

Ship Self Defense System (SSDS)

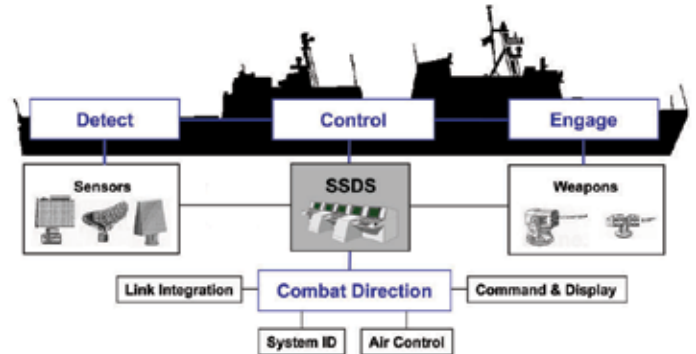
Executive Summary

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 1 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. Maritime Commanders intend to use:

- Mark 1 and Mark 2 to provide automated and integrated detect-to-engage capability against anti-ship cruise missiles.
- Mark 2 to provide faster and more effective command and control for air and surface warfare areas.

Activity

- The Commander, Operational Test and Evaluation Force (COMOPTEVFOR) commenced Follow-on Operational Test and Evaluation (FOT&E) of the SSDS Mark 2 Mod 1 (CVN variant) and Mod 2 (LPD 17 variant) in accordance with DOT&E-approved test plans in mid-FY07. Testing was conducted aboard the Self Defense Test Ship. SSDS Mark 2 Mod 1 testing used the SSDS computer program planned for use during the upcoming USS *Ronald Reagan* (CVN 76) deployment. Testing is planned to complete in mid-FY08.
- COMOPTEVFOR also commenced FOT&E of SSDS Mark 2 Mod 2 aboard USS *San Antonio* (LPD 17) in accordance with a DOT&E-approved test plan in mid-FY07. Testing is planned to complete in mid-FY08.
- The Navy initiated planning for SSDS Mark 2 Mod 2 FOT&E testing to be conducted in early FY08 aboard the USS *New Orleans* (LPD 18).

Assessment

- Completed SSDS Mark 2 Mod 1 tests indicate that significant deficiencies continue to exist in the areas of weapons system integration and sensor system integration.

- Completed SSDS Mark 2 Mod 2 tests have highlighted problems regarding sensor performance in addition to weapon performance in scenarios that include potential fratricide.
- As a result of deferred SSDS Mark 2 interfaces to the Global Command and Control System-Maritime (GCCS-M) 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 following recommendations remain valid:
 - The Navy should address outstanding computer program trouble reports for future CV/CVN deployments.
 - The Navy should update the Test and Evaluation Master Plan to address the FOT&E of the Evolved Sea Sparrow Missile integration with SSDS Mark 2 Mod 1, Mod 3, and Mod 4.

NAVY PROGRAMS

- The Navy should fund deferred SSDS Mark 2 interfaces to the GCCS-M and the TPX-42A(V) command and control systems.
- FY07 Recommendations. The Navy should:
 1. Correct the identified SSDS Mark 2 Mod 1 weapon system integration and sensor system integration problems and complete planned FOT&E testing prior to the next USS *Ronald Reagan* (CVN 76) deployment.
 2. Correct the identified SSDS Mark 2 Mod 2 sensor and weapon performance problems and complete planned FOT&E testing prior to the first deployment of the USS *San Antonio* (LPD 17).