# Multi-Functional Information Distribution System - Low Volume Terminal (LVT) and Joint Tactical Radio System (JTRS)

**Executive Summary**

- Developmental testing and IOT&E of Multi-Functional Information Distribution System-Low Volume Terminal (MIDS-LVT) 1 and 2 is complete. Several platform integration and human factors issues were identified during these tests. F-16 MIDS-LVT 1 operational testing was completed during FY05. MIDS-LVT 1 follow-on test and evaluation is ongoing to resolve open issues from the IOT&E on the F/A-18.
- MIDS Joint Tactical Radio System (JTRS) is in the development stage.

**System**

- MIDS is a family of digital voice, data link, video communications, and navigation terminals with modular functionality for integration into both theater and tactical host platforms.
  - MIDS-LVT 1 is primarily for aircraft and shipboard integration (MIDS-On-Ship (MOS)).
  - MIDS-LVT 2 is primarily for integration into ground-based host platforms.
  - MIDS JTRS is for integration into host platforms requiring use of the JTRS family of legacy and future communications, navigation, and identification waveforms.
- Acquisition plans include 1,880 terminals for the MIDS-LVT 1 and MIDS-LVT 2 to retrofit on 13 separate host platform types. The F/A-18 is the Navy's lead platform for MIDS-LVT 1, while the F-16 (Block 40 and 50) is the Air Force's lead platform.

**Mission**

- Joint Force Air Component Commanders employ MIDS-LVT to provide aviation assets with Link-16 digital voice and video communications, data link, identification, and Tactical Air Navigation (for fighter aircraft) capabilities when integrated into the host platform.
- MIDS JTRS will provide theater and tactical digital voice, data link, video communications, navigation, and identification functionality for all host platforms.
- Provide host platform interoperability with legacy Class II Joint Tactical Information Distribution System (JTIDS)-equipped host platforms.

**Activity**

- The Navy is conducting F/A-18 MIDS-LVT 1 follow-on test and evaluation to evaluate correction of digital voice performance and excessive built-in test (BIT) false alarm deficiencies identified during the IOT&E.
- The Air Force completed Block 50 F-16 MIDS-LVT operational testing during FY05. The test results also indicated excessive BIT false alarms and human factors issues.
- The MIDS-On-Ship (MOS) combined developmental/operational test is in progress. The initial developmental model of the MOS enclosure and radio components are being tested in the Space and Naval Warfare Systems Command System Integration Laboratory (SIL). The SIL has ship-host interface systems and is capable of demonstrating the functional capabilities of the MOS system under test. The Navy expects that the results of this test will support a decision to conduct a dedicated operational test of MOS in an amphibious ship.
- Combined developmental/operational test is ongoing in the EA-6B integration laboratory for the MIDS-LVT 1. The results of this test could support a decision to proceed to dedicated operational test of the MIDS-LVT 1 in an EA-6B aircraft.
- Laboratory test planning for the MIDS-JTRS is currently underway to support dedicated testing in FY06. Integration

test planning for MIDS-JTRS into the F/A-18E/F, B-1B bomber, and A-10 attack aircraft has been initiated.

**Assessment**

- MIDS-LVT developmental testing reduced risk by identifying design, performance, and reliability deficiencies early in the development process. Each of these deficiencies is currently being addressed by the program manager. These deficiencies include the following:
  - Tactical air navigation system errors
  - Human factors (poor visual cueing, improper implementation of message types)
  - Operational maintainability (access to the terminal once installed)
- During the final months of FY05, the MIDS Development Program Manager and host platform Integration Program Managers successfully shared lessons learned regarding the integration of this complex terminal. This sharing of data should result in a more realistic platform integration and test schedule.
- Terminal and host platform changes are needed to accommodate unique integration and user requirements. Consequently, some MIDS terminals are not interchangeable unless modified.
- All operational testing was conducted in accordance with DOT&E-approved test plans.

**Recommendations**

1. As design, performance, and reliability deficiencies are identified, the program manager must correct or mitigate them. Additionally, the program manager must ensure that a strategy is developed for ultimately meeting the operational requirement.
2. Continue strong operational test participation in MIDS combined developmental/operational test in order to ensure the benefits of information sharing between Services and platforms. The sharing of lessons from MIDS terminal integration among other radio developers and host platforms should continue.
3. The program manager must plan to ensure that adequate Service and joint communications interoperability resources are available to support MIDS operational testing.