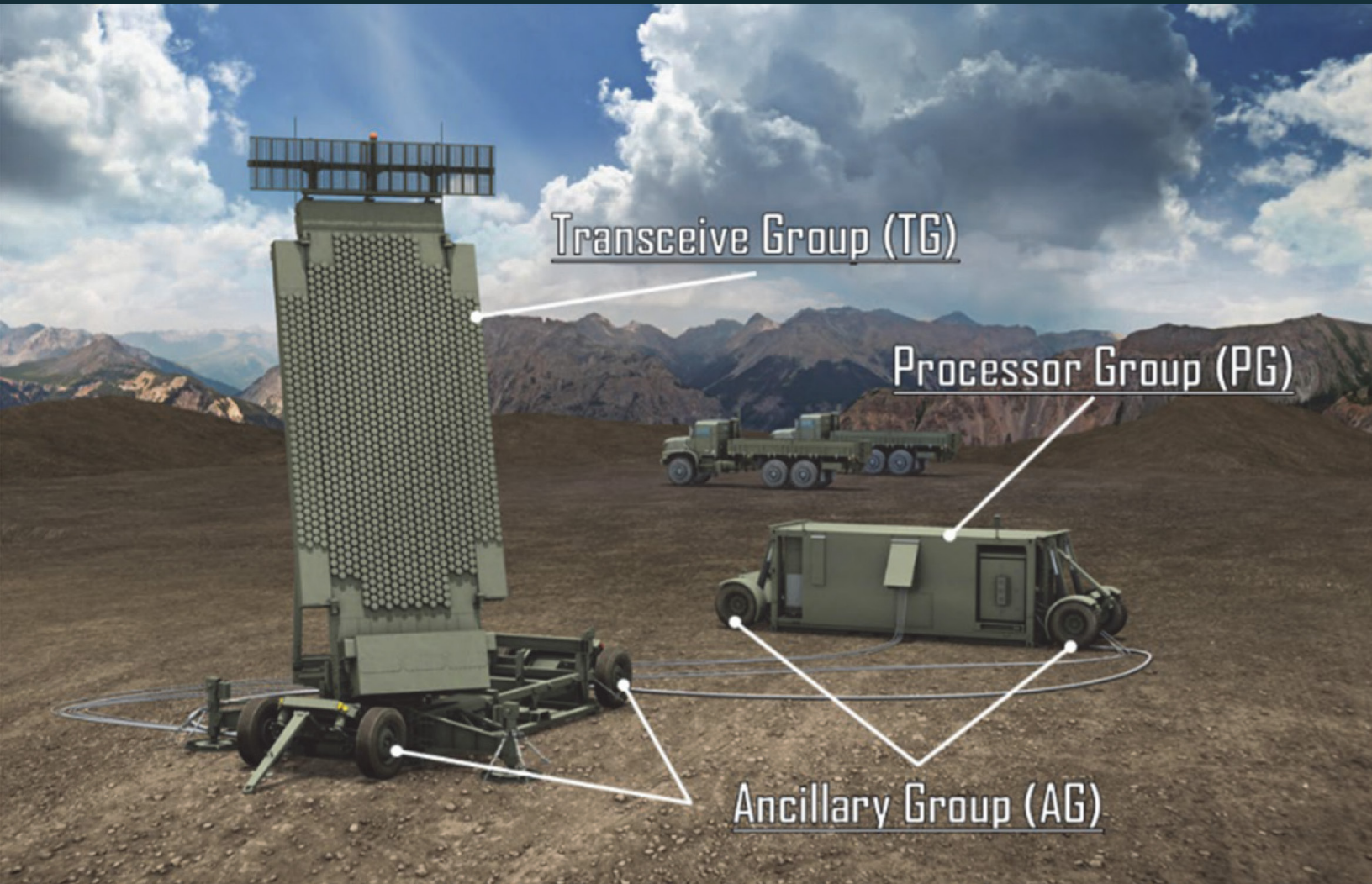


Three-Dimensional Expeditionary Long-Range Radar (3DELRR)



In February 2022, the Air Force selected Lockheed Martin as the Three-Dimensional Expeditionary Long-Range Radar (3DELRR) TPY-4 production contractor to replace the aging AN/TPS-75 passive electronically scanned array, three-dimensional radar. In April 2022, Program Executive Office Digital executed the Lot 1 initial production option for Lockheed Martin to produce two units, designated IP1 and IP2. The Air Force plans to start government developmental testing on IP1 in 2QFY24 and IP2 in 3QFY24. The Air Force plans for dedicated IOT&E in 3QFY24 to support an initial operational capability of six fielded TPY-4s in FY25.

SYSTEM DESCRIPTION

3DELRR TPY-4 is designed to serve as the organic radar for the U.S. Air Force Control and Reporting Center (CRC) Weapon System (WS) providing the capability to perform long-range detection of both air-breathing threats and theater ballistic missiles. The 3DELRR employs a single-face, rotating, active electronically scanned array with a highly distributed and scalable digital beam forming architecture. The active electronically scanned array incorporates power-efficient, reliable, and commercially sourced Gallium Nitride transmitters, low-noise digital receivers, and efficient power conversion.

MISSION

The U.S. Air Force employs CRC WS to conduct battle management, command and control, air surveillance, combat identification, airspace management, and tactical data link management to enable fluid, continuous, offensive and defensive operations. The 3DELRR will provide the CRC WS with a

precise, real-time air picture of sufficient quality to:

- Conduct long-range, wide-area surveillance
- Detect and track air-breathing threats (including 5th-generation fighter aircraft) and theater ballistic missiles
- Support CRC WS threat evaluation for timely defensive and offensive action
- Provide positive control of military aircraft

PROGRAM

The 3DELRR program is currently operating as a Rapid Fielding Middle Tier of Acquisition program, which the Air Force is planning to transition to a Major Capability Acquisition program by December 2023.

» MAJOR CONTRACTOR

- Lockheed Martin Corporation – Syracuse, New York

TEST ADEQUACY

There was no 3DELRR government test activity in FY22. The Air Force plans to conduct an early

operational assessment on Lockheed Martin's Production Representative Unit radar at Eglin AFB in 4QFY23. The Air Force plans to utilize integrated testing at every opportunity after developmental testing starts in 2QFY24 and plans to start dedicated IOT&E in 3QFY24.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

DOT&E will assess operational effectiveness, suitability and survivability in the FY24 DOT&E report, if testing is initiated as planned in 4QFY23.

RECOMMENDATION

The Air Force should:

1. Plan and resource for appropriate, threat-representative targets and electronic attack threats.