

Joint Standoff Weapon (JSOW) Baseline Variant and Unitary Warhead Variant

Executive Summary

- DOT&E assesses Joint Standoff Weapon (JSOW) Unitary performance in initial operational testing as effective but not suitable. Mission planning deficiencies must be rectified and combat effectiveness should be demonstrated by employing live JSOW Unitary weapons through realistic integrated air defenses.
- JSOW Baseline FY05 testing revealed weapons accuracy limitations not identified in prior testing. Wind effects in the target area significantly influence the ability of JSOW Baseline to consistently dispense submunitions patterns on the intended target. Accuracy improvements may be achievable through a combination of pending weapons software changes and modification of employment tactics, but must be validated through follow-on operational test and evaluation.
- Follow-on JSOW test activities require updated test documentation prior to the resumption of testing in FY06.

System

- JSOW is a family of 1,000-pound class, air-to-surface glide bombs intended to provide low observable, standoff precision engagement and launch and leave capability. All variants employ a tightly coupled Global Positioning System/Inertial Navigation System.
 - Baseline (AGM-154A) payload consists of 145 BLU-97/B combined effects submunitions.
 - Unitary (AGM-154C) payload consists of an augmenting charge and a follow-through bomb that can be set to detonate both warheads simultaneously or sequentially. JSOW Unitary also utilizes an imaging infrared seeker.



Mission

- Combatant commanders use JSOW Baseline to conduct pre-planned attacks on stationary soft point and area targets such as air defense sites, parked aircraft, components of airfields and port facilities, command and control antennas, stationary light vehicles, trucks and artillery, and refinery components.
- Combatant commanders use JSOW Unitary to conduct pre-planned attacks on point targets vulnerable to blast and fragmentation effects, and point targets vulnerable to penetration such as industrial facilities, logistical systems, and hardened facilities.

Activity

- Operational testing was conducted in accordance with DOT&E-approved Test and Evaluation Master Plans (TEMPS) for both the Baseline and Unitary JSOW variants.
- DOT&E issued the JSOW Unitary beyond low-rate initial production report in December 2004.
- The Navy conducted two operational test phases to verify the correction of deficiencies uncovered during JSOW Unitary initial operational testing in December 2004 and May 2005.
- JSOW operational testing through the Air Force Air-to-Ground Weapon System Evaluation Program supplemented previous test events and provided operationally representative employment data for Baseline system deficiency resolution and system improvement.

- Navy and Air Force test planning efforts to assess effectiveness and suitability of new operational flight program software common to both AGM-154A and AGM-154C were ongoing throughout FY05. Test execution begins in FY06.

Assessment

- The current JSOW Baseline and Unitary TEMPS do not address planned follow-on testing of the weapon system's Operational Flight Program (OFP) upgrade. JSOW OFP version 10.3 is an upgraded flight program that will be common to both JSOW variants. Baseline and Unitary TEMPS require an update to reflect this planned OFP testing before the start of operational testing in FY06.

JSOW Baseline:

- AGM-154A testing revealed that the weapon does not achieve consistent payload placement on the desired target in the presence of winds in the target area. Modeling and simulation suggest that pending OFP software changes and employment of multiple weapons from different axes may offer improved capabilities, but this has not been validated by operational testing.
- JSOW Baseline employment from F-16 BRU-57 smart rack carriage has yet to be accomplished in support of TEMP and Joint Operational Requirements Document specifications.

JSOW Unitary:

- DOT&E's JSOW Unitary beyond low-rate initial production report found that the system is effective but not suitable.
- JSOW Unitary's mission planning system does not consistently complete the computational process nor allow the user to plan weapon impact parameters. Furthermore, target images cannot be transferred into the system during land-based operations, and JSOW Unitary cannot accept the mission planning-developed fuze delay setting from the aircraft data transfer device.
- Improvements were observed in JSOW Unitary mission planning processes within the limited scope of subsequent testing, but a definitive assessment remains to be verified in planned FY06 testing.
- JSOW Unitary survivability models have not been validated by actual weapons delivery in the appropriate threat environment.

Recommendations

1. Update the JSOW TEMPs and provide a new or revised test plan prior to the resumption of JSOW FY06 operational testing.
2. Conduct follow-on operational testing of JSOW Baseline to characterize the weapon's ability to consistently place the payload on a target in the presence of winds. Testing should evaluate pending software change capabilities and employment tactics, techniques, and procedures that may lead to improved weapons effectiveness.
3. Conduct follow-on operational testing of JSOW Baseline weapons released from a BRU-57 smart rack on an F-16 aircraft to confirm Baseline weapon system capability with the new F-16 weapon carriage.
4. For JSOW Unitary to be fully effective and suitable the Navy should:
 - Improve mission planning to: enable the mission planning system to complete mission planning more reliably, quickly, and easily; permit impact parameter planning across the spectrum of JSOW-C targets; and ensure availability of imagery with accurate coordinates for automated planning activities
 - Characterize lethality by determining precise velocity decay of the follow-through bomb upon penetration of a hardened target exterior, identify correct fuze settings for moderately hardened targets, and enable fuze setting transfer to the F/A-18 aircraft
 - Confirm combat effectiveness, suitability, and survivability through operational testing of live JSOW Unitary weapons flown through realistic integrated air defenses