

Integrated Visual Augmentation System (IVAS)



In FY23, Microsoft integrated software changes into the Integrated Visual Augmentation System (IVAS) 1.0 and 1.1 variants to improve reliability and hardware fixes into the IVAS 1.1 variant to improve low-light performance. The Army plans on evaluating improvements to the system and issuing IVAS 1.1 with a limited safety release to continue its campaign of learning. The Army intends to correct other system deficiencies identified in the DOT&E October 2022 IVAS 1.0 Operational Demonstration (Ops Demo) Report in the IVAS 1.2 system variant.

SYSTEM DESCRIPTION

The Army intends IVAS to be a soldier-worn system to increase soldier lethality in all environments and battlefield conditions at the battalion-level and below. The IVAS includes a heads-up display (HUD), a body-worn computer known as a puck, a networked data radio, and three conformal batteries for each soldier. The IVAS HUD provides a see-through display and augmented reality capability with integrated thermal and low-light imaging sensors, a built-in compass for navigation, and Tactical Assault Kit situational awareness software. The Intra-Soldier Wireless ultra-wide-band network enables passive targeting capabilities, connecting the Family of Weapon Sights – Individual mounted on a soldier's weapon to the sight picture in the HUD. The IVAS radio enables IVAS-equipped soldiers to transmit data within the company.

MISSION

The Army intends for close combat forces to employ IVAS in all environments and battlefield conditions to increase individual soldier's situational awareness and ability to detect, identify, and engage the enemy with direct fires. IVAS is intended to enhance collective lethality through the combination of improved communication, mobility, mission command, and marksmanship. Squads will train with IVAS in the Squad Immersive Virtual Trainer

to provide a high fidelity, live and mixed reality environment that enables the rapid conduct and repetition of select platoon-level battle drills and the immediate conduct of After-Action Reviews.

PROGRAM

IVAS is a Middle Tier of Acquisition program with variants in both the rapid fielding (IVAS 1.0 and 1.1) and prototyping phases (IVAS 1.2), intended to equip over 100,000 soldiers in the close combat force.

Based on the results from the IVAS 1.0 Ops Demo, which also identified cyber and electronic warfare vulnerabilities, conducted between May and June 2022, the Army adjusted the IVAS acquisition and fielding strategy to provide time for the Program Office and Microsoft to grow reliability, improve low-light performance, and develop a new form factor. The Army incorporated corrective actions to improve system reliability and performance of low-light sensors in the IVAS 1.1 variant. The Army intends to issue IVAS 1.1 systems to infantry, Stryker, and armored brigade combat team units using a limited safety release in 1QFY25 to inform the Army's campaign of learning. The Army intends to address other deficiencies identified in the 1.0 Ops Demo into the IVAS 1.2 variant and transition from MTA to the major capability acquisition pathway in FY25. The program is planning an operational test of the IVAS 1.2 variant in 2QFY25 to support a full-rate production decision in 4QFY25.

» MAJOR CONTRACTOR

- Microsoft Corporation – Redmond, Washington

TEST ADEQUACY

The vendor conducted testing in 3QFY23 of the technical changes to improve system reliability and performance of low-light sensors for the IVAS 1.1 variant. DOT&E personnel observed portions of the tests.

The Army is developing a test strategy for the IVAS 1.2 variant. Testing of IVAS 1.2 began in 4QFY23 with a User Assessment. Additional User Assessments and Soldier Touchpoints are planned through FY25. An operational test to assess operational effectiveness, suitability, and survivability of the production representative IVAS 1.2 variant is scheduled for 2QFY25 to support a full-rate production decision in 4QFY25. The Army will submit a test plan to DOT&E for approval prior to operational testing.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

DOT&E published an IVAS Ops Demo report in October 2022 but could not determine the operational effectiveness, suitability, and survivability of the IVAS 1.0 system because it is not production representative.

DOT&E is awaiting the Army T&E strategy of the IVAS 1.2 variant. DOT&E will assess the operational effectiveness, suitability, and survivability (electronic warfare and cyber survivability) of IVAS 1.2 after the completion of operational testing in 2QFY25.

RECOMMENDATION

The Army should:

1. Develop and submit a T&E strategy to assess the operational effectiveness, suitability, and survivability of the IVAS 1.2 variant to DOT&E for approval.

