

Low Cost Conformal Array

Executive Summary

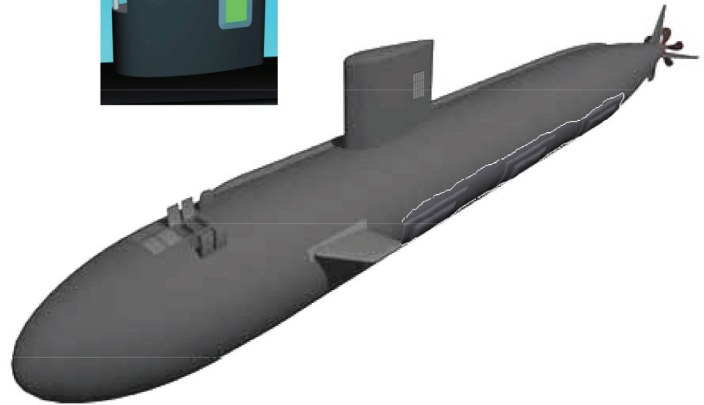
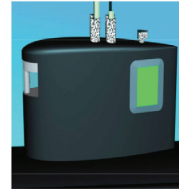
- The Navy completed operational testing of the Low Cost Conformal Array (LCCA) in 2010 in accordance with the DOT&E-approved test plan.
- Preliminary test results indicate that the LCCA meets its primary design goals.

System

- The LCCA is a planar sonar array mounted on both sides of the submarine sail. This configuration provides high frequency sonar coverage above and behind the ship. Combined with the legacy high frequency sail array mounted in the front of the sail, the system provides 360-degree detection capability with high frequency passive sonar.
- The LCCA program will be procured in three increments:
 - Increment 1 provides initial passive detection and ranging capability, and will be installed on Improved *Los Angeles* class submarines.
 - Increment 2 will add an active detection and ranging capability to Increment 1 systems.
 - Increment 3 will implement lower cost and weight technologies, and be installed on additional submarine classes (*Seawolf*, *Virginia*, and *Ohio* class SSGNs), as well as the remaining *Los Angeles* class submarines.
- The Navy intends the LCCA to improve the situational awareness of submarines operating in high-density littoral environments.
- The signals detected by the LCCA will be processed by the Acoustic Rapid Commercial Off-the-Shelf Insertion sonar system, starting with the hardware upgrade installed in the Technology Insertion 2008 version.

Mission

Submarine commanders will use the LCCA to increase tactical control when operating in littoral and open-ocean environments



in the presence of conventional and nuclear submarines and surface warships, often in areas that are heavily populated with non-combatant surface vessels. The LCCA is designed to increase situational awareness of short range contacts and should aid in:

- Providing Intelligence, Surveillance, and Reconnaissance
- Providing Indications and Warning
- Conducting Anti-Submarine Warfare
- Conducting Surface Warfare
- Conducting Naval Special Warfare

Major Contractor

Lockheed Martin Maritime Systems and Sensors – Washington, District of Columbia

Activity

- DOT&E placed the LCCA program on oversight after the Navy approved the Test and Evaluation Master Plan. DOT&E approved the LCCA Operational Test Plan in April 2010.
- The Navy completed operational testing of the LCCA system during two events in 2010. The first event was conducted in May and tested the system in both open-ocean and littoral environments in the vicinity of numerous surface contacts. A second test event was conducted in August in conjunction with a Fleet Exercise, during which the system tracked a submerged target.
- DOT&E plans to issue a Beyond Low-Rate Initial Production Report for the LCCA in FY11.

Assessment

Although analysis of the operational tests is ongoing, developmental testing and preliminary analysis of the operational testing results suggest the following:

- LCCA meets its requirements for frequency coverage, angular coverage, and angular resolution, achieving the primary goal of providing 360-degree high frequency sonar coverage to the submarine.
- LCCA appears to be operationally suitable, demonstrating above-threshold availability and acceptable software reliability.

NAVY PROGRAMS

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY10 Recommendations. None.