

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

Executive Summary

- The Air Force and Navy test agencies completed testing of a new Joint Standoff Weapon (JSOW) Operational Flight Program (OFP) software configuration that is common to both Baseline and Unitary variants.
 - Testing realized notable improvements in previously deficient JSOW Unitary mission planning software.
 - Testing did not resolve JSOW Baseline submunitions pattern placement inconsistencies observed in previous JSOW Baseline OFPs.
- The Navy completed developmental testing of JSOW Unitary Block II and certified the system ready for IOT&E that will begin in early FY08.
- JSOW Unitary FY08 Block II testing requires survivability model verification with live weapons testing in the appropriate threat environment.



System

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

Mission

- Combatant commanders use JSOW Baseline to conduct pre-planned attacks on soft point and area targets such as air defense sites, parked aircraft, airfield and port facilities, command and control antennas, stationary light vehicles, trucks, 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

- Air Force and Navy operational testing was conducted in accordance with DOT&E-approved Test and Evaluation Master Plans for both the Baseline and Unitary JSOW variants.
- FY07 test activity included the execution of Air Force and Navy operational testing of new JSOW software, OFP Version 10.3 that is common to both Baseline and Unitary variants. At the end of FY07, formal OFP test reporting was in progress.
- In addition to OFP testing, the Navy concluded developmental testing of the JSOW Unitary Block II weapon. At the end of FY07, the Navy certified JSOW Unitary Block II ready for Initial Operational Test and Evaluation (IOT&E). Block II IOT&E will begin in early FY08.

Assessment

- JSOW OFP 10.3 testing was adequate to support Navy and Air Force decisions to field the upgraded weapon software.
- JSOW Unitary weapons configured with OFP 10.3 demonstrated effective performance and adequate suitability. Notable improvements in the JSOW Unitary mission planning system enable operational users to effectively plan JSOW missions with acceptable work-arounds for minor deficiencies compared to previous JSOW Unitary mission planning capabilities.
- FY05 test results indicated that JSOW Baseline weapons did not achieve consistent payload placement on the desired target in the presence of winds in the target area. Software changes were incorporated into OFP 10.3 to attempt to mitigate

weapons guidance factors that contributed to previously observed submunitions pattern accuracy inconsistencies. At the end of FY07 OFP 10.3 testing, aggregate results for Navy and Air Force testing showed that JSOW Baseline accuracy was within Operational Requirements Document threshold specifications, but anomalies in submunitions pattern accuracies continued to be observed.

- JSOW Baseline submunitions pattern placement inconsistencies still remain largely unexplained in testing. Potential factors that affect weapons pattern placement relative to the desired aim point include differences in weapons release ranges relative to the target, target elevation, wind effects, and/or inherent limitations in JSOW Baseline guidance capabilities. Consistently predictable JSOW Baseline submunitions pattern placement is critical to weapon effectiveness and determines the number of weapons needed to ensure success against a given target. Operational units will have to compensate for pattern placement inconsistencies by employing additional weapons with combinations of offsetting and overlapping patterns and/or weapons dispensing directions to kill targets via target area weapons saturation. Force planners will need to take this into consideration to ensure adequate numbers of aircraft are available to deliver multiple weapons to achieve combat success with JSOW Baseline.

- JSOW Unitary successfully completed Block II developmental testing. The system is ready for IOT&E scheduled for early FY08. DOT&E's 2004 Report on IOT&E and LFT&E of JSOW Unitary cited the requirement to validate JSOW Unitary survivability modeling by actual weapons deliveries in the appropriate threat environment. This testing is to be accomplished as part of Block II testing, though specific details have not been provided by the Navy.

Recommendations

- Status of Previous Recommendations. Outstanding recommendations from FY05 and FY06 include the requirement for the Navy to identify a test venue to confirm combat effectiveness, suitability, and survivability through operational testing of live JSOW Unitary weapons flown through realistic integrated air defenses.
- FY07 Recommendation.
 1. The Navy should identify a test venue and test approach to confirm the JSOW Unitary survivability modeling with live weapons deliveries in the appropriate threat environment as part of FY08 Block II test efforts.