

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

### Executive Summary

- The Navy's application of integrated testing of the EA-18G enabled early identification of areas of risk. This early identification provided the Navy more time to aggressively pursue resolution of risk areas and deficiencies.
- Integrated Operational Test and Evaluation (IOT&E) occurred from October 1, 2008, to May 4, 2009, and included 471 flight test hours.
- DOT&E completed its EA-18G Beyond Low-Rate Initial Production (BLRIP) Report and Live Fire Test and Evaluation survivability assessment in September 2009.
- The EA-18G is operationally effective, but not operationally suitable based upon poor maintainability, Built-in Test (BIT) performance, and interfaces with the legacy ALQ-99 jamming pods. The EA-18G is survivable in its planned operational environment.

### System

- The EA-18G Growler is a carrier-based radar and communication jammer aircraft.
- 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 the AEA system into the F/A-18F includes:
  - Modified EA-6B Improved Capability III ALQ-218 receiver system
  - Advanced crew station
  - Legacy ALQ-99 jamming pods
  - Communication Countermeasures Set System
  - Expanded digital Link 16 communications network
  - Electronic Attack Unit
  - Interference Cancellation System that supports communications while jamming
  - Satellite receive capability via the Multi-mission Advanced Tactical Terminal
- Additional systems include:
  - Active Electronically Scanned Array radar
  - Joint Helmet-Mounted Cueing System
  - High-Speed Anti-Radiation Missile (HARM)

### Activity

- DOT&E approved a third revised Test and Evaluation Master Plan (TEMP) (Revision C) in May 2008 that was aligned with the Capability Production Document. This document



- 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 countering enemy radar and communications.
- Commanders use the EA-18G capabilities to:
  - Jam integrated air defense systems
  - 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 accurate HARM targeting
  - Provide the EA-18G crew air-to-air self-protection with AMRAAM

### Prime Contractor

- The Boeing Company, Integrated Defense Systems, St. Louis, Missouri

incorporated the entrance criteria for the IOT&E (OT-C1) that included 471 flight test hours.

# NAVY PROGRAMS

- The EA-18G entered IOT&E on October 1, 2008, and concluded May 4, 2009.
- During IOT&E the EA-18G participated in multiple operational test events, including Mission Employment Large Force Exercises (LFEs) in December 2008. The LFE provided an operational environment to better assess interoperability with other Services and agencies. In particular, Multi-functional Information Distribution System and Link 16 information on targeting and threat radar site locations was passed between various other participants of the LFE.
- The Navy also conducted operational testing at the China Lake Electronic Combat Range and aircraft carrier suitability onboard CVN 74.
- DOT&E approved a fourth revised TEMP (Revision D) in August 2009 that included additional detail for FOT&E.
- The Navy conducted testing in accordance with the DOT&E-approved TEMPs and test plan.
- The Navy conducted additional, limited testing of software to address BIT deficiencies in July of 2009.
- DOT&E completed the EA-18G BLRIP Report and LFT&E Report in September 2009.

## Assessment

- The Navy's application of integrated testing of EA-18G mission capabilities resulted in early discovery of technical risks, allowing the Navy more time to mitigate developmental problems.
- The EA-18G is operationally effective, but not operationally suitable based upon poor maintainability associated with ALQ-218 BIT performance and interface with the legacy ALQ-99 jamming pods.
- Additional testing in July of 2009 of software version H5E+ indicates that the newer software may have eliminated many of the BIT problems. The Navy has scheduled a Verification of Correction of Deficiencies for September 2009 and FOT&E for spring of 2010 that will allow full evaluation of the new software, as well as other Navy actions to improve current suitability problems. The Navy's aggressive problem solving demonstrated throughout system development is likely to result in BIT software maturation.

- The Live Fire test program showed that the EA-18G is survivable, but has Situational Awareness limitations that increase its susceptibility due to the lack of a dedicated radar warning receiver capability.

## Recommendations

- Status of Previous Recommendations. There were no previous recommendations from FY08.
- FY09 Recommendations. The Navy should:

### EA-18G Aircraft

1. Continue Verification Correction of Deficiency testing and FOT&E to confirm maintainability problems have been fixed.
2. Improve reliability of the current ALQ-99 pods and consider accelerated development of the Next Generation Jammer.
3. Minimize aircrew workload management to include upgrading the pilot Tactical Situation Display comparable to the EA-6B.
4. Improve hardware and software diagnostic tools for the ALQ-218 and update the Interactive Electronic Technical Manual System accordingly.
5. Conduct survivability studies to assess the benefits of a threat warning system that could provide timely notification of types and locations of targeting threats.
6. Assess the safety and performance benefits of adding higher performance engines.

### Electronic Warfare Warfighting Improvements

7. Support ongoing DoD efforts to investigate, evaluate, and make recommendations to improve Enterprise Electronic Warfare test capabilities associated with open-air ranges, test and evaluation facilities, concepts, processes, and procedures.
8. Assess requirements to improve Electronic Warfare modeling and simulation capabilities to support ground testing of future AEA capabilities, to include multi-signal threat environments.
9. Assess the need for and benefits of building a more capable threat range at Naval Air Station Whidbey Island, Washington.