

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

Executive Summary

ICAP III Block 2

- The Navy demonstrated significant improvement to the EA-6B aircrew's battle-space awareness in the Improved Capability (ICAP) III Block 2 Follow-on Operational Test and Evaluation (FOT&E). This included assessment of the ICAP III's digital link/Multi-function Information Display System (MIDS).

Low Band Transmitter (LBT)

- Emerging results of the IOT&E for Low Band Transmitter (LBT) indicate that this new jamming pod will provide improved flexibility and reliability, while providing comparable operational effectiveness to the multiple legacy low band pods it replaces.
- The Navy fielded an early operational capability of the LBT on older versions of EA-6B aircraft in FY07 to support specific operational missions. A Quick Reaction Assessment of LBT in FY06 supported this capability.
- The lack of open air threat resources to support testing the full mission capabilities of LBT limited the Navy's objective evaluation of LBT upon completion of the IOT&E. The Navy relied heavily on subjective side-by-side comparisons of LBT to legacy jamming pods.

System

EA-6B

- The EA-6B aircraft is a four seat, carrier/land-based, tactical jet aircraft with an onboard receiver, external jamming pods, a communication jammer, and a High Speed Anti-Radiation Missile (HARM).
- The EA-6B is currently the Navy's fielded Airborne Electronic Attack (AEA) platform.

ICAP III Block I improvements are designed to provide:

- Enhanced reliability
- A new receiver, processor, and antenna system (ALQ-218)
- New tactical displays/interfaces
- Baseline new joint mission planner
- Better external communications

ICAP III Block 2 adds the following to Block 1:

- Improved battle space management capabilities with the MIDS/digital link
- Improved joint mission planner

ICAP III Block 3 adds the following to Block 2:

- Upgraded messaging capability for MIDS/digital link
- Capability to employ LBT
- Upgraded end-to-end automatic reactive jamming capability
- Improved joint mission planner



- Improved software to introduce corrections and enhancements previously integrated in older EA-6B systems

Low Band Transmitter (LBT)

- LBT improvements over legacy low band pods are designed to:
 - Expand frequency coverage
 - Provide better reliability as the simplified design replaces three low-reliability transmitters

USQ-113

- To meet emerging threats, the USQ-113 (V)4 is designed to be more capable and to improve operator utility compared to the fielded USQ-113 system.

Mission

EA-6B

- Combatant commanders use the EA-6B to support friendly air, ground, and sea operations by suppressing enemy radars and communications.
- Commanders use the EA-6B capabilities to suppress enemy radar-guided threats with HARM and jam integrated air defenses, in addition to supporting emerging asymmetric missions.

ICAP III

- Units equipped with EA-6B ICAP III use its improvements to provide:
 - Counters to emerging threats
 - More flexible and effective protection of strike aircraft
 - More accurate HARM targeting

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- Improved battle management and enhanced connectivity to national, theater, and tactical strike assets
- Selective reactive jamming capability to allow automatic detection and jamming of threats as they become active
- Streamlined mission planning and post flight analysis

LBT

- Commanders use LBT and other EA-6B assets to jam radars and communications.

Activity

EA-6B

- EA-6B ICAP III testing in FY07 was conducted in accordance with the DOT&E-approved Test Evaluation and Master Plan (TEMP) (FY06 Revision B) and test plans.

ICAP III Block 1

- In FY06, the Navy entered EA-6B ICAP III full-rate production following a successful development program and delivery of a DOT&E report to Congress that assessed the system as operationally effective and suitable.

ICAP III Block 2

- In FY07, the Navy completed FOT&E of the ICAP III Block 2, which included testing of the new battle space management capabilities of the MIDS system, as well as upgraded versions of the new Joint Mission Planning System (JMPS).

ICAP III Block 3

- The Navy initiated operational test planning in FY07 for the ICAP III Block 3, which incorporates LBT functionality.
- The Navy initiated a third revised TEMP to support planned FY08 ICAP III Block 3 testing.

LBT

- The LBT is in the System Development and Demonstration phase in preparation for a full-rate production decision early in FY08.
- The Navy fielded an early operational capability of LBT on older versions of the EA-6B in FY07 to support specific operational missions. A Quick Reaction Assessment of LBT in FY06 supported this capability.
- The Navy completed an IOT&E of LBT in FY07 to support a 2QFY08 full-rate production decision. The Navy conducted this test at the Naval Air Warfare Center, China Lake, California, and at the Air Force's Nevada Test and Training Range.
- DOT&E approved the Navy's updated LBT TEMP (Revision A) in FY07.
- LBT testing in FY07 was conducted in accordance with DOT&E-approved TEMP and test plans.

USQ-113

- To support a Rapid Deployment Capability, the Navy began a Quick Reaction Assessment of the USQ-113 (V)4 communications jammer in FY07.
- The Navy began operational test planning for the EA-6B's upgrades to the USQ-113 (V)4 communications jammer in FY07.

Assessment

ICAP III Block 1

- The ICAP III weapons system combines better crew situational awareness with improved speed and accuracy of electronic threat detection, identification, and locating to enhance the suppression of enemy radar-guided threats compared to older EA-6B systems.

ICAP III Block 2

- The Navy demonstrated significant improvement to the EA-6B aircrew's battle-space awareness in the ICAP III Block 2 FOT&E. This included assessment of the ICAP III's MIDS/digital link.
- The end-to-end automatic functioning of the ICAP III selective reactive jamming capability is not being operationally utilized.
- The current planning techniques for using the ALQ-218 receiver system mission information for post-flight development of regional specific mission intelligence files, do not provide EA-6B operators high confidence in characterizing unanticipated radars for follow-on missions.
- Although the Navy's dedicated testing of JMPS in FY07 indicates JMPS functionality on the ICAP III is adequate, this new mission planner continues to show more deficiencies related to the complex ICAP III mission planning environment when compared to the simpler mission planning environment for older EA-6B systems.

ICAP III Block 3

- Navy test planners applied ICAP III Block 2/MIDs operational experience to improve testing of new battle space management capabilities for ICAP III Block 3. ICAP III Block 3 testing is planned to be a total system evaluation in mission oriented scenarios, as opposed to a test of discrete components for the first two increments of ICAP III.

LBT

- Emerging results of the IOT&E for LBT indicate that this new jamming pod will provide improved flexibility and reliability, while providing comparable operational effectiveness to the multiple legacy low band pods it replaces.
- The lack of open air threat resources to support testing the full end-to-end mission capabilities of LBT and AEA platforms and subsystems, limited the Navy's objective evaluation of LBT upon completion of the IOT&E. The Navy relied heavily on subjective side-by-side comparisons of LBT to legacy jamming pods.

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- The open air low band jamming test resource limitations are driven by very narrow frequency jamming restrictions and non-availability of specific threat radars.
- The Navy provided extensive reliability data from the early operational use of LBT, which is critical to evaluating the LBT's suitability prior to the full-rate production decision.

Recommendations

- Status of Previous Recommendations. Two of the six issues from previous DOT&E recommendations remain unresolved. The Navy should address the deficiencies found in the process used to develop EA-6B ICAP III mission intelligence files and

continue to develop tactics to operationally employ the ICAP III selective reactive jamming capability (FY05).

- FY07 Recommendations.

ICAP III

1. The Navy should conduct ICAP III Block 3 testing in FY08 as a total system evaluation in a mission environment.

Low Band Transmitter (LBT)

1. The Services should provide adequate test resources to evaluate the full end-to-end mission capabilities of new AEA platforms and subsystems.

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