

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

Executive Summary

- A 2005 operational assessment showed serious shortfalls in the Joint Surveillance Target Attack Radar System (JSTARS) ability to perform Close Air Support (CAS) missions previously performed by the Airborne Battlefield Command and Control Center (ABCCC).
- Air Force Operational Test and Evaluation Center (AFOTEC) conducted a 2005 operational assessment of the attack support upgrade.
- Engine upgrades and resolution of radio problems are required.
- The 2008 Qualification Operational Test and Evaluation (QOT&E) will test CAS capability and Block 30 upgrades.

System

- JSTARS, a remanufactured Boeing 707 aircraft, includes a radar system, communications suite, data link capability, 18 operator workstations, and an air refueling capability.
- JSTARS consists of an Air Force E-8C aircraft, an Army JSTARS Common Ground Station, and the Surveillance and Control Data Link connecting the two.



- The Block 30 upgrade includes an attack support upgrade and ABCCC replacement software and hardware.

Mission

- Air and ground commanders use JSTARS for battlefield surveillance, battle management, and intelligence indications and warnings.
- Warfighters use JSTARS to locate, track, classify, and support attacks against time-sensitive moving and stationary targets.

Activity

- The CAS operational assessment of the Block 30 upgrade in May 2005 utilized aircrews from the 116th Air Control Wing, and focused on the ability of JSTARS to assume the CAS mission tasks. These tasks were formerly assigned to the decommissioned ABCCC EC-130E aircraft.
 - JSTARS aircrews tested during a two-week simulation phase. Testing was done in accordance with DOT&E-approved test plans.
 - The Air Force, realizing serious JSTARS/CAS shortfalls, cancelled the operational assessment live flight phase.
- The Block 30 attack support upgrade testing in January–May 2005 assessed the ability to conduct digital communications via the Joint Tactical Information Distribution System (Link-16 radio). Testing consisted of several phases including lab, simulation, ground, and live flight testing.
- A Test and Evaluation Master Plan was approved in August 2005, which includes a QOT&E, scheduled for 2008, to test the entire Block 30 upgrade program.

- Commanders now have limited surveillance situational awareness which was previously absent without the E-8C JSTARS.
- JSTARS aircrews could not effectively conduct all mission tasks formerly assigned to the ABCCC during the 2005 CAS operational assessment.
- Attack support functions for controlling fighters and assigning missions and targets were successfully implemented in the upgrade.
- Full digital operations between JSTARS and other platforms were unsuccessful during attack support and battle management missions due to implementation inconsistencies of Link-16 between various platforms.
- Ultra High Frequency radio communications problems were observed during Operation Iraqi Freedom.
- Modification of the JSTARS concept of operations is required to support CAS missions.

Assessment

- JSTARS was assessed as operationally effective in operations other than war during 1996 Bosnian operations.

Recommendations

1. Modify the JSTARS concept of operations for CAS.
2. CAS mission training will be required before the QOT&E.
3. Radio communications deficiencies need to be resolved.

AIR FORCE PROGRAMS

4. Engine upgrades are required to improve mission reliability rates and increase operating altitudes.
5. Air Combat Command should conduct further operational test and evaluation with JSTARS, fighter aircraft, and ground elements in order to resolve the issues identified during attack support upgrade testing.