

Maneuver-Short Range Air Defense (M-SHORAD) Increment 1

The Maneuver-Short Range Air Defense (M-SHORAD) Increment 1 operational assessment, conducted from October – December 2020, highlighted several challenges the Army must address to demonstrate the operational effectiveness, suitability, and survivability of M-SHORAD Increment 1 in providing supported maneuver formation with short range air defense coverage. The Army fielded one platoon of M-SHORAD Increment 1 vehicles as part of an Early Fielding.



System Description

The M-SHORAD Increment 1 integrates sensor and shooter capabilities onto a Stryker Infantry Carrier Double V-Hull A1 vehicle to defend supported maneuver elements against Group 3 unmanned aircraft systems, fixed wing, and rotary wing aircraft threats. The M-SHORAD Increment also integrates a Blue Force Tracker Situational Awareness systems and displays.

Program

The M-SHORAD Increment 1 is an urgent capability developed as an Army-directed requirement. The completion of the fielding of the first battalion of M-SHORAD Increment 1 will be used to establish an early operational capability. The Army plans to conduct an expeditionary operational assessment, which is currently not scoped to demonstrate M-SHORAD Increment 1 operational effectiveness, suitability, and survivability.

Major Contractors

- General Dynamics Land Systems – Warren, Michigan.
- Leonardo DRS – Arlington, Virginia.
- Moog – Elma, New York.

Test Adequacy

In October – December 2020, the Army conducted the M-SHORAD Increment 1 operational assessment a Cooperative Vulnerability and Penetration Assessment, and an Adversarial Assessment scoped to measure capability against the Army Chief of Staff’s directed requirement, and not to determine operational effectiveness,

suitability and survivability. Neither the operational assessment nor the cybersecurity assessment were executed in accordance with the DOT&E approved test plan, partially due to the COVID-restriction-induced lack of a rotary wing target. COVID restrictions were coordinated with all stakeholders.

In December 2020, the Army completed the LFT&E in accordance with DOT&E-approved test plans. Testing was adequate to assess the survivability of the platform to kinetic threats, to include any force protection implications, and the lethality of the M-SHORAD Increment 1 kinetic effectors. Testing focused on the newly integrated mission equipment package, including missile suites and internal fire control components.

Performance

Effectiveness

The Army needs to overcome several challenges to demonstrate the operational effectiveness of the M-SHORAD Increment 1. The classified Initial M-SHORAD Operational Assessment report, published in August 2021, details the known performance of the onboard radar, the electro-optical/infrared sensors, the weapons systems, and the command and control software that allow soldiers to execute air defense missions. The report also includes specifics on detection, tracking, classification, identification, and probability of kill against the required threats.

Suitability

The Army needs to overcome several challenges to demonstrate the operational suitability of the

M-SHORAD Increment 1. Additional details are offered in the classified Initial M-SHORAD Operational Assessment report, published in August 2021.

Survivability

The Army needs to overcome several challenges to demonstrate M-SHORAD Increment 1 survivability in a contested environment. The Army has not yet tested the survivability of the M-SHORAD Increment 1 in a contested electromagnetic spectrum environment. While the cybersecurity testing was limited in scope, it yielded valuable information to improve the system. Additional details are offered in the classified Initial M-SHORAD Operational Assessment report, published in August 2021.

Recommendations

The Army should:

1. Address M-SHORAD Increment 1 deficiencies identified during the operational assessment documented in the classified Initial M-SHORAD Increment 1 Operational Assessment report.
2. Revise the scope of the scheduled expeditionary operational assessment to support an adequate assessment of M-SHORAD Increment 1 operational effectiveness, suitability, and survivability in an operationally representative environment, with countermeasures and accredited threat target representation.