

U.S. Marine Corps Brings Test to Front Lines

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During the Gulf War when electronics systems used on the battlefield needed repair, they had to be sent back to support areas located 40 to 50 miles behind the front. This created logistical problems of sending possible good boards back to the centralized repair depot and delayed repairs. This dramatically illustrates the need for electronic repair support on the forward edge of the battle field. The U.S. Marine Corps (USMC) Third Echelon Test System (TETS), developed by prime contractor ManTech Systems Engineering Corporation, has filled that need.

The purpose of TETS is to provide portable maintenance and support at the reserve troop staging areas and refueling points, which are typically within ten to fifteen miles of the front lines. Needless to say, a test system headed for action on the front lines is designed to be tough.

The TETS system consists of two VXI chassis of instrumentation controlled by a ruggedized laptop PC running Windows NT. The core TETS system consists of Teradyne's C-sized M910 VXI Digital Test Instrument configured with 192 channels, along with a variety of analog and RF instrumentation.

In addition to being rugged, the test systems are lightweight for quick and easy transport. The units weigh less than 100 pounds each without the operating cases. The transit case, a compression molded composite design of fiberglass and Trevira, weighs in at just 18 pounds.

The TETS project officer, Chief Warrant Officer Steven ShROUT, managed the recent Field Users Test (FUT) at the USMC base Camp Lejeune in North Carolina. The FUT was conducted this past spring over a 19-day period and consisted of two parts: training in

a classroom environment and then tossing the TETS system in the back of a HUMVEE and hitting the rugged tank trails at Camp Lejeune.

"We would run the HUMVEE for an hour along the tank trails then stop in the woods and operate the TETS system for an hour," explained ShROUT. "The Field User Test was a critical milestone in demonstrating that a COTS test system could survive in a harsh environment. The FUT proved that for automatic test equipment the Marine Corps has reached a new level of test capability, reliability, and ruggedness with TETS."

Pete Faulkner, ManTech vice president and TETS program manager, said, "The TETS units were transported as unrestrained loose cargo, free to bounce around in the HUMVEE. The highlight of the FUT was to see the equipment go



Teradyne's C-sized M910 VXI Digital Test Instrument tests electronic boards from the back of a HUMVEE.

through such rugged conditions in the field and then operate.

“The ruggedness of the test equipment advances the capability to service Marine Corps electronic systems where needed, and contributes to greater operational readiness for the Marines.”

The TETS program is a move towards a new concept in field maintenance for the Marines. “Historically, maintenance was provided by pulling a vehicle back to a support area or sending out a hurriedly thrown together contact team with some tools and spare parts,” said Shroud. Through TETS, the Marines now have the ability to send a HUMVEE equipped with test equipment to get malfunctioning electronics back into working order.

Maggie Cadogan, Teradyne product specialist supporting the TETS program, said, “It was exciting to work with ManTech on this project

and provide the support required to meet the aggressive program schedule. The TETS program is an outstanding example of how a system composed of COTS equipment can be used to meet rugged military requirements.”

On June 11, 1998, due to the success of the Field Users Test, Marine Major General Williams approved production of the Third Echelon Test Systems that will be used in the field and at intermediate repair facilities. ManTech will deliver, over the next five years, 227 TETS systems to be deployed throughout the Marine Corps.

Active-duty Marine units that will employ TETS include: communication squadrons associated with air wing, communication battalions associated with ground forces, electronic maintenance companies, ordnance maintenance companies, and corresponding units in the reserves. ■

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