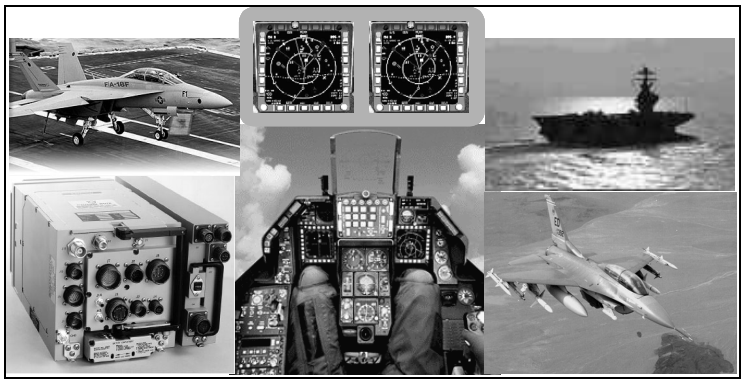
MULTIFUNCTIONAL INFORMATION DISTRIBUTION SYSTEM-LOW VOLUME TERMINAL 1 (MIDS-LVT 1)



The MIDS-LVT 1 provides Link 16 digital data communications to fighter, surface combatant, and Command and Control (C2) host systems. The MIDS System includes the MIDS-LVT 1 terminal, remote power supply, host platform software, antenna, and displays. The terminal consists of Shop-Replaceable Unit (SRU) components that can be replaced or removed depending on host platform needs. For surface ship applications, the 200-watt MIDS-LVT 1 Power Amplifier is augmented with a 1,000-watt High Power Amplifier. For fighter aircraft, due to space constraints, the existing stand-alone Tactical Air Navigation (TACAN) is removed and replaced with a TACAN SRU to provide the navigation function and space for the MIDS-LVT 1. Planned U.S. MIDS-LVT 1 host platforms include ships, F/A-18, F-16, EA-6B, and B-2.

BACKGROUND INFORMATION

In April 2000, OSD approved the Lot 1 Low Rate Initial Production (LRIP) of MIDS-LVT terminals. The LRIP terminals will be used for host platform integration, test, and early fielding. A second LRIP Lot was approved during 4QFY01 and a third is planned for FY02. The MIDS-LVT full-rate production decision is scheduled for 4QFY03, concurrent with the fielding decision for the MIDS-LVT 1 on F/A-18 fighter aircraft. Other MIDS-LVT platforms will have separate fielding decisions from FY03 forward after appropriate initial operational test and evaluation (IOT&E).
All tests conducted during FY01 were conducted with the MIDS Consortium Engineering Manufacturing Development MIDS-LVT terminal. Evaluation of the production-representative LRIP MIDS-LVT terminals is planned for FY02.

TEST & EVALUATION ACTIVITY

During FY01, the Navy conducted a MIDS-LVT on Ship (MOS) integration Operational Assessment (OA) in a hardware-in-the-loop laboratory. The objective of the test was to assess readiness for installation of MOS into ships.

Commander, Operational Test and Evaluation Force (COMOPTEVFOR) completed an F/A-18 MIDS-LVT integration OA during FY01. The objectives of this test were to determine whether the critical deficiencies identified during FY00 had been resolved and to provide Lot 2 LRIP decision

support. The test included operation in a Link 16 network during a Large Force Exercise (LFE) with participating ships, the USAF's E-3 Airborne Warning and Control System (AWACS) and F-15 fighter aircraft.

The first DT flights of an F-16 aircraft modified with MIDS-LVT were completed during FY01. The F-16 MIDS-LVT integration OT event, an OA, will begin in 1QFY02 and continue through development.

TEST & EVALUATION ASSESSMENT

The MOS is rated as potentially operationally effective and potentially operationally suitable. However, reliability, maintainability, training, and human factors deficiencies remain. As a result of a program restructure, the MOS OT test event (IOT&E) will not occur until 4QFY03. There will be a DT Assist in 2QFY03; however, this may not provide adequate data to assess the risk to a successful IOT&E.

During the F/A-18 MIDS-LVT OA conducted in FY01, five of the major areas of risk identified during FY00 were assessed as uncorrected. In addition, another eight Major Areas of Risk were identified. DOT&E considers Mission Computer failures, TACAN performance, Multi-Sensor Integration, position errors, and cockpit workload issues as critical deficiencies. In the OA, the F/A-18 MIDS integration was assessed as potentially not operationally effective and not operationally suitable. During FY01, the MIDS-LVT-equipped F/A-18 participated in LFEs and training events with other Link 16 capable platforms. These included ships, the E-2C Hawkeye, the F-14 fighter, the E-3 AWACS, and F-15 fighters. Although a number of interoperability deficiencies were identified, the F/A-18 MIDS-LVT was able to enter and operate in Link 16 networks with these platforms and exchange meaningful information that increased overall situation awareness. False or inaccurate fighter engagement lines and sensor source information on targets were critical interoperability deficiencies and stemmed from varying host platform implementations of Link 16 messages.

Link 16 joint interoperability is ensured by adherence to the common Link 16 waveform, standard message sets, and Link 16 network designs. The tests indicated that incorrect host platform implementation of Link 16 messages resulted in loss of mission functionality in other Link 16 platforms. DOT&E will continue to stress Link 16 interoperability certification before entry into IOT&E for all MIDS host platforms. This certification will be followed by live test events that will be conducted with a mission focus in robust, operational environments.

LESSONS LEARNED

The operational test strategy is based on the evaluation of MIDS-LVT as integrated into the host platform as by itself the terminal provides no combat capability. Experience from tests of the Joint Tactical Information Distribution System Class 2 terminals suggests that integration of the terminal into the host platform is a critical challenge that must be met in order to provide combat capability.