

Enhanced AN/TPQ-36 Radar System (EQ-36)

Executive Summary

- The program conducted three Capability and Limitation (C&L) test events of the Quick Reaction Capability (QRC) EQ-36 Radar at Yuma Proving Ground, Arizona, from December 2009 to July 2010 to support radar fielding. The testing focused on target acquisition message processing with the Advanced Field Artillery Tactical Data System, integration with the Counter Rockets, Artillery, and Mortars system, and improvements made to system software.
- During the C&L test event conducted in July 2010, the QRC EQ-36 Radar system demonstrated poor reliability and performance. The radar experienced system aborts every 49 hours against a requirement of one system abort every 185 hours.
- The Army has fielded ten QRC EQ-36 radars to Brigade Combat Teams (BCTs) at Fort Hood, Texas; Fort Polk, Louisiana; Fort Knox, Kentucky; Fort Wainwright, Alaska; Fort Bragg, North Carolina; Fort Drum, New York; Fort Riley, Kansas; and Fort Carson, Colorado.
- The program will conduct a Source Selection Evaluation Board (SSEB) process from 3QFY11 through 4QFY11. The SSEB is intended to select a single contractor to move forward with the qualification and initial production of the EQ-36 Program of Record radar.

System

- The EQ-36 is a mobile radar system designed to detect, classify, and track projectiles fired from mortar, artillery, and rocket systems using a 90-degree or continuous 360-degree search sector.
- The radar will provide command and control nodes with targetable data against indirect fire systems with sufficient accuracy for effective counterfire.
- The system is designed to operate with the Indirect Fire Protection Capability System of Systems, providing accurate targeting data for the Counter Rockets, Artillery, and Mortars system.
- The Army intends to field the EQ-36 to the sensor platoons in BCTs and Fire Brigades to replace the current AN/TPQ-36 and AN/TPQ-37 Firefinder Radars.



- The EQ-36 is transportable by C-17 aircraft, with battlefield mobility provided by two Family of Medium Tactical Vehicles (FMTVs) and operated by a crew of four Soldiers.
- The Army is developing and fielding 38 QRC EQ-36 radars to support an Urgent Material Request. Fielding to Central Command will begin by the end of 2010.
- The Army will select a contractor to produce the remaining 136 Program of Record EQ-36 radars based on the results of the SSEB in 4QFY11.

Mission

Field Artillery units use the EQ-36 radar to protect friendly forces by detecting incoming rockets, artillery, and mortars by providing timely and accurate target location data for counter-fire engagements to defeat enemy indirect fire capabilities.

Major Contractors

- QRC EQ-36: Lockheed Martin Missile Systems and Sensors – Syracuse, New York
- The Army will determine the Program of Record EQ-36 contractor in FY11.

Activity

Quick Reaction Capability EQ-36 Radar

- In FY08, the Army approved an Operational Needs Statement for 12 QRC EQ-36 radar systems to support Operation Iraqi Freedom. Between October 2009 and June 2010, the Army approved procurement of 38 QRC EQ-36 systems to support combat operations.
- The program conducted two QRC EQ-36 Radar C&L test events at Yuma Proving Ground, Arizona, in December 2009 and January 2010. The testing focused on target acquisition message processing with the Advanced Field Artillery Tactical Data System and the QRC EQ-36 radar's ability to interface with the Counter Rockets,

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Artillery, and Mortars system. The program completed a third C&L test event in July 2010 to evaluate improved software for interfacing with the Counter Rockets, Artillery, and Mortars system.

- The Army has fielded ten QRC EQ-36 radars to Brigade Combat Teams (BCTs) at Fort Hood, Texas; Fort Polk, Louisiana; Fort Knox, Kentucky; Fort Wainwright, Alaska; Fort Bragg, North Carolina; Fort Drum, New York; Fort Riley, Kansas; and Fort Carson, Colorado.

Program of Record EQ-36 Radar

- In November 2009, the Program Executive Office reported the EQ-36 program achieved Milestone C in July 2008 and entered the Production and Deployment phase of the Acquisition Management System.
- In April 2010, the Milestone Decision Authority (MDA) approved the EQ-36 Acquisition Strategy.
- The Army approved the EQ-36 Radar Capabilities Production Document in 4QFY10.
- The Army plans to deliver the Test and Evaluation Master Plan for DOT&E approval in February 2011.
- In July 2010, the Army redesignated the program as an Acquisition Category (ACAT) II with receipt of additional research, development, testing, and evaluation funding. The MDA remains with the Program Executive Office Intelligence, Electronic Warfare, and Sensors.
- The program will conduct an SSEB process from 3QFY11 through 4QFY11. The SSEB is a full and open competition to select a single contractor to move forward with the qualification and initial production of the EQ-36 Program of Record.
- The SSEB includes a Live Ammunition System Demonstration at Yuma Proving Ground, Arizona. The Live Ammunition System Demonstration will compare the operational, live fire acquisition, and communication capabilities of the competing systems to the requirements

of the full-rate system requirements. The Live Ammunition System Demonstration will support the first low-rate initial production decision of the Program of Record EQ-36 Radars.

Assessment

- During the January 2010 C&L test event, the QRC EQ-36 radar had difficulty detecting and accurately locating certain types of rockets and artillery rounds. The radar demonstrated integration difficulties with the Counter Rockets, Artillery, and Mortars system.
- Following the C&L testing, the Army identified several system deficiencies and took corrective actions to address performance, reliability, and integration with the Counter Rockets, Artillery, and Mortars system.
- The QRC EQ-36 Radar demonstrated performance improvements in the July 2010 C&L testing with the Counter Rockets, Artillery, and Mortars system integration. Reliability remains poor and below requirements.

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY10 Recommendations. The Army should:
 1. Develop a comprehensive reliability growth plan with achievable reliability growth expectations. Add dedicated reliability testing to the program schedule.
 2. Increase the operational realism of the Live Ammunition System Demonstration. The event supports the downselect to a single radar contractor and the first low-rate production decision for the Program of Record EQ-36 Radar.
 3. Continue thorough testing of each QRC EQ-36 software update.