# Ship Self Defense System (SSDS)

Executive Summary

The Ship Self Defense System (SSDS) Mark 2, Mod 1 integration of sensor and weapons systems enhances ship self defense and battle force command/control. However, significant deficiencies with sensor coverage, multi-ship interoperability (command and control), weapon integration, hardware/software reliability, and training must be corrected before the system is operationally effective and suitable.

System

SSDS is a fiber-optic local area network that uses open computer architecture and standard Navy displays to integrate a surface ship's sensor and weapon systems.
- SSDS Mark 1 is fielded as the combat system in LSD 41/49-class ships.
- SSDS Mark 2 has four variants:
  - The Mod 1 is in development for CVN 68 class aircraft carriers.
  - The Mod 2 is in development for LPD 17 class amphibious ships.
  - The Mod 3 is in development for LHD class amphibious ships
  - The Mod 4 is in development for LHA-replacement amphibious ships.
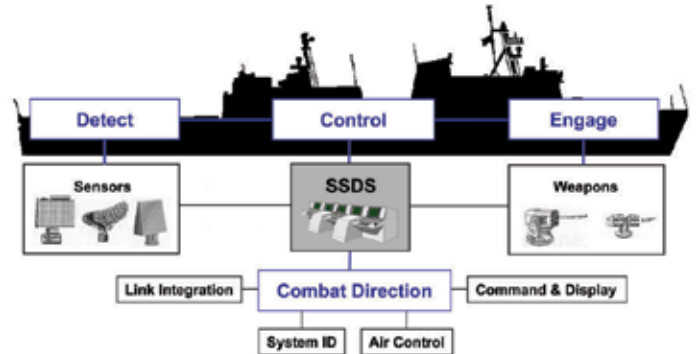
Mission

Navy surface forces use the SSDS to provide automated engagement capabilities for faster and more effective accomplishment of self defense missions.
- Mark 1 and Mark 2 are designed to provide automated and integrated detect-to-engage capability against anti-ship cruise missiles.
- Mark 2 will also provide faster and more effective command and control for air and surface warfare areas.

Activity

- The Commander, Operational Test and Evaluation Force (COMOPTEVFOR) conducted Follow-on Operational Test and Evaluation (FOT&E) of the SSDS Mark 2, Mod 1 in accordance with DOT&E-approved test plans in early FY06. Testing was conducted aboard the USS *Ronald Reagan* (CVN 76) in conjunction with the USS *Ronald Reagan* Carrier Strike Group. COMOPTEVFOR published the test report in May 2006.
- COMOPTEVFOR completed planning for FY07 SSDS Mark 2, Mod 2 FOT&E testing to be conducted aboard the LPD 17 and the Self Defense Test Ship (SDTS). The Navy initiated planning for SSDS Mark 2 FOT&E testing to be conducted aboard the LHD 8, CVN 68, and LHA 6.

Assessment

- The SSDS Mark 2, Mod 1 is not operationally effective or suitable. Significant deficiencies exist in the areas of training (including senior watch standers), weapons system integration, sensor coverage, software/hardware reliability, and multi-ship interoperability.
- Realistic operational testing of SSDS Mark 2 requires threat-representative anti-ship cruise missiles (ASCM)

surrogates, but the Navy has not procured critical surrogates. These surrogates are required for testing the SSDS Mark 2 combat system onboard the Self Defense Test Ship beginning in FY07.
- As a result of deferred SSDS Mark 2 interfaces to the Global Command and Control System-Maritime and TPX-42A(V) command and control systems, operators must manually fuse the air and surface pictures displayed on the SSDS console with the blue force picture on the separate consoles. This increases the likelihood of blue-on-blue engagements.

Recommendations

- Status of Previous Recommendations. The Navy has not resolved four recommendations from FY05. The following recommendations remain valid:
  FY05 #1: The Navy should address the outstanding computer program trouble reports for future CV/CVN deployments.
  FY05 #2: The Navy should procure all required ASCM surrogates as outlined in the TEMP for the SSDS Mark 2, Mod 2 FOT&E in FY07.
  FY05 #3: The Navy should update the Test and Evaluation Master Plan (TEMP) to address the FOT&E of the Evolved

Sea Sparrow Missile integration with SSDS Mark 2, Mod 1, in addition to Mark 2 Mods in LHD 8, CVN 68, and LHA 6. FY05 #4: The Navy should fund deferred SSDS Mark 2 interfaces to the Global Command and Control System-Maritime and the TPX-42A(V) command and control systems.

- FY06 Recommendations. The Navy should:
  1. Correct the identified deficiencies in weapon system integration, sensor coverage, hardware/software reliability, and multi-ship interoperability.
  2. Correct training deficiencies and develop a training program for senior watch standers.
  3. Develop and/or procure all threat representative ASCM surrogates required for future SSDS Mark 2 FOT&Es.