

DDG 1000 *Zumwalt* Class Destroyer

Executive Summary

- The program continued detailed design, systems integration, and technology risk reduction in FY07 through developmental testing and Engineering Development Model demonstrations.
- The program is conducting an active LFT&E program to gain survivability insights.
- Ship IOT&E is expected to begin in 2013, but the OT&E of the combat system's self-defense capability against anti-ship cruise missiles is expected to conclude in 2012, two years before the Navy's projected availability of a Threat D anti-ship cruise missile target.

System

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

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

Mission

- The Joint Force Maritime Component Commander can employ DDG 1000 to accomplish:



- Land Attack Warfare - Joint Surface Strike and Joint Surface Fire Support
- Anti-Surface Warfare
- Anti-Air Warfare
- Integrated 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 FY07.
- The Navy conducted a supersonic rail test in September 2007 as part of the LFT&E program. The test was conducted at the China Lake Naval Air Warfare Station, California, with a live warhead against a light structure test article.
- The System Development and Demonstration phase of the LFT&E program is fully defined; the Navy is updating the Test and Evaluation Master Plan and LFT&E Management Plan to reflect these changes.
- The Navy conducted developmental test firings of the Long Range Land Attack Projectile in FY07.
- The Navy continued follow-on Multi-Function Radar (X-Band) testing on the Self-Defense Test Ship.
- The Navy transported the Volume Search Radar Array (S-Band) to Port Hueneme's Surface Warfare Engineering Facility, California, for far field testing to be conducted in FY08.

- Commander, Operational Test and Evaluation Force developed a draft test concept for executing an Operational Assessment in FY08.

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 Navy has not identified adequate facilities for measuring the ship's magnetic, acoustic, infrared, and radar signatures. These facilities are needed no later than the 2013 IOT&E.
- The Navy has not identified an appropriate range for conducting operational end-to-end testing of Land Attack

NAVY PROGRAMS

Warfare using the Advanced Gun System with the Long Range Land Attack Projectile 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 to DDG 1000's unique manning requirements. DDG 1000 will lack onboard administrative/maintenance personnel and facilities traditionally assigned to ships. The Navy has not specified how shore-side logistics, administrative, and maintenance support will be conducted. Additionally, the Navy has not demonstrated how training and assignment strategies will ensure all personnel arrive ready to operate systems and equipment. Several Navy initiatives and pilot programs are in progress that may address these challenges for DDG 1000.
- The Navy has committed funding to develop a Threat-D target. This target would act as a surrogate for a known threat anti-ship cruise missile. However, the Navy's projected delivery of the target is not until FY14, which is two years after anti-ship cruise missile threat testing on the Self-Defense Test Ship is scheduled to complete.

- The DDG 1000 has a robust LFT&E program providing a comprehensive survivability evaluation of the new technologies employed by this new generation of destroyer.

Recommendations

- Status of Previous Recommendations. 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 (FY05). The Navy has partially addressed the single FY06 recommendation for Threat-D development with the securing of funding. However, the Navy's projected delivery of the Threat-D target does not support scheduled Self-Defense Test Ship Operational Testing.
- FY07 Recommendations. The Navy should:
 1. Ensure that the Threat D target development contract includes incentives for earlier target delivery than currently projected.
 2. Develop a plan of action to mitigate the potential impact of late Threat-D target delivery date on the DDG 1000 OT&E schedule.