

# Army TMDE Utilization Study

To improve test, measurement, and diagnostic equipment (TMDE) utilization, the Army recently conducted a study that surveyed TMDE usage, coordinator training, and calibration workloads.

■ By Daniel Moody and Nicholas C. Zello

What if there were an easy way for commanders and Soldiers to reduce the time spent on test, measurement, and diagnostic equipment (TMDE) coordinator tasks and increase overall unit readiness? What if calibration workload backlogs could be reduced by removing obsolete and unused TMDE from unit property books?

The Combined Arms Support Command (CASCOM) and the Army Materiel Systems Analysis Activity (AMSAA) have recently focused on accomplishing these goals by conducting the TMDE Utilization Study. The study focused on determining TMDE utilization, removing TMDE not in use from property books, reducing calibration backlogs, and improving TMDE coordinator training materials.

## About TMDE

TMDE is an important component of Army maintenance because it provides the ability to test, adjust, synchronize, verify accuracy of, and repair air and ground weapon systems by using highly precise measurements across various spectrums. These include physical, dimensional, radiological, electrical, electronic, electromagnetic, and electro-optical ranges. Each TMDE spectrum requires a level of traceable accuracy that ensures aviation and ground weapon systems can perform optimally and safely.

The Army uses calibration sets and equipment that reflect national and international TMDE standards; their chain of custody hierarchy begins with the National Instrumentation of Standards and Technology

(NIST). All Army TMDE requires calibration and is traceable to the NIST to ensure that the equipment's level of measurable accuracy provides the necessary maintenance support for the appropriate weapon system platform.

Each unit tasks personnel to be TMDE coordinators who are responsible for turning in assigned TMDE for calibration support and for managing their specific portion of the brigade's TMDE program. Military occupational specialty 94H (TMDE support specialist) Soldiers and U.S. Army TMDE Activity (USATA) civilians are responsible for providing precision measurement and repair tasks on general and special purpose TMDE.

Each TMDE item requires a separate calibration procedure and traceability requirement. Those procedures are established in Technical Bulletin 43-180, Calibration and Repair Requirements for the Maintenance of Army Materiel, which provides step-by-step, methodical calibration tasks that are followed by military and civilian calibration specialists.

The quantity of TMDE supported varies by location and the type of weapon systems requiring support. However, typical area TMDE support teams and USATA TMDE support centers each have an average of 7,500 TMDE items enrolled for calibration support.

## The Study

Over the past four years, calibration backlog trends have grown across the military and civilian calibration support teams, resulting in delays to return TMDE to the supported units.

Serving as the capability developer, requirements manager, and user representative for TMDE, CASCOM uses direct feedback from Soldiers to adjust current doctrine and generate new requirements.

During a 2012 TMDE unit site visit, a team from CASCOM received Soldier feedback that numerous TMDE items were being turned in for calibration but not used for mission support functions. This led CASCOM, with the help of AMSAA, to recommend to the chief of Ordnance that the Army perform the TMDE Utilization Study.

In January 2013, CASCOM and AMSAA began conducting the study across the force structure with the intent to validate TMDE items in use, identify unused test equipment being turned in for calibration support, collect information on commercial off-the-shelf TMDE products purchased by units, and analyze TMDE coordinator training. The study focused specifically on the electrical and electronic spectrums of calibration.

AMSAA developed TMDE usage and TMDE coordinator training surveys, which were administered during site visits to various brigade combat teams (BCTs), including armor, infantry, Stryker, combat aviation, and multifunctional brigades (including fires, air defense, battlefield surveillance, and sustainment brigades). The target audience for the study included Soldiers in the aviation, military intelligence, ordnance, and signal maintenance career fields.

CASCOM and AMSAA met with supporting military and civilian calibration personnel during



*An area test, measurement, and diagnostic equipment (TMDE) support team noncommissioned officer-in-charge discusses calibration procedures for the GRM-122 radio test set with a TMDE Utilization Study representative. (Photos by Daniel Moody)*

each unit visit to verify calibration workloads and TMDE use. During the six-month study, AMSAA and CASCOM met with 32 brigades and 83 units and received assistance and support from Forces Command, I Corps, III Corps, and the 101st Airborne Division G-4 office.

During the site visits, AMSAA and CASCOM confirmed and validated electronic test equipment usage for all of the BCT types. Specifically, the GRM-122 radio test set and the TS-4348 and TS-3895 night vision test sets were identified as the key TMDE maintenance enablers in support of approximately 400,000 tactical radios and 625,000 night vision devices across the entire Army. In many instances, the GRM-122 radio test set was used in support of other electronic maintenance tasks, which resulted in multiple pieces of TMDE being placed in storage.

To further the analysis, AMSAA

developed a sensitivity spreadsheet using the information collected from each site visit and survey that linked TMDE line item number (LIN) usage or nonusage across each BCT and multifunctional brigade, including the technical bulletin calibration standard hours for each LIN.

AMSAA and CASCOM found that TMDE coordinator training is well received by Soldiers, but there is room for improvement. Specifically, AMSAA and CASCOM recommended adding blocks of instruction for TMDE coordinators to review their property books with TMDE subject matter experts to ensure that all TMDE requiring calibration is captured and enrolled in the TMDE program. They also recommended that CASCOM investigate the feasibility of creating recertification parameters and refresher training courses for existing TMDE coordinators.

### **Outcomes of the Study**

The TMDE Utilization Study will serve as a valuable resource for many organizations, including CASCOM, Forces Command, the Army G-4, and USATA, to adjust unit property books and accurately reflect the TMDE needed for units to complete current and future mission requirements.

The preliminary study results have identified more than 13,000 calibration workload hours saved through LIN elimination or reduction. These savings will assist the military area TMDE support teams and USATA TMDE support centers with more accurately prioritizing their calibration workloads. As a result, the TMDE Utilization Study will help to reduce the calibration workload backlog across the Army and help calibration labs return TMDE to units more quickly.

The TMDE validated through the



*Test, measurement, and diagnostic equipment awaits calibration and repair in a support shop.*

utilization study will play an important role for future procurement strategies within the acquisition community. More specifically, the study provides the Product Director TMDE with a validated understanding of the requirements for program objective memorandum prioritization planning in support of the Test Equipment Modernization Program and the transition to the Army of 2020.

The BCTs should be able to procure less commercial off-the-shelf equipment, and the TMDE could possibly be procured by the Product Director TMDE. All identified LINs being recommended for elimination will go through a type classification/obsolescence process and staffing. Major commands will be given dissemination instructions for affected LINs to be placed in a “calibrate before use” or “calibration not required” status and stored accordingly until specific turn-in

guidance is provided.

CASCOM will begin the basis of issue plan amendment and reduction process for LINs that were used by some, but not all, BCTs. Moreover, the Army G-4 will use the TMDE Utilization Study as a verification resource for their critical LIN list review.

The Army TMDE Utilization Study results and the total calibration hour savings detailed by AMSAA can be effectively used to further improve the efficiency of the Army’s TMDE program and activities. These types of studies ensure that calibration and TMDE activities continue to be conducted to support Soldiers’ needs directly.

Removing obsolete and unused TMDE will help to significantly reduce calibration backlogs and help calibration labs to return TMDE to Soldiers’ hands. Overall, this will ensure that weapon systems main-

tenance is continually performed on time and with highly accurate and calibrated TMDE and tools.

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