DDG 51 Guided Missile Destroyer

Executive Summary
- DDG 51 is operationally effective in open ocean battle space, although its execution of the anti-air warfare mission is limited by Standard Missile reliability and performance problems.
- DDG 51 is less effective in littoral waters where it may encounter asymmetric, high-speed surface threats.
- Aegis Weapon System (AWS) Baseline 7.1.1.1 and the AN/SPY-1D(V) radar are not operationally suitable due to deficiencies in human systems integration, documentation, and training.

System

The DDG 51 Guided Missile Destroyer is a combatant ship equipped with:
- The 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, and the SH-60B or MH-60R Helicopter (DDG 79 and newer have a hangar to allow the ship to carry and maintain its own helicopter)
- Five-inch diameter gun
- Harpoon anti-ship cruise missiles
- The Vertical Launch System that can launch Tomahawk land attack missiles, Standard surface-to-air missiles, Evolved Sea Sparrow Missiles, and Vertical Launch Anti-Submarine Rocket missiles

Mission

The Maritime Component commander can employ DDG 51 to:
- Conduct Anti-Air Warfare, Anti-Surface Warfare, and Anti-Submarine Warfare

- Conduct land attack warfare when armed with Tomahawk missiles
- Conduct offensive and defensive warfare operations simultaneously when necessary
- Operate independently and with Carrier or Expeditionary Strike Groups as well as with other joint or coalition partners

Activity
- The Commander, Operational Test and Evaluation Force (COMOPTEVFOR) conducted operational testing and evaluation of ships with AWS Baseline 7.1.1.1 software installed (hulls 91-102) in October and November 2005.
- COMOPTEVFOR also conducted operational test and evaluation of the AN/SPY-1D(V) radar with the AWS testing.
- The DDG 51 Test and Evaluation Master Plan (TEMP) 801 is being updated for follow-on test and evaluation of the next AWS Baseline (7.1R) in DDG 51 class Destroyer hulls 103 through 112.

Assessment
- Operational testing was adequate and conducted in accordance with DOT&E-approved test plans.
- Ships with AWS Baseline 7.1.1.1, employing the new AN/SPY-1D(V) radar, have increased capability in both open ocean and littoral waters.
- Anti-air warfare effectiveness is limited due to Standard Missile reliability and performance problems.
- While some improvement was evident, the AWS continues to have limited effectiveness in littoral waters against high-speed surface threats.
- AWS Baseline 7.1.1.1 and the AN/SPY-1D(V) radar are not operationally suitable due to deficiencies in human systems integration, documentation, and training.

Recommendations

- Status of Previous Recommendations. The Navy has closed three of the four recommendations from FY05, but the following recommendation has not been resolved and requires further attention.
  FY05 #1: DOT&E recommended that the Navy complete testing of the Baseline 7.1 ships. This recommendation remains valid.
- FY06 Recommendations. The Navy should:
  1. Complete the revision of the DDG 51 TEMP for testing the AWS 7.1R baseline in DDG 51class hulls 103–112.
  2. Continue to improve the AWS ability to counter high-speed surface threats in littoral waters.
  3. Correct the Standard Missile reliability and performance deficiencies that limit air warfare effectiveness.
  4. 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.