

Joint Tactical Radio System (JTRS) Ground Mobile Radio (GMR)

Executive Summary

- DOT&E approved the Joint Tactical Radio System (JTRS) Ground Mobile Radio (GMR) Test and Evaluation Master Plan (TEMP) on December 12, 2008.
- The JTRS GMR continues to support external test activities including the 30-Node Wideband Networking Waveform (WNW) Demonstration and the Early Infantry Brigade Combat Team (E-IBCT) Limited User Test (LUT).
- The initial assessment of the 30-Node WNW Demonstration indicates that the pre-production WNW hosted on a JTRS pre-EDM GMR could grow (scale) to a network of 30 nodes, yet performed poorly in the areas of throughput and message completion rate.
- The E-IBCT LUT provided JTRS GMR assessment insights in its role as a component of the Network Integration Kit (NIK). The LUT assessment indicates operational reliability issues and poor performance from the JTRS GMR subsystem.
- The JTRS GMR program experienced a 5-month schedule slip in schedule due to late delivery of hardware.
- The JTRS GMR has delayed contractor developmental testing of Engineering Development Model (EDM) radio sets from 1QFY10 to 2QFY10.

System

- JTRS is a family of software-programmable and hardware configurable digital radios designed to provide increased interoperability, flexibility, and adaptability to support numerous warfighter communications requirements.
- JTRS GMR components include control display devices, universal transceivers, network/information security interface



1 - Control Display Device
2 - Universal Transceivers with Network / Information Security Interface Unit
3 - Power Amplifiers

units, and power amplifiers, which combine to create radio sets for installation in Army, Marine Corps, and Air Force ground vehicles.

Mission

Commanders from the Army, Marine Corps, and Air Force intend to use JTRS GMR to:

- Communicate and create networks to exchange voice, video, and data during all aspects of military operations
- Provide the capability to interface with other JTRS product line radios and legacy radio systems in joint and coalition operations

Prime Contractor

- The Boeing Company, Integrated Defense Systems, Huntington Beach, California

Activity

- DOT&E approved the JTRS GMR TEMP in December 2008 to cover testing activities through the Milestone C decision in FY11.
- JTRS GMR plans to conduct contractor developmental tests that will culminate with the government System Integration Test and LUT, both in FY10, to support the program's Milestone C decision in FY11.
- JTRS GMR reported that late delivery of hardware contributed to a 5-month delay in their testing schedule.
- JTRS GMR rescheduled all three contractor developmental tests scheduled to start in 1QFY10 to 2QFY10.
- JTRS Network Enterprise Domain (NED) used pre-EDM radios to support the 30-Node Demonstration of the WNW in May - June 2009.

- The Army's Infantry Brigade Combat Team program used eight pre-EDM and three EDM GMR radios as components of the NIK to support the E-IBCT LUT in August 2009.

Assessment

- The current JTRS GMR program schedule delay is due to hardware deliveries. Delays in the availability of mature versions of the waveforms and the networking enterprise services from the JTRS NED may further delay the JTRS GMR schedule.
- The JTRS GMR testing schedule leading to the Milestone C decision remains high risk.

DOD PROGRAMS

- The JTRS program is refining roles and responsibilities between the GMR product line and the NED product line to assure full testing of an integrated GMR product.
- The JTRS GMR program supported the 30-Node WNW Demonstration with pre-EDM GMR radios which enabled the growing (“scaling”) of a WNW network to include 30 nodes. The initial assessment of this event indicates the pre-EDM GMR with pre-production WNW scaled to a minimal 30 node network (WNW objective is 250 nodes), yet demonstrated poor performance in the areas of throughput and message completion rate.
- The E-IBCT LUT demonstrated pre-EDM GMR radios as a component of NIKs to connect sensor fields, unmanned aerial systems, and small unit ground vehicles with a battalion representative test network. EDM GMR performed a limited role of transferring situational awareness information and voice communications. Twenty-three percent of the NIK failures (15 out of 64) can be attributed to the JTRS GMR subsystem, which contributed to the NIK not meeting its operational reliability requirement. Soldiers viewed the JTRS GMR (within the NIK) as complicated to operate and lengthy in start-up time compared to their current radios.
- The JTRS GMR full-rate production (FRP) decision (November 2012) and Multi-Service Operational Test and Evaluation (September - October 2012) occur after the E-IBCT FRP decision (December 2011). The JTRS GMR schedule does not support the procurement and fielding decisions for the E-IBCT.

Recommendations

- Status of Previous Recommendations. The GMR program is addressing all previous recommendations.
- FY09 Recommendations.
 1. The JTRS GMR program should begin revision of the JTRS TEMP to extend testing activities through the FRP decision in FY13.
 2. The JTRS GMR program in conjunction with JTRS NED should correct deficiencies noted in the 30 Node WNW Demonstration and the E-IBCT LUT in preparation for the program’s FY10 LUT.
 3. The JTRS Joint Program Executive Office should synchronize its activities to create an integrated approach between JTRS GMR, JTRS WNW, and the E-IBCT programs.