

Sentinel A4 Radar



The U.S. Army Test and Evaluation Command (ATEC) conducted a Limited User Test (LUT) in March and April 2023 to support the Sentinel A4 Radar Milestone C (MS C) decision in July 2023. The Army used results and lessons learned from the LUT and other events to scope its planned engineering and developmental testing after MS C in preparation for IOT&E beginning in 1QFY25.

SYSTEM DESCRIPTION

The AN/MPQ-64A4 Sentinel Radar, or Sentinel A4 Radar, is a three-dimensional, X-band phased array radar system equipped to support beyond-visual-range air defense engagements. It provides detection, classification, identification, and reporting capabilities against rocket, artillery, and mortar (RAM) threats. Sentinel A4 also has capabilities against cruise missile (CM), unmanned aircraft system (UAS), and fixed-wing (FW) and rotary-wing (RW) aircraft threats. The system consists of a trailer, truck, and all other equipment and software required for the crew to move and operate the Sentinel A4 Radar and

communicate with the air defense command and control system. The primary radar components and subsystems are mounted on a modified M1095 Medium Tactical Vehicle trailer. The generator and communication equipment are integrated into a M1083 Family of Medium Tactical Vehicles cargo truck.

MISSION

The Sentinel Radar is a major component of the Army Integrated Air and Missile Defense system of systems architecture. It provides a 360-degree surveillance and fire control capability against low to mid-altitude threats, to include CM, UAS, FW and RW aircraft, and RAM threats. In order to continue

to meet its mission requirements and to address counter-RAM requirements, the Army plans to replace its legacy Sentinel A3 radars with the Sentinel A4 radar, which use advanced Active Electronically Scanned Array sensor technologies to improve performance. The Sentinel A4 is a Multi-Mission Radar which simultaneously provides search and track against FW and RW aircraft, UAS, CM, and RAM threats.

PROGRAM

Sentinel A4 Radar is an Acquisition Category II program that DOT&E placed on oversight in February 2023. The Milestone Decision Authority approved the program's MS C decision in July 2023.



The program office submitted a Test and Evaluation Master Plan (TEMP) in September 2023 for DOT&E's approval. It was returned and requested to be resubmitted in 90 days.

The total acquisition objective is 240 Sentinel A4 Radars.

The Army plans to conduct IOT&E beginning in 2QFY25. DOT&E will publish a classified report following the conclusion of the IOT&E in support of a full-rate production decision in 4QFY25.

» **MAJOR CONTRACTOR**

- Lockheed Martin Corporation – Syracuse, New York

TEST ADEQUACY

ATEC conducted a LUT from March 6 to April 14, 2023, in accordance with the Army-approved test plan to inform the MS C decision. The planning and approval of this test was conducted prior to the program being placed on DOT&E oversight. DOT&E did not approve the operational test plan but observed the testing. Two Sentinel A4 Radars performed multiple 72-hour missions under day and night conditions against a variety of air targets. ATEC published a classified Operational Test Agency Milestone Assessment Report (OMAR) following the LUT. The Army is applying lessons learned from the deficiencies identified during the LUT and other testing to scope its planned engineering and developmental testing after MS C, to ensure the program is ready to

begin IOT&E in 2QFY25. DOT&E will consider the Army's OMAR and the data from the LUT when assessing the IOT&E plan and developing the IOT&E report.

PERFORMANCE

» **EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY**

DOT&E will provide an assessment of operational effectiveness, suitability, and survivability following the completion of the IOT&E.

RECOMMENDATIONS

The Army should:

1. Address the deficiencies identified in the ATEC's OMAR.
2. Develop an IOT&E plan in accordance with an approved MS C TEMP.