EA-18G Growler (Electronic Attack variant of F/A-18)

Executive Summary

- In support of the 4QFY07 Milestone C / low-rate initial production (LRIP) decision, DOT&E reported that the demonstrated maturity of the Growler's mission capabilities exceeds planned expectations for this stage of system development.
- The Navy conducted 11 flight test missions that successfully demonstrated the EA-18G's end-to-end capability, including the crew interaction, to detect, identify, and jam simple threats in-flight.
- Based on a successful first operational assessment (OA), the Milestone Decision Authority (MDA) and USD (AT&L) approved entry into the EA-18G LRIP for the first phase (eight kits) of the 26 total planned LRIP EA-18G Airborne Electronic Attack (AEA) kits.
- The Navy's application of integrated testing of EA-18G mission capabilities allowed early identification of higher risk areas. This allowed the Navy more time to aggressively pursue resolution of the identified risks.
- In accordance with the approved plans, the Navy tested only partial EA-18G functionality in support of the LRIP I decision, but has begun testing full EA-18G system functionality in support of the second LRIP.

System

- The EA-18G Growler is a carrier-based radar and communication jammer.
- The two-seat EA-18G replaces the Navy's four-seat EA-6B. The new ALQ-218 receiver, improved connectivity, and linked displays are the primary design features implemented to reduce the operator workload in support of the EA-18G's two-person crew.
- Integration of AEA capability into the F/A-18F includes:
  - Modified EA-6B Improved Capability (ICAP) III ALQ-218 receiver system
  - Advanced crew station
  - Legacy ALQ-99 jamming pods
  - New Communications Countermeasures Receiver Set (CCS)
  - Expanded digital Link 16 communications network
  - Electronic Attack Unit
  - Interference Cancellation System (INCANS) which supports communications while jamming

  - Satellite receive capability via the Multi-mission Advanced Tactical Terminal (MATT)
- Additional systems include:
  - Active Electronically Scanned Array (AESA) radar
  - Joint Helmet Mounted Cueing System
  - High Speed Anti-radiation Missile (HARM)
  - AIM-120 Advanced Medium-Range Air-to-Air Missile (AMRAAM)

Mission

- Combatant commanders use the EA-18G to support friendly air, ground, and sea operations by suppressing enemy radar and communications.
- Commanders use the EA-18G capabilities to:
  - Jam integrated air defenses
  - Support non-integrated air defense missions and emerging non-lethal target sets
  - Enhance crew situational awareness and mission management
  - Enhance connectivity to national, theater, and tactical strike assets
  - Provide enhanced lethal suppression through more accurate HARM targeting
  - Provide the EA-18G crew air-to-air self-protection with AMRAAM

Activity

- The Navy completed the first OA of the EA-18G to assess the progress of the Growler's Weapons System development and integration, in support of a 4QFY07 Milestone C/LRIP decision.

- The OA included 11 mission representative flight test events at the Atlantic Test Range, Naval Air Warfare Center Patuxent River, Maryland; the Electronic Combat Range at the Naval Air Weapons Center China Lake, California; and the Nevada Test and Training Range Nellis AFB, Nevada.
- In support of the FY07 LRIP decision, the Navy conducted over 100 hour hours of mission systems flight tests on the EA-18G, and over 1,100 hours in the Air Combat Environment Test and Evaluation Facility (ACETEF) chamber.
- OSD approved a second revised Test and Evaluation Master Plan (TEMP) (Revision B) to support the EA-18G program's entry into LRIP, and commencement of an Integrated Test and Evaluation (IT&E) strategy.
- The Navy's IT&E planning in FY07 incorporated EA-18G effectiveness data products that simultaneously support DOT&E's Live Fire Analysis of EA-18G susceptibility to radar-guided threats.
- DOT&E approved the EA-18G Operational Test Framework in FY07, which provides detailed test objectives for the integrated testing, and allows early preparation of detailed test plans for a second OA and the FY09 IOT&E.
- Since the first OA was completed in 2QFY07, the Navy has continued testing the EA-18G AEA system's Core Block I functionality, which includes both hardware (CCS, INCANS, and MATT) and software (Build 2.0).
- The Navy completed over 50 hours of flight test and 800 hours of ground test in the ACETEF with Build 2.0 software.
- The Navy commenced the IT-C1 test period in early FY08, which includes the second EA-18G OA, following DOT&E approval of the test plan. This second OA is designed to support a Program Review prior to the Navy entering the second phase of LRIP in 3QFY08.
- FY07 testing was conducted in accordance with the USD (AT&L)- and DOT&E-approved TEMPs.

Assessment

- Based on a successful first OA, the MDA and USD (AT&L), approved entry into EA-18G LRIP for the first phase (eight kits) of 26 total LRIP EA-18G Airborne Electronic Attack kits. Total EA-18G production is planned for 84 aircraft/kits.
- DOT&E provided a LRIP letter in support of the Milestone C decision, stating that testing was adequate, and the demonstrated maturity of the Growler's mission capabilities exceeds planned expectations for this stage of system development.
- The Navy conducted 11 flight test missions that successfully demonstrated the EA-18G's end-to-end capability, including the crew interaction, to detect, identify, and jam a simple threats in-flight.
- The Navy's application of integrated testing of EA-18G mission capabilities allowed early identification of higher risk areas, allowing the Navy more time to aggressively pursue the three following areas of risk to the EA-18G program:
  - ALQ-218 Receiver software stability
  - ALQ-218 Receiver and Aircraft Antenna threat locating capabilities
  - Mission Planning functionality
- In accordance with the approved plans, the Navy tested only partial EA-18G functionality in support of the LRIP I decision.
  - The Navy and DOT&E were able to evaluate the EA-18G's basic threat signal identification and simple jamming in-flight, an initial version of the mission planning system, and the utility of a two-person crew on some missions.
  - The Navy only assessed the new communications countermeasures set functionality, low band transmitter integration, precision threat locating, complex threat identification, and jamming development maturity. Although the Navy began flight testing these new subsystems and capabilities on the EA-18G in late FY07, they will not be assessed on the EA-18G in a mission environment until the second OA in FY08 is complete.
- To better understand the risks related to maturity of the EA-18G's full system functionality prior to completing the decision to approve 18 additional EA-18G AEA kits in 3QFY08, the MDA added entry criteria for the LRIP II Program Review and IOT&E, including completion of a second OA to support the formal LRIP II Program Review.
- The Navy initiated a third revised TEMP (Revision C) that is aligned with the Capability Production Document that added new requirements, and to incorporate the entry criteria specified in the Milestone C Acquisition Memorandum.

Recommendations

- Status of Previous Recommendations. The Navy has taken effective action on the FY06 DOT&E recommendations.
- FY07 Recommendation.
  1. The Navy should submit a revised TEMP (Revision C) that is aligned with new requirements and incorporates applicable LRIP II and IOT&E entry criteria.