

DDG 1000 *Zumwalt* Class Destroyer (formerly DD(X))

Executive Summary

- The program continued effective technology risk reduction in FY06 through developmental testing and Engineering Development Model demonstrations.
- The program is conducting an active LFT&E program to gain survivability insights.
- IOT&E is expected in 2013.

System

DDG 1000 is a new combatant ship with a hull form that is designed to be difficult to detect on radar. It is equipped with:

- Two Advanced Gun System (AGS) 155 mm guns that fire the Long-Range Land Attack Projectiles (LRLAP)
- Dual Band (X-band and S-band) radar
- Eighty vertical launch cells that can hold a mix of Tomahawk missiles, Standard (anti-air) Missiles, Vertical Launch Anti-Submarine Rockets, or Evolved Sea Sparrow Missiles
- Integrated Undersea Warfare system with high- and medium-frequency sonar to detect submarines and assist in avoiding mines
- An ability to embark and maintain MH-60R helicopters with a capacity to carry vertical take-off unmanned aerial vehicles

Mission

- The Joint Force Maritime Component Commander can employ DDG 1000 to accomplish:
 - Land Attack Warfare using LRLAP or Tomahawk cruise missiles



- Surface Warfare
- Anti-Air Warfare
- Undersea Warfare
- DDG 1000 can operate independently or in conjunction with an Expeditionary or Carrier Strike Group.

Activity

- The program conducted no operational testing in FY06.
- The Navy completed the initial vulnerability assessment report in September 2005 and is actively working on modeling and simulation gaps identified in the report.
- The System Development and Demonstration phase of the LFT&E program is almost fully defined.
- Guided flight-testing of the LRLAP continued in FY06. The LRLAP design team has conducted a total of nine flight tests from a land-based test site at Point Mugu, California.
- The Multi-Function Radar was installed on the Self Defense Test Ship for observation of its performance at sea.

Assessment

- Commander, Operational Test and Evaluation Force maintains access to all developmental test events as appropriate to gain insight to DDG 1000 operational capabilities. The program has what appears to be an effective developmental test program.

- The Multi-Function Radar was observed to perform satisfactorily at sea.
- The Navy has not identified adequate facilities for measuring and calibrating magnetic, acoustic, and radar signatures, though these facilities will not be needed until approximately 2013. The Navy has not identified an appropriate range for conducting operational end-to-end testing of the AGS with LRLAP against realistic targets.
- DDG 1000 will have a crew of less than 150. This is small compared to a DDG 51 crew of more than 300. Current shore support infrastructure and Navy manpower management policies are not fully suited for the unique requirements DDG 1000 will have. DDG 1000 will lack onboard administrative and maintenance personnel and facilities traditionally assigned to ships. The Navy has not specified how shore-side logistics, administrative, and maintenance support will work, or how training and assignment strategies will ensure all personnel arrive ready to operate systems and

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equipment. Several Navy initiatives and pilot programs are in progress that may address these challenges for DDG 1000.

- A high priority test resource shortfall for DDG 1000 and other ship programs including LHA 6 and CVN 21 is the lack of a Threat D-representative target. This target would act as a surrogate for a foreign weapon known to be a threat to this ship. Without it, adequate testing of the vessel's self-defense capability against anti-ship cruise missiles cannot be conducted. DOT&E will not approve the Test and Evaluation Master Plan revision recently forwarded by the Navy until the target is funded.

Recommendations

- Status of Previous Recommendations. The Navy has addressed three of the four previous recommendations. The following FY05 recommendation remains valid.

FY05 #1: The Navy should continue its detailed analysis of manpower and human capital policies to ensure DDG 1000 can be properly manned and maintained upon introduction to the Fleet.

- FY06 Recommendation.
 1. The Navy should develop and field a Threat D-representative target. Delays in fielding this target puts adequate testing of DDG 1000 self defense capability at risk.