

Aegis Modernization Program

Executive Summary

- Operational testing of Aegis Guided Missile Cruisers (CGs 52-58) upgraded with Aegis Warfare System (AWS) Advanced Capability Build 2008 (ACB08) commenced in July 2010 and is expected to be completed in 3QFY11.
- The analysis of test data collected during the Undersea Warfare, maintainability, and information assurance portions of operational testing is still in progress. No preliminary evaluation is available. DOT&E expects to issue a test report in 4QFY11.

System

- The Navy's Aegis Modernization program provides updated technology and systems for existing Aegis Guided Missile Cruisers (CG 47) and Destroyers (DDG 51). This planned, phased program provides similar technology and systems for new Destroyers.
- The AWS, carried on DDG 51 Guided Missile Destroyer and CG 47 Guided Missile Cruisers, integrates the following components:
 - AWS AN/SPY-1 three-dimensional (range, altitude, and azimuth) multi-function radar
 - SQQ-89 Undersea Warfare suite that includes the AN/SQS-53 sonar, SQR-19 passive towed sonar array (DDGs 51-78, CGs 52-73), and the SH-60B or MH-60R Helicopter (DDGs 79 and newer have a hangar to allow the ship to carry and maintain its own helicopter)
 - Close-In Weapon System
 - Five-inch diameter gun
 - Harpoon anti-ship cruise missiles (DDGs 51-78, CGs 52-73)
 - Vertical Launch System that can launch Tomahawk land-attack missiles, STANDARD surface-to-air missiles, Evolved SeaSparrow Missiles, and Vertical Launch Anti-Submarine Rocket missiles
- The AWS on Baseline 2 Aegis Guided Missile Cruisers (CGs 52-58) was upgraded with commercial off-the-shelf hardware running the AWS software Advanced Capability Build 2008 (ACB08).



- The AWS on new construction Aegis Guided Missile Destroyers (DDGs 103-112) is Baseline 7.1R.

Mission

The Maritime Component commander can employ AWS-equipped DDG 51 Guided Missile Destroyers and CG 47 Guided Missile Cruisers to:

- Conduct Anti-Air Warfare, Anti-Surface Warfare, and Anti-Submarine Warfare.
- Conduct Strike Warfare when armed with Tomahawk missiles
- Conduct offensive and defensive warfare operations simultaneously.
- Operate independently or with Carrier or Expeditionary Strike Groups, as well as with other joint or coalition partners.

Major Contractors

- General Dynamics Marine Systems Bath Iron Works – Bath, Maine
- Northrop Grumman Shipbuilding – Pascagoula, Mississippi
- Lockheed Martin Maritime Systems and Sensors – Moorestown, New Jersey

Activity

- Commander, Operational Test and Evaluation Force (COTF) conducted all portions of the planned operational test of AWS ACB08 with the exception of air defense testing scheduled to be conducted in 3QFY11. Undersea Warfare testing was conducted on USS *Philippine Sea* (CG 58) at the Atlantic Undersea Test and Evaluation Center (AUTECE) in

July 2010. Information Assurance testing and maintainability testing (i.e., maintenance demonstration) were conducted on USS *Mobile Bay* (CG 53) in September 2010. COTF conducted the testing in accordance with the DOT&E-approved test plan.

NAVY PROGRAMS

- Based on test results to date, the Navy is evaluating whether to deploy one AWS ACB08-equipped Cruiser in 1QFY11, prior to the completion of air defense, surface warfare, and suitability operational testing in 3QFY11.
- The Navy completed repair of critical software faults discovered during earlier developmental testing that ultimately prevented operational testing of the AWS Baseline 7.1R. In August 2010, the Navy certified baseline 7.1R for shipboard installation and continued testing. The Navy intends to deploy one AWS Baseline 7.1R-equipped Destroyer in 1QFY11, prior to the conduct of operational testing scheduled to be conducted in 1QFY12.
- The Navy is updating its Test and Evaluation Master Plan (TEMP) to incorporate follow-on AWS baseline ACB 2012 (ACB12). ACB12 is intended as a family of baselines that will include DDG (51-90) with Ballistic Missile Defense (BMD) capability, CG (59-69) without BMD, and CG (67, 70, 72, and 73) with BMD.

Assessment

The analysis of test data collected during the Undersea Warfare, maintainability, and information assurance portions of AWS ACB08 operational testing is still in progress. No preliminary evaluation is available. DOT&E expects to issue a formal test report in 4QFY11.

Recommendations

- Status of Previous Recommendations. The Navy satisfactorily addressed one of the previous five recommendations. The following recommendations remain valid:
 1. The Navy should complete all planned key operational tests of AWS Baseline 7.1 in accordance with the DOT&E-approved TEMP and test plan.
 2. The Navy should continue to improve the AWS ability to counter high-speed surface threats in littoral waters and Standard Missile reliability.
 3. The Navy should correct the AWS and AN/SPY-1D(V) radar training and human systems integration deficiencies in addition to providing appropriate tactical documentation to support effective combat system employment
- FY10 Recommendation.
 1. The Navy should work to synchronize the conduct and reporting of OT&E with intended ship deployment schedules to assure that future AWS baselines complete OT&E prior to initial deployment.