

Offensive Anti-Surface Warfare (OASuW) Increment 1



The Offensive Anti-Surface Warfare (OASuW) Increment 1 program continued the development of missile hardware and software to increase targeting capabilities and employment range over the currently fielded air-to-ground missile (AGM)-158C Long Range Anti-Ship Missile (LRASM 1.0). The Navy decided to field LRASM 1.1, the first incremental upgrade to LRASM 1.0, in FY23 following the LRASM 1.1 quick reaction assessment (QRA) in 4QFY22. The Navy also utilized QRA data for modeling and simulation (M&S) verification, validation, and accreditation (VV&A). LRASM 1.1 was slated to conduct dedicated operational test events during FY23, but hardware production delays forced LRASM 1.1 IOT&E into FY24. During FY23, the Navy completed one LRASM 1.1 integrated test event to inform M&S and aircraft carrier suitability flights in accordance with the DOT&E-approved master test strategy (MTS). The Navy is currently developing the next missile upgrade, LRASM C-3, which brings an upgraded threat target library, greater employment range, and Beyond Line-of-Sight communication capability.

SYSTEM DESCRIPTION

The OASuW Increment 1 is the first weapon of an incremental approach to produce an OASuW capability in response to a U.S. Pacific Fleet urgent operational need generated in 2008. AGM-158C LRASM, the weapon system for the OASuW Increment 1, is a long-range, conventional, air-to-surface, precision-standoff weapon intended to be launched from the Navy's F/A-18E/F and the Air Force's B-1B aircraft. Once launched, LRASM guides to an initial point using a GPS guidance system and employs onboard sensors to locate, identify, and provide terminal guidance to the target.

To date, there are three LRASM variants which comprise the OASuW Increment 1 program, designated LRASM 1.0, LRASM 1.1, and LRASM C-3. In FY22, the Navy began development of LRASM C-3, which added extended range capability. The FY22 DOT&E Annual Report stated that a land strike capability was part of the LRASM C-3 upgrade, but the program has since decided to remain focused on surface warfare capabilities, including employment range and threat target library improvements instead of land-strike. The Navy continues to work through the details required to plan and execute test events to meet the LRASM C-3 early operational capability (EOC), which has been rescheduled for 4QFY26 due to expanded program scope.

MISSION

Combatant commanders will use units equipped with LRASM to destroy adversary ships from standoff ranges.

PROGRAM

OASuW Increment 1 began as an accelerated acquisition program to procure a limited number of air-launched missiles in response to a U.S. Pacific Fleet urgent operational need generated in 2008. The program leveraged the near-term Defense Advanced Research Projects Agency's LRASM initiative as the weapon system for OASuW Increment 1. DOT&E approved the LRASM 1.1 MTS in January 2020, in lieu of a test and evaluation master plan. In 2QFY23, the Navy decided to field LRASM 1.1. The fielding decision followed FY22 integrated test events but was made without conducting the IOT&E that was scheduled in FY23. DOT&E provided a classified early fielding report in April 2023. DOT&E will write an IOT&E report at the completion of operational test flights, M&S, and cyber survivability testing in FY25.

In the FY22 Annual Report, DOT&E stated that the Navy planned to conduct a LRASM C-3 integrated test shot during 1QFY24. However, the LRASM C-3 program was delayed by expanded program scope and does not plan to conduct integrated or operational test until FY26 with EOC planned for 4QFY26.

A new program, OASuW Increment 2, which is not yet on DOT&E oversight, is intended to deliver anti-surface warfare capabilities to counter future threats. The DoD continues to plan for OASuW Increment 2 to be developed via full and open competition, with EOC anticipated in FY29 and initial operational capability anticipated in FY31. The Navy funded LRASM C-3 to bridge the gap until an OASuW Increment 2 program of record is established. This upgrade is intended to incorporate missile hardware and software improvements to address component obsolescence and increase missile range and targeting capabilities. The Navy plans to reach LRASM C-3 EOC in 4QFY26, but has not yet provided a test and evaluation master plan, MTS or IOT&E plan to DOT&E.

» MAJOR CONTRACTOR

- Lockheed Martin Missiles and Fire Control – Orlando, Florida

TEST ADEQUACY

Despite the LRASM 1.1 MTS being approved in January 2020, LRASM 1.1 dedicated operational test activity still has not occurred due to hardware production delays. However, the Navy proceeded with integrated test events in accordance with the DOT&E-approved MTS. In FY23, the program completed one integrated test event to support VV&A of M&S and live-flight aircraft carrier suitability with captive carry free-flight evaluation missiles (FFEMs).

The carrier-tested FFEMs will be employed in an integrated test event in FY24 to support IOT&E.

The Navy plans to increase operational realism in LRASM 1.1 IOT&E through replication of an operationally representative environment. LRASM 1.1 will also undergo cyber survivability testing using a signal processor-in-the-loop lab environment. IOT&E is composed of FFEM shots, including one with a live warhead, M&S-based test events, and cyber survivability test events. DOT&E will write an IOT&E report in FY25 after operational flight, cyber, and M&S tests are complete. IOT&E is scheduled to begin in FY24 and continue into early FY25, but the Navy has not yet submitted an IOT&E plan for DOT&E approval.

In the FY22 Annual Report, DOT&E stated that LRASM C-3 would reach EOC in FY24, however the program has updated the planned fielding decision to 4QFY26. The Navy continues to develop the LRASM C-3 MTS and operational test plan. The missile concept of operations and system requirements were completed during FY23 by shifting from land-strike capability to focusing on anti-surface warfare employment range and updating the missile target threat library compared to LRASM 1.1. The Navy should continue to work with DOT&E to develop and execute an adequate operational test plan to support full-rate production and EOC in 4QFY26.

PERFORMANCE

» EFFECTIVENESS, LETHALITY, SUITABILITY, AND SURVIVABILITY

Operational effectiveness, lethality, suitability, and survivability assessments will be addressed in the FY25 IOT&E report, once testing and analysis are complete.

RECOMMENDATIONS

The Navy should:

1. Submit an adequate LRASM 1.1 IOT&E plan for DOT&E review and approval.
2. Complete development and validation of the M&S environment to facilitate the evaluation of LRASM 1.1.
3. Complete LRASM 1.1 IOT&E before full-rate production of LRASM 1.1 weapons.
4. Ensure an operationally representative open-air environment is available for LRASM 1.1 IOT&E.
5. Complete development of the LRASM C-3 MTS and operational test plan for DOT&E approval.