

Stryker Family of Vehicles (FoV)



Stryker Anti-Tank Guided Missile (ATGM)



Stryker Common Remotely Operated Weapon Station - Javelin (CROWS-J)

Executive Summary

- DOT&E approved the Test and Evaluation Master Plan (TEMP) Annex and operational assessment test plan for the Stryker Common Remotely Operated Weapon Station – Javelin (CROWS-J) Engineering Change Proposal (ECP) in September 2019. The Army downgraded the operational assessment of the CROWS-J ECP to an early user assessment (EUA) prior to the test start date due to poor system reliability during pre-test events. The Army conducted the EUA at Aberdeen Proving Ground, Maryland, from September 30 through October 11, 2019.
- In 4QFY19, the Army performed two system-level live fire test events in support of a Stryker CROWS-J force protection evaluation. The Army plans to conduct a final live fire test event in 2QFY21.
- The Army plans to conduct an operational assessment of the CROWS-J ECP at Aberdeen Proving Ground, Maryland, in 3QFY21, following the correction and testing of identified failure modes.
- DOT&E approved the Stryker Anti-Tank Guided Missile (ATGM) ECP TEMP Annex and FOT&E test plan in September 2020.
- The Army conducted the Stryker ATGM Modified Improved Target Acquisition System (MITAS) ECP FOT&E at Yakima Training Center, Washington, from September 30 through October 9, 2020. DOT&E plans to publish an FOT&E test report in FY21.

System

- The Stryker Family of Vehicles (FoV) is built on a common chassis, with some variants having different Mission Equipment Packages. There are 18 variants:
 - Ten flat-bottom variants that include the Infantry Carrier Vehicle (ICV), Mobile Gun System (MGS),

Reconnaissance Vehicle (RV), Mortar Carrier (MC), Commander's Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), ATGM Vehicle, and Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV).

- Seven Double-V-Hull (DVH) variants for the following: ICV, CV, MEV, MC, ATGM, FSV, and ESV.
- One configuration of a modified ICV platform integrating a 30-mm cannon.

Stryker ATGM MITAS ECP

- The Army intends the ATGM MITAS ECP to upgrade existing ATGM systems in order to support current and future operational requirements of Stryker Brigade Combat Teams. ATGM MITAS upgrades include:
 - Precision Far Target Locator (pFTL)
 - Network Lethality (NL)
 - Image Enhancement (IE)
 - Color Camera
 - Color Gunners Display
 - Software Improvements (MITAS v3.1)
 - Common Processor-Fire Control System (CP-FCS)
 - Slip-Ring
 - Vehicle Mounted Charger (VMC)
 - Upgraded Tow Missile Launcher (UTML)

Stryker CROWS-J ECP

- CROWS-J ECP builds on the CROWS-J capability fielded to 2nd Cavalry Regiment under an Operational Needs Statement and Directed Requirement.
- The Army intends the Stryker CROWS-J ECP to address the obsolescence of the fire control unit (FCU), exchanges the Remote Weapons System (RWS) with the CROWS, enables remote firing of a Javelin missile under armor, improves thermal imaging module (TIM) optics, and

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integrates smoke grenade launchers onto the CROWS system.

- The FCU from the RWS will be replaced with a main processing unit (MPU), Weapons Station Control Panel (WSCP), and the Mounted Family of Computing Systems (MFoCS) High Definition (HD) display.
- The CROWS-J will use existing RWS mounting provisions and employ the Javelin launch capability.
- Adapter kits are used to integrate the multiple weapon systems onto the CROWS.

Mission

Units equipped with the Stryker FoV provide Combatant Commanders a medium-weight force capable of rapid strategic

and operational mobility to disrupt or destroy enemy military forces, to control land areas including populations and resources, and to conduct combat operations to protect U.S. national interests.

Major Contractors

- General Dynamics Land Systems – Sterling Heights, Michigan; Anniston, Alabama
- Caterpillar – Peoria, Illinois
- Marvin Land Systems – Inglewood, California

Activity

- All testing was conducted in accordance with the DOT&E-approved TEMP and test plan. DOT&E approved changes to the test plan resulting from coronavirus (COVID-19) pandemic safety mitigations.

CROWS-J ECP

- DOT&E approved the Stryker CROWS-J TEMP Annex and operational assessment test plan in September 2019.
- The Army downgraded the operational assessment of the CROWS-J ECP to an EUA due to poor system reliability during pre-test events. The Army conducted the EUA at Aberdeen Proving Ground, Maryland, from September 30 through October 11, 2019.
- The Army is correcting identified failure modes in preparation for an operational assessment of the CROWS-J ECP at Aberdeen Proving Ground, Maryland, in 3QFY21.
- The Army plans to execute a cooperative vulnerability and penetration assessment (CVPA) in June 2021 and an adversarial assessment June through July 2021 at Aberdeen Proving Ground, Maryland.
- The Army performed two system-level live fire test events in 4QFY19 in support of a Stryker CROWS-J force protection evaluation. The Army plans to conduct a final live fire test event in 2QFY21. First fielding is scheduled for 2QFY22. DOT&E plans to publish a joint operational and live fire evaluation report for CROWS-J ECP in FY22.

Stryker ATGM ECP

- DOT&E approved the Stryker ATGM ECP TEMP Annex and FOT&E test plan in September 2020.

- The Army conducted the Stryker ATGM ECP FOT&E and adversarial assessment at Yakima Training Center, Washington, from September 30 through October 9, 2020. DOT&E intends to publish an FOT&E test report in 2QFY21.

Assessment

- Prior to the CROWS-J operational assessment, the CROWS-J demonstrated significant software reliability deficiencies, system integration issues that slowed Javelin engagement times, and Forward Looking Infrared sight problems that led to poor crew target identification performance. This led the test team, with DOT&E concurrence, to downgrade the test to an EUA.
- Preliminary vulnerability assessment of CROWS-J against kinetic threats identified a crew vulnerability related to the vehicle's hatches and will be discussed in the classified survivability assessment.
- Analysis of the Stryker ATGM is ongoing.

Recommendations

The Army should:

1. Address the CROWS-J vulnerability to the kinetic threat as outlined in the classified survivability report.
2. Complete correction and testing of identified failure modes prior to conducting an operational assessment of the CROWS-J ECP.