

Handheld, Manpack, and Small Form Fit (HMS) Manpack Radio

Executive Summary

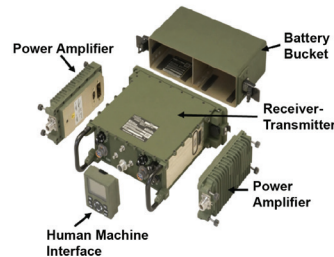
- In May 2012, the Army Test and Evaluation Command conducted the Manpack radio Multi-Service Operational Test and Evaluation (MOT&E) as a part of its Network Integration Evaluation 12.2.
 - DOT&E assessed the Manpack radio as not operationally effective due to the poor performance of the Single Channel Ground and Airborne Radio System (SINCGARS) waveform and not operationally suitable due to a failure to meet reliability or availability requirements.
 - In September 2012, the Army conducted Government Development Test (GDT) 3 to demonstrate improvements in MOT&E deficiencies. During GDT 3, the Manpack's SINCGARS performance improved but it continued to exhibit poor reliability.
- In October 2012, the Defense Acquisition Executive (DAE) approved a second low-rate initial production (LRIP) decision for 3,726 Manpack radios, increasing the total LRIP procurement to 3,826 radios. The DAE directed the Army to conduct a full and open competition for future Manpack radio procurements.
- During July and August 2013, the Army began fielding Manpack radios.
- In December 2013, the DAE approved an additional LRIP lot of 1,500 Manpack radios, increasing the total LRIP procurement to 5,326 radios.
- The Army continues preparation for a Manpack radio FOT&E in 2014. The Army is planning to conduct an IOT&E to support the Full-Rate Production Decision Review for the Manpack radio that will be chosen as a part of the full and open competition.

System

- The Handheld, Manpack, and Small Form Fit (HMS) program evolved from the Joint Tactical Radio System program and provides software-programmable digital radios to support tactical communications requirements.

Activity

- In May 2012, the Army conducted the Manpack radio MOT&E as part of the Network Integration Evaluation 12.2 at White Sands Missile Range, New Mexico, in accordance with a DOT&E-approved test plan.
- The Army conducted Manpack radio GDT 3 in September 2012 to verify fixes to reliability and performance deficiencies found during the MOT&E and previous GDTs.



- The Manpack radio is a two-channel radio with military GPS that:
 - Is capable of operating at various transmission frequencies using the Soldier Radio Waveform (SRW), the legacy SINCGARS waveform, and current military satellite communications waveforms
 - Allows Soldiers to participate in voice and data communications networks and transmit Position Location Information
 - Hosts the Mobile User Objective Satellite waveform
 - Operates up to 20 watts at maximum power output

Mission

Army commanders use Manpack radios to:

- Provide networked communications for host vehicles and dismounted Soldiers during all aspects of military operations
- Communicate and create networks to exchange voice, video, and data using legacy waveforms or the SRW
- Share voice and data between two different communications networks

Major Contractors

- General Dynamics, C4 Systems – Scottsdale, Arizona
- Rockwell Collins – Cedar Rapids, Iowa

ARMY PROGRAMS

- The Manpack radio will be re-competed in a full and open competition. The chosen Manpack will need to be operationally tested prior to the Full-Rate Production decision.
- The Army is developing an HMS Acquisition Strategy and an HMS Manpack Test and Evaluation Master Plan, required for future developmental and operational testing.
- The Army continues preparation for a Manpack radio FOT&E to operationally test fixes to deficiencies noted during the MOT&E and capabilities that have not yet been tested.
- In July and August 2013, the Army fielded Manpack radios to the 101st Airborne Division, despite the radio's demonstrated deficiencies.

Assessment

- During the Manpack radio MOT&E:
 - The Manpack radio was not operationally effective due to the poor voice quality and limited range of the SINCGARS waveform compared to legacy SINCGARS radios.
 - The SRW performance was good and the Soldiers were able to employ the Manpack radio for intra-company voice and data communications.
 - The Manpack radio was not operationally suitable and demonstrated poor reliability and poor availability.
 - The Army's integration of the radios into Mine Resistant Ambush Protected vehicles was poor and reduced the radio's performance.
- During GDT 3 in late FY12 (intended to verify fixes to reliability and performance deficiencies found during the MOT&E and previous GDTs), the Manpack radio demonstrated improved SINCGARS performance under benign conditions. Reliability shortfalls continued. The SRW waveform Mean Time Between Essential Function Failure was 177 hours compared to the Manpack requirement of 477 hours.

This results in a 66 percent chance of completing a 72-hour mission compared to a requirement of 86 percent.

- The Manpack radio has not yet demonstrated improvements in a realistic operational test environment.
- The Army has fielded Manpack radios as part of a schedule-driven plan without apparent concern about performance deficiencies. Units are receiving Manpack radios that may have performance deficiencies.

Recommendations

- Status of Previous Recommendations. The HMS program addressed the previous recommendation to perform a reliability growth analysis to assess Manpack radio maturity, but has not yet provided a detailed plan for achieving required reliability. The Army is addressing the previous recommendation to complete necessary Manpack radio documentation to support future developmental and operational testing by developing an acquisition strategy and Test and Evaluation Master Plan.
- FY13 Recommendations. The Army should:
 1. Ensure units currently equipped with Manpack radios understand the radio's effectiveness and suitability limitations.
 2. Correct deficiencies noted during the May 2012 Manpack radio MOT&E and conduct an operational test as soon as possible.
 3. Ensure that adequate developmental testing is performed prior to future operational tests.
 4. Use the reliability growth analysis assessing the Manpack radio maturity to develop a detailed plan for achieving required reliability.
 5. Complete necessary Manpack radio documentation to support future developmental and operational testing.