

ADVANCED INTEGRATED ELECTRONIC WARFARE SYSTEM (AIEWS) AN/SLY-2(V)



Navy ACAT II Program

Total Number of Systems:	173
Total Program Cost ((TY\$):	\$1,172M
Average Unit Cost (TY\$):	\$6.8M
Full-rate production:	FY04

Prime Contractor

Lockheed Martin
Syracuse, NY

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The AN/SLY-2(V) Advanced Integrated Electronic Warfare System (AIEWS) is the Navy's next-generation shipboard electronic warfare system planned for use with the Aegis Combat System and Ship Self Defense Systems. It is a total replacement for the AN/SLQ-32(V) system. Increment 1 of AIEWS will include the capability to detect and identify radio frequency emissions, provide precision angle of arrival information to cue hard-kill fire control system sensors, and launch self-protection decoy devices. Shown in the photograph is a demonstration antenna used during at-sea engineering tests. Integration of Increment 1 with the ship command and decision system will support other sensor cueing and combat identification. Increment 2 will include additional capability.

AIEWS is an electronic warfare system for surface combatant ships that support the *Joint Vision 2020* concept of *full-dimensional protection* by providing a final layer of self-protection against air threat "leakers" for individual ships and by assisting other self-protection engagement systems.

BACKGROUND INFORMATION

The Navy approved the Operational Requirements Document in April 1997. In November 1997, the Program Executive Officer agreed that for Increment 1 an OA would be conducted for the initial LRIP decision (FY01), followed by at-sea OT with a partially integrated combat system supporting a second LRIP decision (FY02). It was further agreed to conduct OPEVAL with AIEWS fully integrated with an Aegis Combat System, to support the full production decision in FY04; however, the acquisition decision memorandum from the December 1997 Milestone II review failed to reflect the November agreement. The initial TEMP was received by OSD in March 1998, and was returned to the Navy the following month without approval. The TEMP was not approved primarily because of the fundamental disconnect between the program structure (as agreed to by the PEO in November 1997) and the program structure reflected in the language of the Milestone II acquisition decision memorandum.

AIEWS development has fallen behind schedule and the initial installation will not be fully integrated with the host combat system. For initial installations, AIEWS will use the same interface as the system it will replace, the AN/SLQ-32(V) electronic warfare system. As a result of this descope integration, some of the improved capability required of AIEWS cannot be fully used to benefit the combat system. For example, the improved precision angle of arrival information will not be available to cue hard-kill fire control system sensors. The program was re-baselined in FY00 as a result of cost and schedule breaches.

TEST & EVALUATION ACTIVITY

This activity consisted of conducting early at-sea engineering tests and defining the T&E program, with review and examination of the test resources available at the various test ranges, including plans for the land-based test site at Wallops Island, VA. Activity also included integration of an ASCM seeker with an existing target drone to provide a test asset that would mitigate OT community concerns about inadequacies of proposed ASCM simulators.

TEST & EVALUATION ASSESSMENT

There are no test results of sufficient scope on which a performance assessment can be based. Engineering tests were limited to examination of multi-path (path via sea surface reflection as well as direct path) effects. The Increment 1 T&E program will examine critical operational effectiveness issues, including situation awareness (the effective and accurate detection, track, and identification of radio frequency emitters); engagement support (effective employment of decoys against anti-ship cruise missiles), tactics and survivability. In addition, the T&E program will address the full spectrum of critical operational suitability issues: reliability, maintainability, availability, logistic supportability, training, human factors, compatibility, interoperability, documentation, and safety. As noted below, there are significant issues with the overall T&E program:

- AIEWS/Host Combat System Integration for OPEVAL. The fundamental disconnect between the program structure, as agreed to by the PEO, and the program structure as reflected in the Milestone II acquisition decision memorandum, remains unaddressed. Although the program is being re-baselined, program schedules continue to show IOT&E,

with an engineering development model AIEWS partially integrated with the host combat system using the existing interface to support a full production decision. Such OT&E should be used to support LRIP quantities. More meaningful OT&E, with a production-representative AIEWS fully integrated with the host combat system, should be used to support the full production (B-LRIP) decision.

- ORD Ambiguity. The currently proposed initial AIEWS/Aegis interface significantly constrains the demonstration of the complete set of capabilities required by the ORD. Although the ORD asserts that it will “support the evolutionary development of capabilities to meet the operational requirements,” it is ambiguous with regard to what initial functionality is required and the schedule for delivering additional capabilities. This requires ORD clarification and is being addressed.
- Realistic Simulation of Anti-Ship Cruise Missiles. The requirement is for a platform, with appropriate radar cross-section, that can carry anti-ship cruise missile radio frequency (RF) seekers or acceptable seeker simulators at threat-representative speeds and altitudes. The legacy simulation, identified upfront by the OT community as not meeting the requirement, uses a large, slow aircraft that cannot descend to threat-representative altitudes. COMOPTEVFOR and DOT&E have pursued the use of an existing target drone, integrated with an anti-ship cruise missile RF seeker. This demonstration project should result in flight demonstrations in FY01 well before the AIEWS OT. If this is an acceptable solution, adequate numbers of these drones will have to be funded for OT.
- Self Defense Test Ship for AIEWS Increment 2. It is expected that anti-ship cruise missiles or very high fidelity surrogates will be required for OT&E. This will necessitate a follow-on self defense test ship in order to simulate threat-representative anti-ship cruise missile profiles and conduct safe testing.

The issues of ORD Ambiguity and Realistic Simulation of Anti-Ship Cruise Missiles are being addressed. The issues of AIEWS/Host Combat System Integration for OPEVAL and a Self Defense Test Ship for AIEWS Increment 2 require satisfactory resolution.

