

E-8 Joint Surveillance Target Attack Radar System (JSTARS)

Executive Summary

- The FY08 Qualification Operational Test and Evaluation (QOT&E) intends to test the Joint Surveillance Target Attack Radar System (JSTARS) Block 30 upgrades, including improvements in Close Air Support and alternate Air Support Operations Center capabilities and fixes to some of the JSTARS' E-8C radio problems. However, no OT&E has been conducted thus far.
- Major upgrades to the JSTARS E-8C aircraft, including the Enhanced Land Maritime Mode (ELMM)/Affordable Moving Surface Target Engagement (AMSTE) capability and advanced battle management capabilities, will require operational testing beyond the planned QOT&E.



System

- JSTARS' E-8C is an airborne target acquisition and tracking system.
- JSTARS consists of an Air Force E-8C aircraft, Army and Marine JSTARS Common Ground Work Stations, and a Surveillance and Control Data Link connecting them.
- JSTARS has Moving Target Indicator Radar and Synthetic Aperture Radar systems; a High Frequency, Ultra-High Frequency, and Very-High Frequency Satellite Communications suite; a multi-data link capability; 18 operator workstations; and an air refueling capability.

- The Block 30 upgrade includes an air-to-ground attack support upgrade, which includes Airborne Command and Control Center (ABCCC) replacement software and hardware.

Mission

- Air and ground commanders use JSTARS for battlefield surveillance, ground-to-ground and air-to-ground battle management, and intelligence indications and warnings.
- Warfighting commanders use JSTARS to find, detect, track, and classify time-sensitive moving and stationary ground targets.

Activity

- Ground and laboratory testing of JSTARS upgrades took place during much of FY06 while the JSTARS test aircraft was in scheduled maintenance.
- Initial flight testing began on the ELMM/AMSTE upgrade, which consists of new radar modes, a new tracking algorithm, nearly a million lines of additional software, a new processor, new antennas, a guidance control unit for Joint Direct Attack Munitions, and a new concept of maritime operations.
- The JSTARS Test Team performed engineering analyses and tests to identify and resolve the radio communications problems that the JSTARS' E-8C was having with other aircraft and ground stations.
- The JSTARS program made modifications to operator manuals and the concept of operations to address the serious shortfalls in conducting Close Air Support and alternate Air Support Operations Center missions.
- The plan to re-engine the JSTARS E-8C aircraft is near source selection.

Assessment

- Proven during Operations Enduring Freedom and Iraqi Freedom, JSTARS continues to provide commanders surveillance and situational awareness that was not available without JSTARS over the battlespace. However, JSTARS aircrews could not effectively conduct all mission tasks previously assigned to the decommissioned ABCCC system.
- The ELMM/AMSTE and battle management upgrades to JSTARS are significant in cost and scope and require operational testing. Thus far, there has not been a test plan submitted.
- The modifications to fix the shortfalls in conducting Close Air Support and alternate Air Support Operations Center missions and to fix the radio problems require operational testing. Thus far, no OT&E has been conducted.

AIR FORCE PROGRAMS

Recommendations

- Status of Previous Recommendations. The Air Force completed all of the FY05 recommendations, with the following exception:
FY05 #5: DOT&E recommended that the Air Force's Air Combat Command conduct further operational test and evaluation with JSTARS, fighter aircraft, and ground elements in order to resolve the issues identified during Close Air Support and alternate Air Support Operations Center testing. In addition, Phase II testing of the attack support upgrade should demonstrate Link 16 software capabilities.
- FY06 Recommendations.
 1. The ELMM/AMSTE and battle management upgrades should be operationally tested and the Test and Evaluation Master Plan should be updated.
 2. The Air Force, Army, and Marine Corps should review and evaluate whether current and planned upgrades to JSTARS meet their warfighting requirements and enhance the ability to conduct their missions.
 3. The fixes to JSTARS E-8C radio problems and shortfalls in conducting Close Air Support and alternate Air Support Operations Center missions should be tested during the QOT&E, scheduled to start in 2008.