

## EA-6B Upgrades/Improved Capability (ICAP) III and Low Band Transmitter (LBT)

### Executive Summary

- The DOT&E Beyond Low-Rate Initial Production Report on EA-6B Improved Capability (ICAP) III, released in October 2005, determined that ICAP III is operationally effective and suitable.
- The Navy needs to address mission intelligence files development, night vision device compatibility, and crew mission task loading in FY06 testing, in addition to the planned Multi-Functional Information Distribution System (MIDS) integration.
- Although above the requirement, the Navy should consider integrating MIDS with the selective reactive jamming capability to achieve autonomous functionality, and to enhance the automatic identification and locating functions of the receiver suite.
- The Navy's planned assessment of Low Band Transmitter (LBT) Low-Rate Initial Production (LRIP) units needs to be conducted prior to early fielding in August 2006; this data will also support the FY07 Operational Evaluation (OPEVAL).



### System

- Legacy EA-6B ICAP II aircraft includes:
  - Four seat, carrier/land-based, tactical jet aircraft
  - Onboard receiver, external jamming pods, communication jammer, and High Speed Anti-Radiation Missile (HARM)
- EA-6B ICAP III improvements are designed to provide:
  - Enhanced reliability
  - All new receiver, processor, and antenna system (ALQ-218)
  - New tactical displays/interfaces
  - New joint mission planner
  - Off-board communications
- Legacy ALQ-99 jamming pods, communications jammer, and HARM will remain.
- LBT improvements over legacy low band pods:
  - Expand frequency coverage
  - Improve reliability - simplified design replaces three low-reliability transmitters

### Mission

- Combatant commanders use the EA-6B to support friendly air, ground, and sea operations by suppressing enemy radars and communications.
- Specifically, they use the EA-6B to:
  - Jam integrated air defense systems
  - Suppress enemy radar guided threats with HARM
  - Support emerging missions
- EA-6B ICAP III mission improvements include:
  - Counters to threat advances
  - More flexible and effective protection of strike aircraft, due to improved signal identification and locating
  - More accurate HARM targeting
  - Improved battle management
  - Streamlined mission planning and post flight analysis
- LBT jams radars and communications.

### Activity

#### EA-6B ICAP III

- The Navy completed an extensive FY05 flight program to Verify Correction of Deficiencies (VCD) identified during the FY04 OPEVAL. DOT&E's independent assessment of ICAP III supported a beyond LRIP report in October 2005, which determined the system as operationally effective and

- suitable. The OPEVAL and VCD were the primary operational tests used to support the Navy proceeding to Milestone III in October 2005 and starting ICAP III full-rate production.
- The first four EA-6B ICAP III aircraft, with LRIP systems were delivered to a deployable fleet EA-6B squadron.

# NAVY PROGRAMS

- Partial assessment of the integration of the MIDS on EA-6B ICAP III aircraft was conducted in FY05. Full operational testing of MIDS is planned for follow-on testing in FY06. MIDS is a digital link that allows EA-6Bs to automatically receive and transmit information with other ground and air assets.

## **Low Band Transmitter (LBT)**

- Limited developmental flight testing at the Nevada Test and Training Range, using an Engineering Manufacturing Development low band transmitter pod, assessed the effectiveness of LBT in a limited threat environment to support early fielding for combat operations.
- The Navy purchased 17 LRIP LBTs in FY05. The first 10 will support early fielding in August 2006. The Navy expects a LBT full-rate production decision in FY07.

## **Assessment**

### **EA-6B ICAP III**

- The Navy's FY05 VCD verified that the major deficiencies in the FY04 OPEVAL had been corrected. Commander, Operational Test and Evaluation Force, the Navy's operational test agency, and DOT&E reported this new weapons system to be operationally effective and suitable, supporting the Navy's full-rate production decision on ICAP III.
- The ICAP III weapons system combines better crew situational awareness with improved speed and accuracy of electronic threat detection, identification, and locating functions, to enhance the suppression of enemy radar-guided threats compared to the legacy system.
- The deficiencies that should be addressed in follow-on test and evaluation are related to development of mission intelligence files, night vision device compatibility concerns with the readability of cockpit displays, and new crew task lists to support improved cockpit functionality.
- Testing of ICAP III revealed that if the Navy integrates the automatic selective reactive jamming capability with MIDS, it could benefit the warfighters. This will provide the operators more timely fusion of accurate threat emitter information and supported striker positioning. Additionally, enhancement of the automatic receiver identification and locating functionality should reduce the operator work load.
- An early version of the mission planner was assessed under EA-6B testing. A more complete version will be tested under the Navy's Joint Mission Planning System architecture. This is planned for FY06.

- The validation of procedures for standardized intelligence files development should include an assessment of the Navy's Advanced Multiple Emitter Environment Simulators capability to support future intelligence file development for EA-6B ICAP III future testing and combat operations. Advanced Multiple Emitter Environment Simulators III is a laboratory threat signal simulator that is the critical tool in developing the geo-location considerations for intelligence file development.
- FY05 testing was conducted in accordance with the DOT&E-approved Test and Evaluation Master Plan.

## **Low Band Transmitter (LBT)**

- Testing of Engineering Manufacturing Development pods in 2004 provided insight into performance of LBT production representative pods, but the demonstrated reliability was poor. The Navy did learn from this testing and modified LRIP pods to improve reliability, which will be evaluated in the Navy's planned assessment in FY06.
- The limited development testing for early fielding showed LBT to be operationally effective for the specific intended mission set. The early fielding plan to support combat operations is a priority for the Navy and Marine Corps. Follow-on testing of the complete mission set is still required.

## **Recommendations**

### **EA-6B ICAP III**

1. The Navy should address, in FY06 testing, the deficiencies found in the mission intelligence files development, night vision device compatibility, and crew mission task loading.
2. Although not a requirement, the Navy should consider upgrading the integration of MIDS with the automatic selective reactive jamming capability of the ICAP III EA-6B, along with improved automatic receiver suite functionality.

## **Low Band Transmitter (LBT)**

1. The Navy must conduct the planned assessment of LBT LRIP units prior to the early fielding in 4QFY06, which will provide the Navy a preliminary assessment of the effectiveness and suitability of the low band transmitter LRIP units. Additionally, this assessment will help the Navy prepare for the OPEVAL in FY07.
2. An update of the Test and Evaluation Master Plan must be accomplished in FY06 to support the program changes, due to the early fielding of LBT and anticipated delays of OPEVAL.