

Rolling Airframe Missile (RAM) Block 2

Executive Summary

- The Navy's Operational Test and Evaluation Force (OPTEVFOR) commenced the final IOT&E phase for the Rolling Airframe Missile (RAM) Block 2 program in March 2017 in accordance with a DOT&E-approved test plan. Testing consists of conducting RAM Block 2 Probability of Raid Annihilation (PRA) Modeling and Simulation Test Bed runs to gather RAM Block 2 operational effectiveness data. OPTEVFOR expects to complete this phase of IOT&E in December 2017.
- DOT&E intends to issue an IOT&E report once the Navy has conducted all RAM Block 2 PRA Test Bed runs and analysis is completed.

System

- The RAM, jointly developed by the United States and the Federal Republic of Germany, provides a short-range, lightweight self-defense system to defeat anti-ship cruise missiles (ASCMs). There are three RAM variants:
 - RAM Block 0 uses dual mode, passive radio frequency/infrared guidance to home in on ASCMs.
 - RAM Block 1A adds infrared guidance improvements to extend defenses against ASCMs that do not radiate radio frequencies.
 - RAM Block 2 incorporates changes to improve its kinematic capability and capability to guide on certain types of ASCM radio frequency threat emitters in order to defeat newer classes of ASCM threats. The warhead in Block 2 is the same as in Blocks 1 and 1A.
- The Navy can launch RAM Block 2 from the 21-round RAM Guided Missile Launch System resident on LPD 17, LHA 6,



LSD 41/49, LCS *Freedom*, and CVN 68 ship classes. It can also be launched from the SeaRAM standalone self-defense system, which is composed of the Close-In Weapon System radar/electronic warfare sensor suite and command/decision capability combined with an 11-round missile launcher. The SeaRAM system is resident on selected Aegis DDG 51 destroyers and the LCS *Independence* ship class.

Mission

Commanders employ naval surface forces equipped with RAM to provide a defensive short-range, hard-kill engagement capability against ASCM threats.

Major Contractors

- Raytheon Missiles Systems – Tucson, Arizona
- RAMSys – Ottobrunn, Germany

Activity

OPTEVFOR commenced the final IOT&E phase for the RAM Block 2 program in March 2017 in accordance with a DOT&E-approved test plan. Testing consists of conducting RAM Block 2 PRA Modeling and Simulation Test Bed runs to gather RAM Block 2 operational effectiveness data. This IOT&E phase is expected to complete in December 2017.

Assessment

Analysis of completed RAM Block 2 PRA Test Bed runs is ongoing. DOT&E intends to issue an IOT&E report after the Navy has conducted all planned RAM Block 2 PRA Test Bed runs and analysis is completed.

Recommendations

- Status of Previous Recommendations. The Navy has not completed the following previous recommendations:

1. Correct the identified integration deficiencies with the Ship Self-Defense System (SSDS)-based combat system and RAM Block 2. Demonstrate these corrections in a phase of operational testing.
 2. Correct the SSDS scheduling function to preclude interference with the RAM infrared guidance capability stemming from prior intercepts and warhead detonations. Demonstrate corrections in a phase of operational testing.
 3. Develop a Multi-Stage Supersonic Target adequate for use in a phase of RAM Block 2 FOT&E.
 4. Conduct FOT&E to determine the RAM Block 2 capability to home on and destroy helicopters, slow aircraft, and surface threats.
 5. Develop an improved steerable antenna system for its ASCM surrogates.
- FY17 Recommendations. None.

FY17 NAVY PROGRAMS