduled in 1QFY23.



System Description

AMPV is a tracked, ground combat vehicle that provides logistical resupply, casualty evacuation and treatment, command post operations, and heavy mortar fire support. There are five variants: the General Purpose (GP), Mission Command (CD), Medical Treatment (MT), Medical Evacuation (ME), and Mortar Carrier (MC). The Army intends for the AMPV to address the M113 Family of Vehicles (FoV) shortcomings in survivability and force protection; size, weight, power, and cooling; and the ability to incorporate future technologies, such as the Army Network.

Program

AMPV is an Acquisition IC program that entered Milestone C in January 2019. The Army conducted a LUT in September 2018 in accordance with the DOT&E-approved test plan. In January 2021, the Program Office re-baselined the program schedule due to BAE System's production start-up issues and the impact of COVID-19. Based on BAE System's recovery plans, the program manager anticipates delivering the vehicles required for operational testing no later than November 2021. IOT&E is scheduled to begin in March 2022 to support the Army's full-rate production decision scheduled for 1QFY23.

In May 2021, DOT&E approved changes to the Milestone C Test and Evaluation Master Plan to efficiently leverage previous live fire testing data, reducing the number of vehicles from 10 to 7 to support the Full-up System Level (FUSL) LFT&E program.

Major Contractor

BAE Systems – York, Pennsylvania.

Test Adequacy

In January 2021, the Army completed system-level live fire testing on prototype vehicles in accordance with DOT&E-approved test plans. FUSL testing started in May 2021 and is expected to be completed in March 2022. The Army executed FUSL events using production vehicles to evaluate system and crew vulnerability to kinetic threat engagements. The Army is planning a test to evaluate the effectiveness of the Automated Fire Extinguishing System.

The planning of IOT&E, scheduled for March 2022, is ongoing. The Army conducted a Cooperative Vulnerability and Penetration Assessment (CVPA) in September 2021 in accordance with the DOT&E-approved test plan. DOT&E intends to publish a combined IOT&E and LFT&E Report in 4QFY22.

Performance

Effectiveness

The 2018 LUT did not reveal any significant risks to demonstrating AMPV operational effectiveness as it proceeds to IOT&E scheduled to begin in March 2022. During the 2018 LUT, the AMPV demonstrated increased capability over the M113 FoV. All elements of the test unit equipped with the AMPV variants demonstrated the ability to successfully accomplish their required tasks and purposes. AMPV mobility is comparable to the mobility of the Abrams tank and Bradley Fighting Vehicle, which enables it to maintain its position in the tactical formation. Of note, the GP variant increased the first sergeant's ability to conduct logistical resupply with its increased mobility and interior space. The medical treatment and ambulance variants provided a level of medical treatment capability currently not available to the brigade combat team.

Suitability

The Army needs to address several deficiencies to mitigate the risk to demonstrating AMPV operational suitability as it proceeds to IOT&E. The Program Office is addressing reliability failures identified during the 2018 LUT and is subsequently upgrading production qualification and initial operational test vehicles. While the mean time between system aborts continues to improve, the mean time between effective function failures is below the Army required threshold. The program manager has been working with BAE Systems to understand and mitigate these failure modes prior to IOT&E. The program manager has also been working on addressing several failure modes noted at the LUT that have been reoccurring during production testing.

Survivability

The AMPV demonstrated the potential to meet force protection and vehicle survivability requirements against specified kinetic threats. Coordination with the Army has enabled the test team to potentially conduct remote access threat vectors against the platform during both the CVPA and during the IOT&E. Final survivability assessment of the AMPV in a cyber-contested environment will be provided after the completion of IOT&E.

Recommendations

The Army should:

1. Continue to validate through FUSL testing design changes intended to mitigate vehicle and crew vulnerabilities found in live fire testing.
2. Continue to apply corrective actions and identify the root cause for the observed failure modes.