

**Army Regulation 750–43**

**Maintenance of Supplies and Equipment**

# **Army Test, Measurement, and Diagnostic Equipment Program**

**Headquarters  
Department of the Army  
Washington, DC  
28 November 1997**

**UNCLASSIFIED**

# ***SUMMARY of CHANGE***

AR 750-43

Army Test, Measurement, and Diagnostic Equipment Program

This revised Department of the Army regulation--

- o Defines clear responsibilities and reflects changes due to reorganization of the test, measurement, and diagnostic equipment (TMDE) management structure (chap 1).
- o Reflects the results of organizational changes since 1982: such changes as the elimination of the U.S. Army Central TMDE Activity and the TMDE Support Group. This regulation determines the U.S. Army TMDE Activity (USATA) as the current focal point for program implementation and identifies the USATA as an element of the U.S. Army Aviation and Missile Command and thus no longer a separate reporting activity (paras 1-9g and 1-11q(1)).
- o Reflects revision of DA Form 4062-R as the single form for TMDE acquisition approval analysis data. This regulation removes the 1-year validity constraint statement for acquisition approvals (DA Form 4062-R) and the 1-year validity constraint of a supportability statement (paras 3-2, 3-7, and 4-3).
- o Deletes the registration process.
- o Forwards acquisition requests in specific timeframes and adds reviews of acquisition requests (paras 3-2, 3-3, and 3-4).
- o Changes the method for computing availability and delinquency rates (para 6-1).
- o Includes the Army National Guard with the Army Reserve in allowing for an extended interval for TMDE that is ONLY used on weekends or in annual training (para 6-21).
- o Adds a management control evaluation checklist relating to the TMDE program (app B).

Maintenance of Supplies and Equipment

Army Test, Measurement, and Diagnostic Equipment Program



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Secretary of the Army

and software policies, the TMDE acquisition and standardization procedures, and the test program set (TPS) procedures.

**Applicability.** This regulation applies to the Active Army, the Army National Guard of the U.S. (ARNGUS), and the U.S. Army Reserve (USAR). Specifically, it applies to all U.S. Army elements that own/use, select, acquire, or supply TMDE in support of Army missions. This publication is applicable during mobilization.

**Proponent and exception authority.** The proponent of this regulation is the Deputy Chief of Staff for Logistics. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency in the grade of colonel or the civilian equivalent.

**Army management control process.** This regulation contains management control provisions, identifies key management controls, and provides a checklist for conducting

management control reviews in accordance with Army Regulation 11-2.

**Supplementation.** Supplementation of this regulation and establishment of forms other than Department of the Army (DA) forms are prohibited without prior approval from Deputy Chief of Staff for Logistics (DALO-SMR), 500 Army Pentagon, Washington, DC 20310-0500.

**Suggested Improvements.** Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, U.S. Army Aviation and Missile Command (AM-SAM-TMD), Redstone Arsenal, AL 35898-5400.

**Distribution.** This publication has been distributed in accordance with initial distribution number (IDN) 093864, intended for command levels A, B, C, D, and E for Active Army, Army National Guard of the U.S., and U.S. Army Reserve.

**History.** This publication is a complete revision of AR 750-43, 29 September 1989 edition. There were no published changes.

**Summary.** This regulation governs the Army test, measurement, and diagnostic equipment (TMDE) program. It establishes policies, assigns responsibilities, and provides instructions. This regulation prescribes general TMDE management, the TMDE calibration and repair support (C&RS) program, automatic test equipment (ATE) hardware

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\*This regulation supersedes AR 750-43, dated 29 September 1989. DA Form 4062-R, dated May 1989, is revised. DA Form 4062-1-R, dated May 1989, is rescinded.

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## Chapter 1 Introduction

### Section I General

#### 1-1. Purpose

*a.* This regulation prescribes policies and procedures, assigns responsibilities, and establishes goals and objectives applicable to the development, selection, acquisition, management, execution, and support of Army test, measurement, and diagnostic equipment (TMDE).

*b.* Army TMDE encompasses—

(1) Equipment and instruments capable of performing one or all functional capabilities involving testing, measuring, and diagnostics.

(2) Automatic test equipment (ATE) and test program sets (TPSSs).

(3) Army TMDE also includes physical/dimensional and electrical/electronic type instruments and equipment.

*c.* This regulation assigns responsibilities for planning, directing, managing, and executing the Army TMDE program.

#### 1-2. References

Required and related publications and prescribed and referenced forms are listed in appendix A.

#### 1-3. Explanation of abbreviations and terms

Abbreviations and terms used in this regulation are explained in the Glossary.

### Section II Responsibilities

#### 1-4. The Assistant Secretary of the Army (Installations, Logistics, and Environment)

The Assistant Secretary of the Army for Installations, Logistics, and Environment (ASA (I,L,&E)) is responsible for overall TMDE policy.

#### 1-5. The Assistant Secretary of the Army for Research, Development, and Acquisition

The Assistant Secretary of the Army for Research, Development, and Acquisition (ASA (RDA)) will—

*a.* Integrate TMDE considerations, including Army standard ATE and TPS requirements, into supported end item acquisition strategy.

*b.* Investigate new test, measurement, and diagnostic technology through an Army-wide program of research and development.

*c.* Ensure that TMDE issues are addressed in the Army Systems Acquisition Review council (ASARC) process.

*d.* Ensure TMDE policy and requirements are addressed in regulatory documents for which ASA(RDA) is the proponent agency.

*e.* Ensure that TMDE is an agenda item at all in-process reviews (IPR) where DA is the approving authority.

*f.* Coordinate TMDE acquisition and support strategy with the Deputy Chief of Staff for Logistics and The Deputy Chief of Staff for Operations and Plans.

*g.* Ensure that planning and integration of Manpower and Personnel Integration (MANPRINT) is performed in accordance with Army Regulation (AR) 602-2.

*h.* Ensure that integrated logistics support (ILS) is implemented per AR 700-127.

#### 1-6. The Deputy Chief of Staff for Logistics

The Deputy Chief of Staff for Logistics (DCSLOG) will—

*a.* Approve and publish Army policy that applies to the TMDE program.

*b.* Serve as the Army Staff (ARSTAF) focal point for establishment and coordination of TMDE policies and matters within Headquarters, Department of the Army (HQDA).

*c.* Integrate and coordinate Army efforts to increase effectiveness of overall TMDE life cycle management.

*d.* Participate in ASARC meetings to ensure that TMDE issues are addressed.

*e.* Ensure TMDE policy and requirements are addressed in regulatory documents for which DCSLOG is the proponent agency.

*f.* Provide information to the Joint Logistics Commanders (JLC) on Army TMDE programs and initiatives.

*g.* Ensure that MANPRINT analysis for TMDE is integrated and considered throughout the ILS development in accordance with AR 602-2.

#### 1-7. The Deputy Chief of Staff for Operations and Plans

The Deputy Chief of Staff for Operations and Plans (DCSOPS) will—

*a.* Direct implementation and maintenance of approved Department of Defense (DOD) automatic test language standards and related actions.

*b.* Coordinate TMDE requirements and authorization strategy with DCSLOG.

*c.* Ensure TMDE policy and requirements are addressed in regulatory documents for which DCSOPS is the proponent agency.

*d.* Ensure that MANPRINT analysis for TMDE is considered in the user testing (UT) programs and in estimating requirements for training programs according to AR 602-2.

*e.* Take action to remove obsolete TMDE from authorization documents.

#### 1-8. The Chief, National Guard Bureau, for the Army National Guard and the Chief, Army Reserve

The Chief, National Guard Bureau (CNGB), and Chief, Army Reserve (CAR), will establish and maintain a command TMDE management program that provides for the support and control of TMDE in accordance with this regulation and Technical Bulletin (TB) 750-25. The CNGB and CAR are responsible for overall TMDE policy and guidance that applies to the Army National Guard of the U.S. (ARNGUS) and/or U.S. Army Reserve (USAR).

#### 1-9. The Commanding General, U.S. Army Materiel Command

The Commanding General, U.S. Army Materiel Command (CG, AMC), is designated the Department of the Army Executive Agent for Test, Measurement, and Diagnostic Equipment (DAEAT) with responsibility and authority to manage the total Army TMDE program described in this regulation. The CG, AMC, will—

*a.* Manage the DA TMDE functions specified in this regulation.

*b.* Plan, program, and budget for the DAEAT mission and direct and assist the other Army commands and organizations in planning and budgeting for their responsibilities as specified in this regulation.

*c.* Provide a DAEAT position on operational and resource matters to the DA DCSLOG for use, as appropriate, in policy formulation.

*d.* Establish a centralized management organization and a structure that will execute the DAEAT mission.

*e.* Ensure participation with other Services concerning activities relative to the DAEAT mission.

*f.* Designate the AMC Deputy Commanding General as the Executive Director for TMDE (EDT) with full line authority of the CG, AMC for management of the Army TMDE program.

*g.* Designate the director of the U.S. Army Test, Measurement, and Diagnostic Equipment Activity (USATA) as the Deputy Executive Director for Test, Measurement, and Diagnostic Equipment (DEDT), to implement the Army's TMDE program.

*h.* Manage the Army standard ATE policy.

#### 1-10. The Commanding General, U.S. Army Training and Doctrine Command, and other combat developers

The Commanding General, U.S. Army Training and Doctrine Command (CG, TRADOC), and other combat developers will—

*a.* Develop Army field doctrine and organizational concepts for

field Army operation and application of TMDE to include TMDE maintenance support.

*b.* Ensure new Army concept programs, doctrine, and organizations affecting TMDE support are coordinated with AMC and the U.S. Army Materiel Systems Analysis Activity (AMSAA).

*c.* Designate a school as the training proponent for each item of TMDE and provide training on TMDE use, calibration, and maintenance.

*d.* Prepare and staff supported end item requirements documents that include consideration of TMDE need and degree of testability desired for the supported end item.

*e.* Prepare and staff TMDE requirements documents that describe the need for specific TMDE and establish operational and logistical support objectives and maintenance characteristics that are compatible with field requirements.

*f.* Review and comment on TMDE adequacy in materiel system acquisition documents, equipment publications, and test and evaluation master plans (TEMP).

*g.* Verify that—

(1) TMDE and military occupational specialty (MOS) development and satisfactorily addressed in qualitative and quantitative personnel requirements information (QQPRI).

(2) TMDE requirements are documented during preparation and submission of the basis-of-issue plan (BOIP).

*h.* Prepare TMDE test issues and criteria and provide them to the user tester for integration into the TEMP.

*i.* Ensure that training is addressed during the TMDE acquisition process.

*j.* Participate in the test equipment modernization (TEMOD) program joint working group to establish a modern TMDE inventory for the Army.

*k.* Evaluate the effectiveness of TMDE training and training programs. Periodically review maintenance programs of instruction to determine that TMDE is adequately addressed.

*l.* Ensure that MANPRINT analysis is considered and applied to each TMDE system or separate items of equipment in accordance with AR 602-2.

#### **1-11. Commanders of commands assigned materiel acquisition missions and U.S. Army materiel developers**

Commanders of commands assigned logistics support/materiel acquisition missions and the U.S. Army materiel developers listed in AR 70-1, chapter 2, will—

*a.* Coordinate and perform TMDE life cycle planning, management, and execution consistent with this regulation. This includes managing an assigned TMDE acquisition, deployment, support, disposal, and the provision for the accomplishment of related actions.

*b.* Identify to the combat developer those materiel developments that have an impact on Army TMDE and also recommend elimination of TMDE items no longer needed in the Army inventory.

*c.* Ensure that TMDE requirements are addressed early in materiel systems or equipment life cycle and provide for TMDE consideration during IPRs and type classification and reclassification. For systems or equipment that require ATE, this includes the designation of the current Army standard ATE in appropriate program and contractual documents.

*d.* Provide for logistics support of TMDE. This includes coordination training requirements with TRADOC and performing ILS requirements.

*e.* Participate in the Army-wide TMDE technology base program.

*f.* Ensure that TMDE, including test program sets (TPS), is on the agenda at all program reviews.

*g.* Ensure that the DEDT is extended participant status in the review of program documents from program initiation and at all program meetings on proponent materiel system or equipment.

*h.* Ensure the initial identification of TMDE calibration and repair support (C&RS) requirements are made to the U.S. Army Test, Measurement, and Diagnostic Equipment Activity (USATA) by the materiel developer and the command responsible for TMDE materiel management. Commands selecting TMDE from the Army

inventory to support a system or major item will also identify to the USATA the TMDE C&RS requirements as they apply in support of their materiel.

*i.* Ensure that program requirements are in place, such that operational requirements document (ORD) reliability and maintainability performance and system readiness objective requirements will be achieved.

*j.* Ensure that an active program is implemented to replace TMDE that fails to achieve the DA established goal which is: 90 percent of items (on average) are in tolerance during a minimum period of 120 days with 81 percent of the items in tolerance at the end of the period.

*k.* Establish and maintain a capability to analyze and identify TMDE calibration and repair requirements.

*l.* Provide appropriate engineering and logistic data required by USATA to develop support capability and certify supportability of TMDE prior to fielding.

*m.* In coordination with USATA, develop, evaluate, and publish calibration procedures for special purpose TMDE (TMDE-SP).

*n.* Through coordination with USATA, ensure that calibration procedures and maintenance manuals for C&RS are available before or concurrent with the initial issue of the TMDE.

*o.* Ensure that international logistic case proposals involving TMDE are coordinated with USATA for C&RS requirements.

*p.* Ensure that MANPRINT analysis is performed on each item of equipment covered by this regulation according to AR 602-2.

*q.* Commanders of AMC major subordinate commands (MSCs) will—

(1) Prepare an MSC test program set implementation plan and a resource impact statement outlining all resource requirements and impacts associated with the TPS implementation and forward a copy to the U.S. Army Aviation and Missile Command (USAAMCOM): Commander, USAAMCOM (AMSAM-TMD), Redstone Arsenal AL 35898-5400.

(2) Maintain existing organic capacity for development, maintenance, and support of commodity-managed TPSs. The U.S. Army Industrial Operations command (IOCOM) will maintain an organic TPS acquisition support capability. The IOCOM will also provide TPS development services and/or TPS post-deployment support for systems when contracted by the AMC MSCs.

(3) The depots will continue to provide related TPS acquisition support such as: being members of source selection evaluation boards (SSEB), supporting development of ATE hardware and system software augmentation, and providing expertise to materiel developers in acquiring ATE vans and shelters.

(4) Headquarters, IOCOM, will establish and maintain a TPS office to provide management oversight of TPS development activities within IOCOM.

(5) Establish and maintain a TPS center for management of TPS development, acquisition, fielding, requisition, and support.

*r.* The MSC ATE/TPS centers will—

(1) Provide TPS technical and management support to materiel developers/managers.

(2) Assist in preparing the Test Program Set Management Plan (TPSMP) and all updates and revisions to TPSMPs for the materiel developers.

(3) Are the principal reviewing agency of TPSMPs prior to submission to the USATA. Nonconcurrency with any part of the TPSMP must outline coordination with the materiel developer to resolve conflicts prior to submission to PM, TMDE.

(4) Receive and review the TPS cost and performance reports periodically submitted by the TPS developer. The MSC TPS centers will report any TPS funding or schedule deviations/problems to the DEDT.

(5) Coordinate, consolidate, and submit TPS data to the AMC TPS data base developed and managed by the USATA. This will be a recurring requirement.

(6) Assist the materiel system developer (MSD) in any waiver requests for nonstandard TPS development programs.

(7) Monitor and document in-house and contractor development

of MSC commodity managed TPSs and update the AMC TPS data base.

(8) Ensure that TPS planning, development, acquisition, fielding, and life cycle support are consistent and standardized to the maximum extent in the MSC's commodity grouping.

(9) Provide TPS post-deployment support (PDS) to include: assistance in the field to accomplish on-site definition, identification of TPS problems, TPS installation, and participation in TPS certification.

(10) Review and coordinate maintenance support plans, integrated logistics support plans, pre-acquisition reviews, and evaluation and verification of hardware and associated publications required for operation, calibration, and maintenance of system-unique ATE within the MSC.

s. Materiel system developers will—

(1) Prepare a TPSMP for each system that will, or is expected to, require automatic testing in accordance with this regulation and AR 70-1.

(2) Coordinate TPS development and fielding actions with the supporting MSC ATE/TPS center as required by this AR.

(3) Acquire TPS support for the supported system in accordance with requirements in this AR.

(4) Establish a Memorandum of Understanding (MOU) with a MSC for the purpose of identifying principal ATE/TPS center non-reimbursable support. This includes MDSs that are AMC activities.

(5) Coordinate TPS development and fielding actions with the assigned TRADOC combat developer and training developer.

#### **1-12. The Commander, U.S. Army Operational Test and Evaluation Command**

The Commander, U.S. Army Operational Test and Evaluation Command (OPTEC), will execute TMDE operational test and evaluation functions identified in the TEMP. This includes consideration of TMDE issues in test reports and independent evaluation reports.

#### **1-13. The Commander, U.S. Army Materiel Systems, Analysis Activity**

The Commander, U.S. Army Materiel Systems, Analysis Activity (AMSAA), will function as the independent logistician for TMDE being developed or improved for use by the Army. In this role, AMSAA reviews the adequacy of the ILS aspects of TMDE acquisition documents. This includes the review of TMDE with the ILS requirements of the supported end item.

#### **1-14. Commanders at all levels**

Commanders responsible for developing war, emergency, and contingency plans will coordinate those plans with the USATA when TMDE calibration and repair support is a requirement. Commanders are responsible for identifying their TMDE support requirements to the USATA supporting organizations. The owners/users will compare their property books, or TMDE inventory, with TB 43-180 to initially determine the C&RS requirements for their instruments. Upon request, the supporting TMDE supporting activity (TSA) can provide technical assistance to the TMDE owners/users in their identification of TMDE requiring support. Owners/users shall ensure all TMDE is identified to include TMDE which may be embedded in sets, kits, outfits, or other assemblages. Initial identification of TMDE requiring C&RS will be coordinated with the TMDE support activity (TSA) for proper documentation, or the direct support/general support/aviation intermediate maintenance (DS/GS/AVIM) unit. Additions, changes, and deletions in TMDE inventories that require C&RS shall be identified to the supporting activity calibration coordinator. Additionally, commanders at all levels will—

a. Promote the Army policies and responsibilities stated in this regulation.

b. Turn in TMDE, to include all operator documentation and basic issue items that are in excess of authorizations, through appropriate channels, for redistribution.

c. Develop and execute training programs that will attain and maintain the highest level of proficiency among personnel in the

use, maintenance, and calibration of TMDE. These programs should supplement the TRADOC TMDE training base.

d. Ensure that TMDE acquisition requests are submitted according to this regulation.

e. Use TMDE pools, where feasible, at installation-type activities to get the best use of TMDE assets and to control use of high demand and low density TMDE.

f. Report TMDE problems that affect unit readiness according to AR 220-1.

g. Ensure that subordinate installations and activities identify to the USATA their need for support services from the U.S. Army Primary Standards Laboratory (USAPSL) and the National Institute of Standards and Technology (NIST).

h. Identify required C&RS services to HQ, USATA, or the appropriate USATA support activity.

i. Coordinate precise time and time interval (PTTI) requirements with the Army PTTI coordinators at the USATA.

j. Take appropriate actions to remove unnecessary and/or outdated TMDE from their requirements and authorizations documents.

#### **1-15. The program executive officers and program/project/product managers**

The program executive officers (PEOs) and program/project/product managers will ensure that the TMDE requirements of the acquisition programs that they manage are addressed in accordance with this regulation. The TMDE requirements will be considered during all phases of assigned acquisition programs. Provide the USATA with appropriate engineering and logistics data required to develop support capability and to certify supportability of TMDE prior to fielding.

## **Chapter 2 Army TMDE Management and Policy**

### **Section I Administration**

#### **2-1. Management structure**

a. The DA focal point for TMDE policy is the DCSLOG. To aid in the effective development, distribution, calibration, repair, funding, and modernization of all TMDE, a total Army centralized management structure under the CG, AMC (as the designated DAEAT) has been established.

b. The AMC Deputy Commanding General is the Army's Executive Director for TMDE (EDT). The EDT has been delegated the full-line authority of the DAEAT to recommend TMDE policy to HQDA and to plan, program, budget, acquire, deploy, and otherwise manage DA TMDE functions.

c. To facilitate effective execution of the Army's TMDE mission, the AMC established the U.S. Army Test, Measurement, and Diagnostic Equipment Activity (USATA) under the direction of the DEDT. The following are assigned to the DEDT for direction and control:

- (1) The U.S. Army TMDE Activity (USATA).
- (2) All active duty U.S. Army TMDE Maintenance Companies.
- (3) The Program Manager for TMDE (PM-TMDE).

#### **2-2. Requirements identification**

a. The combat developer and the supported end item materiel manager will begin TMDE requirement planning early in the supported end item acquisition program.

(1) Design-for-testability (DFT) will be a TMDE and supported end item consideration before Milestone I. All DFT will be designed in and validated before the Milestone III decision for the supported end item acquisition program and any subsequent product improvement, with emphasis on reducing requirements for system peculiar TMDE.

(2) The equipment design and the logistic support analysis (LSA) will take into consideration alternative approaches such as—

- (a) Built-in test (BIT) and/or built-in test equipment (BITE).
- (b) General purpose or special purpose TMDE.
- (c) Automatic or manual TMDE.
- (d) Existing, augmented, or new TMDE. Army policy requires the use of existing standard ATE. Exception to this policy requires a waiver processed in accordance with chapter 4 of this regulation.
- (e) Various combinations of such approaches to optimize the selection of BIT/BITE, manual TMDE, and ATE. The same TMDE at multiple levels of maintenance will be considered to achieve vertical TMDE standardization. These efforts and related tradeoffs involving life cycle cost and operational readiness should result in a supported end item maintenance concept that identifies all TMDE requirements at the time of entry into engineering and manufacturing development (Milestone II).

b. During development of new materiel/weapon systems, the initial identification of TMDE C&RS and ATE requirements shall be made to the USATA by the command, agency, or program management office having materiel management responsibility. Command or agencies with selected TMDE from the U.S. Army inventory will identify to the USATA, TMDE C&RS requirements as they apply in support of their systems. Initial calibration intervals may be established either by selecting the interval of a like item from TB 43-180, the manufacturer's recommendation, or sound engineering advice. Calibration intervals will be reduced, or extended as required, to maintain established levels of instrument reliability. Items such as gages, meters, and valves contained in utility systems, fire-fighting systems, other similar systems, and instrumentation not used to make quantitative measurements, should not be considered appropriate for periodic calibration unless the owner/user requests such service on the basis of critical application involving security, health, safety, and damage to property.

(1) The USATA will validate the need for use of other than general purpose TMDE (TMDE-GP) and will determine the level of support concept. The level of support decision will be based on the premise that the USATA will provide C&RS for all Army TMDE.

(2) The designation of TMDE-SP to be supported by maintenance units (or sources other than the USATA) will be on an exception basis approved by the combat developer and the USATA.

(3) The decision to designate other than USATA support will be based on the need for skills or training not available or provided to MOS 35H.

(4) To designate an item of TMDE-SP as F-level in TB 43-180, that is, to be supported by DS/GS or AVIM units, the support units must be authorized appropriate equipment and trained personnel (other than MOS 35H) to perform the F-level support function.

c. Each TMDE item selected for use in or in support of, an end item will be identified to the USATA. The materiel developer will use DA Form 3758-R (Calibration and Repair Requirements Worksheet) in accordance with TB 750-25 to accomplish the identification.

d. The TMDE requirements document and the TMDE annex to the supported end item requirements document will—

(1) Show the expected use and environment of the proposed TMDE.

(2) Identify the operational and organizational concept for the TMDE.

(3) Be coordinated with the DEDT before final approval.

### **2-3. TMDE management information systems**

a. The USATA will maintain a comprehensive TMDE management information system (TEMIS) to assist the Department of the Army in the effective planning and execution of the TMDE program.

b. The TEMIS will—

(1) Provide users and managers with comprehensive data related to the planning, budgeting, development, acquisition, testing, use, and disposition of Army TMDE.

(2) Provide an automated means to maintain TMDE management information.

(3) Provide a TPS data base in support of TMDE for monitoring TPS status including availability, commonality, and application.

(4) Provides an interface capability between TMDE integrated materiel management system (TIMMS) and the Army's standard supply system.

### **2-4. Management assessment**

a. Army TMDE acquisition and fielding programs will conform to this regulation. The USATA will conduct or participate in assessments of developmental, nondevelopmental, product improvement, and fielded TMDE and supported end item programs. These assessments will verify TMDE performance, program status, logistic supportability, and conformance to DA TMDE program requirements and objectives. This regulation contains management control provisions, identifies key management controls, and provides a checklist for conducting management control revisions (app B) in accordance with AR 11-2.

b. The USATA will be invited to participate in materiel system or equipment meetings or reviews (for example, command and program reviews, logistics support analysis record (LSAR), integrated logistics support management team (ILSMT), in process reviews (IPR), and test integration working group (TIWG) where TMDE is an agenda item.

(1) The USATA, as appropriate, will be extended membership status (observer status at IPRs) to such forums, integrated product teams, or groups and will be a mandatory participant until all TMDE issues are resolved.

(2) The TMDE will be a mandatory agenda item at command reviews, the Army Systems Acquisition Review Council (ASARC), IPRs, LSARs, ILSMTs, and TWIGs. One copy of each materiel system, equipment, or TMDE program management document will be provided to USATA for review and coordination before publication.

c. Staff visits to field units, equipment readiness assessments, and unit status reports (AR 220-1) will be used to identify TMDE shortcomings. Field commanders are encouraged to use maintenance assistance and instruction teams, logistic assistance offices, and direct contact with the USATA in resolving TMDE mission and equipment shortcomings.

d. Adequacy of TMDE, availability, support, utility, and related issues will be topics of special interest for all field visits conducted under AR 11-1, AR 50-6, and AR 750-1.

### **2-5. Acquisition strategy**

Program management documentation (PMD) will be prepared for the acquisition, strategy, and logistic requirements of each item of TMDE to be acquired for addition to the Army inventory.

### **2-6. End item and TMDE interface**

a. Acquisition strategy for TMDE and scheduling will be compatible with the end item acquisition strategy and scheduling.

b. Evaluation of TMDE requirements, performance, and adequacy in relation to the end item will occur continuously during the developmental testing (DT) and operational testing (OT) process.

(1) The DT/OT process for new or product improved TMDE will verify the achievement of TMDE performance, durability, environmental resistance, supportability, and RAM goals.

(2) Test criteria and issues (both critical and noncritical) for TMDE will be identified in applicable test documents.

(3) Support for TMDE and related support will be made available for the end item DT/OT as part of the system support package (AR 700-127) to assure complete TMDE evaluation.

(4) Use of the TMDE, on an as required basis, to support the end item DT/OT will not be accepted as satisfying the TMDE DT/OT test requirements.

c. The TMDE acquired for depot-type use or Government-furnished TMDE for contractor depot maintenance will be specified in the end item depot maintenance support plan and depot maintenance work requirements or contractual equivalents. For ATE, the Army

standard will be specified in accordance with the ATE policy. Evaluation of depot TMDE adequacy will occur during end item pilot overhaul, or contractual equivalent.

*d.* The TMDE will be type classified consistent with AR 70-1. The end item materiel manager will develop and implement a milestone plan to resolve any TMDE issues remaining at the time of type classification of the supported end item.

*e.* Required TMDE and related TMDE logistic support for all levels of maintenance will be made available to the field before or concurrent with release of the end item (AR 70-1 and AR 700-127).

## **2-7. Department of the Army TMDE preferred items list**

The DA TMDE preferred items list (TMDE PIL) will be maintained by the DEDT and will be used as the preferred acquisition guideline for procurement or reprourement of Army TMDE. The PIL policy and objectives are described in chapter 5.

## **2-8. Determining TMDE need**

The end item requirement for TMDE will consider the following:

*a.* The optimum level of BIT/BITE for on-system line replaceable unit (LRU) failure identification or isolation as justified by cost effectiveness, mission requirements, and technical feasibility. The BIT/BITE design will consider—

- (1) Reliability, maintainability, and operational readiness goals.
- (2) Use of modular construction.
- (3) Mission requirements and operator constraints.
- (4) Operation and support costs.
- (5) Requirements for interface with TMDE to fault isolate subassemblies when removed from the end item.
- (6) Impact on MOS skills.

*b.* The use of Army standard ATE and general purpose TMDE.

*c.* The use of on-board sensors/transducers, easily accessible test points, and standard quick connect-disconnect diagnostic connector assemblies. Manual insertion of sensors and transducers is not a preferred alternative. Emphasis will be placed on automatic and self-test attributes.

*d.* Alternatives to satisfy the end item TMDE need when the use of a PIL or standard registered TMDE have been proven to be inappropriate, such as—

- (1) Modification, augmentation, adaptation, or product improvement of existing TMDE.
- (2) Acquisition of existing nondevelopmental item (NDI) or other military services TMDE.

*e.* Development of new TMDE will be a consideration only when all other viable alternatives are proven not acceptable.

## **2-9. New TMDE requirement**

*a.* New TMDE items will be introduced into the Army inventory only when supported by a valid requirement, economically justified, and validated for performance, durability, and supportability. Acquisition approval for new TMDE will be in accordance with chapter 3.

*b.* A TMDE materiel manager will be designated for each item of TMDE proposed for acquisition in support of a materiel system or equipment.

*c.* End item TMDE requirements will be substantiated by design-for-testability considerations and by the level of repair analysis performed in conjunction with the end item LSA process.

*d.* Coordination with other military services and the Defense Logistics Agency (DLA) will be accomplished to assure interservice TMDE compatibility and preclude acquisition of new TMDE where the requirements can be economically met using other Service-accepted TMDE. This coordination will normally be done through formal Army participation on joint serviced activities. Such coordination will result in interservice agreements regarding the mutual use and support of TMDE used for proponent end items. When the other Service's support concept is not acceptable for the Army, a separate contract may be necessary.

## **2-10. Design requirement**

*a.* New TMDE will be designed to conform to the design criteria, parameters, and test requirements specified in approved requirements documents. The TMDE design will incorporate the modular design and maintenance policies of AR 750-1, chapter 3, section I. Emphasis will also be placed on TMDE design that promotes general purpose use, optimizes machine-operator interface, and minimizes reliance on contractor or depot level support.

*b.* Design for testability of the TMDE and the supported end item will be emphasized to promote interface compatibility and ease of testing.

## **2-11. Automatic test support systems program**

An automatic test support systems (ATSS) program will be established and maintained by the PM, ATSS, under the direction of the DEDT, to—

*a.* Manage the Army standard ATE family and acquisition of standard ATE.

*b.* Establish and maintain the standard software tools for the development of TPSs for the Army standard ATE.

*c.* Maintain the necessary style guides to ensure that all materiel developers field TPSs that present the standard ATE operator with a common interface.

*d.* As part of the standard ATE family, develop and maintain a standard portable maintenance aid to include augmentation as necessary to meet on-system ATE and electronic technical publications platform requirements for the Army.

*e.* Maintain an active research and development program to promote an open ATE system architecture and incorporate rapidly developing technologies into the Army ATE environment as needed.

*f.* Provide assistance to Army materiel developers in their efforts to provide the most effective ATE support for their systems.

*g.* Interface with the other Services in a continuous effort to achieve maximum beneficial interservice standardization.

## **2-12. Test equipment modernization program**

*a.* A test equipment modernization (TEMOD) program will be established and maintained by the PM, TEMOD, under the direction of the DEDT, to—

(1) Introduce a minimum ensemble of different types and models of state-of-the-art TMDE into the Army inventory.

(2) Replace multiple generic types of TMDE with a single new item of TMDE where feasible, practical, and cost effective.

(3) Continually assess the Army TMDE inventory to identify TMDE or families of TMDE that require replacement or acquisition.

*b.* A TMDE modernization program, a joint working group (JWG) within the Army, will be established and will include representatives from the combat developer, materiel developers, AM-SAA, and the USATA. The JWG will—

(1) Ensure that initiatives are established for necessary and timely modernization of the Army TMDE inventory.

(2) Provide a commodity-oriented capability to evaluate proposed TMDE procurement relative to the TEMOD program.

## **2-13. Calibration sets program**

A calibration sets (CALSETS) program will be established and maintained by the USATA, under the direction of the DEDT, to—

*a.* Introduce the required calibration and repair equipment to perform the Army wide TMDE calibration and repair mission.

*b.* Continually assess the TMDE inventory to ensure that the accuracy of calibration standards is traceable from the NIST to the user.

*c.* Provide for the required modernization of the calibration sets, the reference sets, and the primary calibration equipment to meet the TMDE support requirements of DS/GS maintenance units worldwide.

## Section II TMDE Logistics Support

### 2-14. Automatic test equipment system software

The proponent TMDE materiel manager manages software embedded in the specific TMDE consistent with Army policy in AR 70-1. The manager will decide how this software will be accessed, modified, or maintained. Changes to automatic test equipment (ATE) system software must be coordinated with the USATA and the command having equipment supported by the ATE.

### 2-15. Test program sets

Test program sets (TPSs) needed to support a specific end item will be planned, funded, acquired, tested, evaluated, deployed, and modified in accordance with chapter 4 of this regulation and DA Pam 750-43. Test program sets will be type classified as part of the weapon system they support. A TPS management plan (TPSMP) will be developed during the development prove out phase of system acquisition and will serve as the central document to guide planning, development, acquisition, and maintenance of the TPSs. The TPSMP will be included as part of the ILS plan (ILSP).

### 2-16. Security considerations

*a.* All TMDE will be acquired and fielded consistent with AR 380-5 and AR 380-19-1 security provisions. Protection of classified information handled by automatic TMDE will be accomplished according to AR 380-19.

*b.* Classified TPSs will not be released to the field unless a validated requirement exists and regulatory security provisions have been satisfied by the TMDE user. The user's capability and costs associated with the operation and storage of classified TPSs will be addressed when deciding to develop and field classified TPSs.

### 2-17. Hot mockups

Use of hot mockups or the substitution of known good subcomponents, in lieu of suitable TMDE, is not authorized. Requests for exception to this policy may be submitted to the DEDT (AM-SAM-TMD-M), USATA, who will forward recommendations to HQDA (DALO-SMT). Requests for exception will be supported with a validated economic and technical analysis that verifies the recommended maintenance procedure to be the most cost-effective and responsive alternative.

### 2-18. TMDE calibration and repair support

*a.* To ensure that the objectives of the materiel release process (AR 700-142) are met, a TMDE supportability statement will be prepared for each system prior to releasing materiel to the user. A TMDE statement of non-applicability will be provided if TMDE is not required. The supportability statement will address the adequacy of—

- (1) Calibration and repair procedures.
- (2) Supply support.
- (3) Maintenance and training.
- (4) TMDE calibration equipment specified to accomplish the repair and calibration mission.
- (5) Technical data.

*b.* The TMDE supportability statement will be an integral part of the documentation package prepared to support a type-classification, production, or fielding decision. Release of TMDE to the user will not occur without a favorable supportability statement. Chapter 6 contains additional guidance concerning calibration and repair support (C&RS).

### 2-19. Safety considerations

The TMDE will be acquired, operated, supported, and disposed of in accordance with safety requirements of AR 385-16. The TMDE acquired for military use will be designed consistent with military engineering design standards and user requirements as stated in the operational requirements document. Any NDI and military adaptation of commercial items (MACI) TMDE will be evaluated for

adequacy of safety features in the intended use environment prior to the procurement decision.

### 2-20. Manpower requirements criteria

Manpower requirements criteria (MARC) data will be developed for each TMDE item that requires maintenance support, including calibration and repair. The data will be generated, processed, updated, and used consistent with AR 71-2 and AR 570-2.

### 2-21. Logistics control code

All TMDE that are type classified as standard will be assigned a logistics control code (LCC) of "A" and a reportable item control code (RICC) of 2 in accordance with AR 708-1. The TMDE subject to reclassification because of being replaced by new TMDE will require a change in the LCC.

### 2-22. Reduction of TMDE inventory

The DEDT will take the lead in assuring that procedures are developed and implemented to optimize the capability of TMDE and reduce the inventory at all levels of maintenance. Procedures will include—

- a.* Identification of marginally effective or non-utility TMDE through a process of requirements validation.
- b.* Removal of TMDE with no utility from applicable authorization documents and from the Army inventory where appropriate.
- c.* Replacement of marginally effective TMDE, or TMDE with significant support or operational deficiencies.
- d.* Removal from the Army inventory of TMDE that is no longer required for Army use and that has been replaced under modernization programs. Where continued Army requirements exist, replaced TMDE will be removed from modernized units and redistributed.
- e.* Control and standardization of accepted TMDE.

### 2-23. Equipment improvement report and maintenance digest

The DEDT will publish a periodic equipment improvement report (EIR) and digest of technical information, maintenance instructions, administrative and management guidance of interest to the TMDE developer, TMDE materiel manager, user, and maintainer.

### 2-24. TMDE readiness

In order to correlate combat systems readiness to TMDE readiness, selected TMDE critical to system readiness, such as ATE, embedded TMDE-GP, and TMDE-SP, will be considered for inclusion in AR 700-138.

## Chapter 3 TMDE Acquisition

### Section I Acquisition Process

#### 3-1. General

*a.* This chapter applies to all types of TMDE unless specifically exempted. Except as indicated below, all TMDE that is procured for Army use will require acquisition approval (see fig 3-1) unless specifically exempted by paragraph 3-4.

(1) Items procured for foreign military sales (FMS) or other Services are exempt from acquisition approval.

(2) Items procured for research, development, test, and evaluation (RDTE) applications that will not be deployed to the Army in the field are exempt from acquisition approval.

*b.* All TMDE acquisition requests will be completed according to this chapter and sent to Commander, U.S. Army Aviation and Missile Command (AMSAM-TMD-ER), Redstone Arsenal, AL 35898-5400. Acquisition requests approved under the provisions of this regulation are subject to all provisions of the applicable procurement regulation.

### 3-2. TMDE acquisition process

a. The acquisition request and approval will—

(1) Constitute an agreement that the specified configuration and quantity of TMDE will be acquired for the purpose intended. Acquisition approval prior to initiating procurement action applies to TMDE acquired for Army use. This includes TMDE purchased by the Army to be used in a contractor's facility and other Government organizations.

(2) Apply to leased TMDE when the lease includes an option to buy.

b. Acquisition approval signifies Army approval to procure a TMDE item that meets the following:

(1) Satisfies the application requirement as identified in the approved acquisition request.

(2) Satisfies the technical and cost constants and specifications of the TMDE item as identified in the approved acquisition request.

c. Acquisition requests for TMDE will be submitted on DA Form 4062-R (TMDE Acquisition Approval Analysis Data).

(1) Copies of DA Form 4062-R will be locally reproduced on 8½- by 11-inch paper. A copy for reproduction purposes is located at the back of this AR.

(2) Instructions for completing DA Form 4062-R are contained in section III.

d. For TMDE not type classified standard (TC Std), the materiel manager will follow the applicable TC guidance in AR 70-1 and provide to USATA a type classification milestone schedule.

e. Project managers and TMDE materiel managers will ensure that a DA Form 4062-R is submitted for all conceptual and developmental TMDE. All TMDE under development will be updated as major characteristics change, or annually as a minimum.

f. Acquisition requests for TMDE requirements are to be forwarded to USATA at least 90 days (120 days for ATE) before anticipated contractual, or in-house commitment to procure the TMDE.

g. TMDE materiel managers requested to review acquisition requests will forward comments to USATA within 10 working days; otherwise, concurrence will be assumed. The USATA will process all requests within 30 days of receipt.

h. The originator and the TMDE materiel manager will be provided the results of each acquisition request reviewed. An alternative with supporting rationale will be recommended where the requested TMDE is not deemed appropriate.

i. TMDE procurement will proceed only after the TMDE acquisition request has been approved.

### 3-3. TMDE research, development, test, and evaluation controls

All requests to conduct TMDE technology research, exploratory development, or nonsystem advanced development will be submitted to USATA. Included are all programs, or activities applicable to the TMDE technology program that address design for testability, advanced BIT/BITE concepts, improved digital and automatic testing methods, and other areas funded with research, development, test, and evaluation (RDTE) funds. Programs will not be initiated, either by contract or in-house, without the DEDT approval.

### 3-4. Equipment exempt from acquisition approval

The following equipment is exempt from approval:

a. Accessory equipment, to include shipping and storage containers.

b. Breakout boxes and devices, for example, dividers, probes, samplers, sensors, and similar devices.

c. Class IX repair parts, for example, panel meters, gages, indicators, liquid crystal display, and light emitting diode.

d. Dummy loads.

e. Electrical counting devices (this does not include frequency counters, thermoluminescent dosimetry reader devices, and nuclear radiation counting equipment such as liquid scintillation and alpha beta gamma counting systems).

f. Electrical coupling, matching, interconnection, and distribution devices.

g. Electrical and electronic filters and mixers.

h. Mounting devices.

i. Attenuators.

j. Physical measuring devices (such as weighing scales, tension-meters and the like).

k. Test chambers

l. Torque wrenches, screwdrivers, and torque drivers.

m. Variable and fixed capacitors, inductors, and resistors (includes decade boxes).

n. Power supplies and converting devices (programmable, intelligent, power supplies are not exempt).

o. Medical equipment used for patient diagnosis/prognosis.

## Section II

### TMDE Selection Process

#### 3-5. General

Whether for a proposed, developmental, or fielded materiel system, once the need for TMDE has been identified, a defined and orderly method for identification and acquisition of that TMDE is a necessity. Development and procurement actions are discouraged if they are for nonstandard TMDE, if they do not consider what has already been fielded, if they do not qualify TMDE before fielding, and if they do not have USATA approval.

#### 3-6. Selection process

a. The initial and highest selection preference and the one requiring the least amount of justification and approval is the selection of the most modern and proven TMDE available within the Army inventory. The DA TMDE PIL and DA PIL candidates include all TEMOD items and other items sponsored by managing commands. For ATE, the Army standard is the required selection unless a waiver is approved in accordance with paragraph 4-3 of this regulation.

b. The justification and approval requirements increase as the selection process progresses beyond the selection of TMDE that is type classified standard.

c. The progression of the selection process preference, priority, justification, and approval requirements has been established as another measure to encourage—

(1) TMDE standardization.

(2) Elimination of duplicate TMDE development efforts.

(3) Prevention of TMDE proliferation.

d. Throughout the selection process, cost effectiveness and supportability will be prime considerations.

## Section III

### DA Form 4062-R

#### 3-7. Instructions for completing DA Form 4062-R

a. *Use.* The DA Form 4062-R (fig 3-1) is used for submission of data on TMDE not in the DA TMDE PIL or in the Department Of Defense consolidated equipment list (DODCEL). If any data on the form are classified, then the completed form will be classified no lower than the highest level of classified data used.

b. *Disposition.* The completed DA Form 4062-R will be retained on file by the receiving activity for a period of 1 year.

c. *Preparing DA Form 4062-R.*

(1) Block 1. TO: Commander, U.S. Army Aviation and Missile Command (AMSAM-TMD-ER), Redstone Arsenal, AL 35898-5400.

(2) Block 2. FROM: Submitting activity's address.

(3) Block 3. TMDE NOMENCLATURE: Enter the nomenclature as it appears in Supply Bulletin (SB) 700-20. If not in SB 700-20, enter the manufacturer's nomenclature.

(4) Block 4. MODEL/PART NUMBER: If available, use the Joint Electronics Type Designation System (JETDS) number, that is, AN/PSM45A. Use the manufacturer's model number or part number if no JETDS number is available.

(5) Block 5. NSN: Enter the national stock number for the TMDE item if assigned, otherwise enter "NA."

(6) Block 6. LIN: Enter the TMDE line item number if assigned, otherwise enter "NA."

(7) Block 7. TC-LCC: Enter the appropriate type classification and logistics control code abbreviations found in SB 700-20, or the Army Master Data File. Army Regulation 70-1, DA Pam 70-3, and SB 700-20 provide information on type classification assignments and logistics control codes. If the TMDE item is not type classified or does not have a logistics control code, explain in the remarks block (27).

(8) Block 8. UNIT COST: Enter the unit cost of the TMDE item being acquired.

(9) Block 9. TYPE OF ACQUISITION: Indicate the appropriate type of acquisition program this item of TMDE falls under (that is, nondevelopmental item (NDI), product improvement program (PIP), developmental item (DEV), and so forth).

(10) Block 10. ITEM MANAGER: Enter the item manager code (that is, B16, B64, and so forth).

(11) Block 11. MANUFACTURER'S NAME: Enter the TMDE manufacturer's name.

(12) Block 12. CAGE CODE: Enter the CAGE code to correspond with the name in block 11.

(13) Block 13. SYSTEM APPLICATION: Enter the system nomenclature and model number that this item of TMDE will be used to support.

(14) Block 14. SYSTEM LIN: Enter the line item number for the system that the requested TMDE will support. If it is not a specific system but is generic in nature, enter "NA."

(15) Block 15. LIFE CYCLE STATUS: Identify the life cycle status of the supported system as follows: Concept Exploration (CE), Program Definition and Risk Reduction (PDRR), Engineering and Manufacturer Development (EMD), and Production, Fielding/Deployment and Operational Support.

(16) Block 16. TMDE SPECIFICATIONS: Enter the critical specifications for the TMDE item. A copy of the manufacturers specification sheet, or other such document should be sent as an enclosure to simplify the form. Identify if the item is PIL/TEMOD/MACOM PIL, addendum/PIL candidate, or DODCEL.

(17) Block 17. PUBLICATIONS: Enter the name and number of any commercial and/or military manuals. As a minimum, an operator manual and a maintenance manual should be listed. When applicable, also list the calibration procedure.

(18) RAM DATA.

(a) Block 18a. MTBF: Enter the mean time between failure.

(b) Block 18b. MTTR: Enter the mean time to repair.

(c) Block 18c. MTTC: Enter the mean time to calibrate.

(d) Block 18d. BIT/BITE: Enter whether or not the TMDE item

has BIT/BITE and, if so, to what level (module, printed board, and so forth) and with what degree of certainty (for example, 95 percent of the time ambiguity group).

(e) Block 18e. USER MOS OR SKILL: Enter the military occupational specialty, or civilian skill code of the TMDE user/operator.

(f) Block 18f. LEVEL OF USE: Enter the level of maintenance that the TMDE item will be used at (that is, D - depot; L - special repair activity; H - general support; F - direct support; O - unit maintenance; C - unit/operator maintenance. If another level of maintenance applies, enter a brief description in this space or use the remarks block 27).

(g) Block 18g. MAINTENANCE MOS OR SKILL: Enter the military occupational skill or civilian skill code of the TMDE maintainer.

(h) Block 18h. LEVEL OF MAINT: Enter the level of maintenance at which the TMDE item will be maintained (that is, D - depot; L - special repair activity; H - general support; F - direct support; O - unit maintenance; C - unit/operator maintenance. If another level of maintenance applies, enter a brief description in this space or use the remarks block 20).

(19) Block 19. DISTRIBUTION: Enter all known geographic locations that the TMDE will be deployed to include estimated delivery dates. An enclosure to the form may be used (that is, excerpts from a materiel fielding plan, and so forth to simplify this entry).

(20) Block 20. REMARKS: Enter any other pertinent information not covered elsewhere on this form.

(21) NAME, TITLE, AND PHONE.

(a) Block 21a. TYPED NAME AND TITLE: Enter the name, title, and phone number (DSN or commercial) of the responsible official (that is, TMDE item manager, maintenance engineer, program/product manager, and so forth).

(b) Block 21b. PHONE NUMBER.

(c) Block 21c. SIGNATURE: Signature of person named in block 21a.

(d) Block 21d. DATE: Enter the date of the request.

### **3-8. Instructions for use with LSAR report 072, TMDE Requirements Summary**

Fill out those items designated in paragraphs 3-7c(1), (2), and (19) through (21). In the remarks block, enter LSAR 072 enclosed.

### **3-9. Forward to**

Forward the completed DA Form 4062-R with enclosures to the address in block 1.

TMDE ACQUISITION APPROVAL ANALYSIS DATA			
For use of this form, see AR 750-43; the proponent agency is DCSLOG			
1. TO Commander U. S. Army Aviation and Missile Command ATTN: ANSAM-TMD-ER Redstone Arsenal, AL 35898-5400		2. FROM  Address Activity, Command, etc. Requesting Approval	
3. TMDE NOMENCLATURE Oscilloscope, Digitizing		4. MODEL/PART NUMBER MDL: TDG620B	
5. NSN 6625-01-431-5531	6. LIN NA	7. TC-LCC NA	8. UNIT COST \$6,400.00
9. TYPE OF ACQUISITION NDL	10. ITEM MANAGER B64	11. MANUFACTURER'S NAME Tektronix	12. CAGE CODE 80009
13. SYSTEM APPLICATION Electronic Digital System		14. SYSTEM LIN NA	15. LIFE CYCLE STATUS END
16. TMDE SPECIFICATIONS			
Parameter Characteristics		Range or Value	Accuracy
		From To	
Voltage AC		-100pk 400pk	+ -0.5%
Voltage DC		-400 400	+ -0.5%
Video, Composite NTSC		OVDC 1.4VDC	+ -0.5%
RF, Broadcast Frequencies		CHz 285MB	+ -0.5%
Clock Signal, Video 4fac		CHz 14.56Hz	+ -0.5%
17. PUBLICATIONS			
Commercial Operating and Maintenance Manuals			
18. RAM DATA			
a. MTBF 10,000 hrs	b. MTTR 2-4 hrs	c. MTTC 2 hrs	d. BIT/BITE BIT (95%)
e. USER MOS OR SKILL 24R	f. LEVEL OF USE C	g. MAINT MOS OR SKILL 35B	h. LEVEL OF MAINT H. F. O.
19. DISTRIBUTION See attached distribution list.		20. REMARKS * Attached is manufacturer literature on the characteristics of the requested item.  * TC-LCC code not assigned at this point.	
21a. TYPED NAME AND TITLE JOHN DOE Equipment Manager,		b. PHONE NUMBER 205-955-0025	
c. SIGNATURE <i>John Doe</i>		d. DATE <i>2 May 97</i>	

DA FORM 4062-R, JUN 97

DA FORM 4062-R AND DA FORM 4062-1-R, MAY 89, ARE OBSOLETE.

Figure 3-1. Sample of completed TMDE Acquisition Approval Analysis Data (DA Form 4062-R)

## Chapter 4 ATE and TPS Policy

### Section I ATE General policy Requirements

#### 4-1. General

All ATE procured by the Army for use in the Field, depot, or in the system developer's production facility must be acquired in accordance with this regulation and current Army policy directives.

#### 4-2. Determination of ATE requirements

a. The designated ATE will be used unless a waiver, supported by an economic analysis using the designated standard ATE as the baseline alternative, is approved by the USATA.

b. Contractors who have a requirement for TPS development/validation or special acceptance and inspection equipment (SAIE) are required to document those requirements in terms of—

- (1) Productivity.
- (2) Technical testability constraints.
- (3) Economics related to productivity, product quality, and so forth.

c. System developers, in coordination with USATA and TRADOC (IOCOM for production/depot ATE), will determine their ATE requirements. A system level of repair analysis (LORA) will be performed. The system LORA will identify, as well as justify, ATE requirements at the various levels of maintenance.

d. The USATA will assist system developers in the preparation of the system LORA which will address the following areas:

- (1) Built in test/built in test equipment (BIT/BITE) requirements.
- (2) TMDE requirements and alternatives, system test envelope, workload distribution, and estimated failure frequency.
- (3) System maintenance plan and personnel requirements.
- (4) System interface and TPS requirements.
- (5) Force structure requirements.
- (6) Life cycle costs.
- (7) Risk assessment.

e. Once the ATE requirements have been identified for a system, the system developer will—

(1) Determine if the use of designated standard ATE will fulfill the ATE technical and operational requirements of the system.

(2) If the ATE requirements are not satisfied, the system developer will determine the feasibility of expanding the basic capabilities of the designated standard ATE.

(3) If neither (1) nor (2) above is feasible, submit a waiver request in accordance with paragraph 4-3.

#### 4-3. ATE waiver procedures

On determination that ATE is required and the designated standard ATE hardware/software cannot be used or expanded in capability or that it is not cost effective to accommodate the test requirements, the following procedures will be followed:

a. The developer or requiring activity will determine the basis for a waiver and will identify alternate candidate ATE systems based on the priorities established in paragraph 4-4.

b. The developer, or requiring activity, will submit a formal waiver request to the Commander, U.S. Army Aviation and Missile Command (AMSAM-TMD-M), Redstone Arsenal, AL 35898-5400. Each waiver request will include completed copies of DA Form 4062-R (according to chap 3, sec III), as applicable, and schematic drawings/block diagrams that depict the proposed ATE alternative.

c. On receipt of the formal waiver request, USATA will confirm the basis for waiver request and coordinate the request with other agencies (for example, HQ IOCOM, HQ TRADOC, or appropriate program/project managers) to establish waiver validity. The USATA will technically evaluate the waiver request.

(1) If the waiver request is endorsed, the DEDT will either approve the waiver request, or advise the requesting activity to clarify specific issues before providing a final decision.

(2) If the waiver is not endorsed, USATA will provide a nonconcurrency, with rationale, to the requesting activity. The requesting activity may submit an updated waiver request to the USATA to resolve the basic for the previous nonconcurrency. Table 4-1 explains ATE waiver documentation. Figure 4-1 illustrates the ATE selection and waiver process.

#### 4-4. ATE selection procedures

The USATA will maintain in the TEMIS a list of all Army ATE and will develop and maintain an ATE priority list to assist the materiel developers in selecting appropriate ATE. The precedence for ATE selection is as follows:

- a. ATE priority list.
  - (1) DA or AMC designated standard ATE (including other Services, ATE).
  - (2) Preferred Item/Preferred Item candidate.
  - (3) Other priority ATE.
- b. Commercial items (nondevelopmental).
- c. New development special purpose items.

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**Table 4-1**  
**Automatic test equipment waiver documentation**

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**Waiver:** Directed

**DA/HQ AMC direction/basis for waiver:** HQDA or HQ AMC policy decisions, or directives preclude use of the designated ATE standard.

**Documentation required:** The decision or directive precluding use of the designated ATE standard.

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**Waiver:** Technical

**DA/HQ AMC direction/basis for waiver:** Use of the designated ATE standard to meet supported weapon system ATE requirements is not technically feasible without obviously uneconomical major modifications. Use of the designated ATE standard would impose unrealistic program and/or technical obstacles.

**Documentation required:** Documentation that lists the system test requirements in a side-by-side comparison with designated standard ATE capabilities and the proposed alternative that demonstrates conclusively that the designated standard ATE is not feasible. Unmatched requirements to capabilities will include engineering analysis estimates. These estimates will be carried to the extent of the modification required, to the designated ATE standard, thus enforcing compatibility. To qualify for technical exclusion, the comparison and analysis must unambiguously show that the standard ATE is not a viable alternative; otherwise an economic analysis is required.

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**Waiver:** Cost

**DA/HQ AMC direction/basis for waiver:** Use of the designated standard is clearly not the most cost-effective ATE alternative for the Army.

**Documentation required:** A cost/economic analysis reflecting use of the designated ATE standard versus use of the proposed ATE alternative. The analysis will be prepared according to AR 11-18 and the most current DOD Economic Analysis manual and validated by the comptroller. Critical Cost differences will be highlighted and discussed in detail. The analysis will show that use of designated ATE standards is not cost-effective for the Army. The analysis will be supported by the following:

a. An assessment of the LSA (or copy of the LSAR) that substantiates use of ATE in the materiel system maintenance concept. This assessment will address the tradeoff among ATE, contractor support, and other test capability (including throwaway) with respect to the specific supported end item LRUs and printed circuit boards.

b. An assessment of operational and readiness benefits to be derived if the proposed ATE alternative is approved. This assessment will also address whether the proposed ATE alternative can perform ATE workloads or other type end items in lieu of the designated ATE standard.

c. Direct consideration of acquisition, operation, and support costs; TPS costs; deployment constraints; ATE workload requirements; and asset availability. When considering asset availability, the analysis will address the capability of existing and programmed designated ATE

**Table 4-1**  
**Automatic test equipment waiver documentation—Continued**

standard assets to accomplish the workload requirement through shared utilization as based on prorated costs.

**Waiver:** Nonstandard augmentation required

**DA/HQ AMC direction/basis for waiver:** Use of system peculiar ATE with the designated ATE standards is necessary to reduce the workload of the designated ATE standard.

**Documentation required:** A copy of a cost/economic analysis reflecting use of existing, programmed, and additional designated ATE standard assets versus use of existing and programmed designated ATE standard assets with system peculiar ATE. The analysis will be consistent with provisions of the cost waiver and subparagraphs thereof.

#### **4-5. ATE system software**

a. The proponent ATE materiel manager will manage software embedded in the specific TMDE consistent with Army policy. The materiel manager will decide how this software will be accessed, modified, or maintained. Changes to general purpose ATE system software will be coordinated with the—

- (1) USATA.
- (2) Command having equipment supported by the subject ATE.
- (3) Combat developer for the equipment supported.

b. The ATE system software developed for and issued with a particular ATE is considered to be part of that ATE. The ATE system software and related software products will be—

(1) Written in a DOD approved high order language (HOL), or language subset.

(2) Planned, acquired, verified, and deployed in agreement with TMDE acquisition strategy. It will be a specified variable in design and logistic tradeoff analyses.

(3) Documented consistent with established criteria to the extent that fielded software can be used without contractor support. Necessary ATE software support items will be specified as contractually deliverable with unlimited rights for DOD.

(4) Separate contract line items where practical.

c. The ATE system software development will be equally emphasized with ATE hardware development. Consideration will be given to software modularity, ease-of-change, and transferability.

d. The ATE system software design, programming, maintenance, and configuration management will have a disciplined approach that provides effective ATE software at minimum life cycle cost.

e. The ATE system software change or update will be tested and verified before field release.

f. Waivers from the use of an approved DOD high order language may be granted only on a specific system or subsystem basis. The costs and risks associated with language proliferation must be weighed against the waiver benefits accruing to the intended subsystem.

(1) A justification analysis, developed by the materiel developer in coordination with the combat developer, will be submitted to the DEDT for approval.

(2) When a waiver is granted, a summary analysis will be forwarded to the Defense Computer Resources Board.

#### **4-6. ATE interface**

The supported end item will have integrated into the design necessary diagnostic connector assemblies and data buses which provide the minimum number of test connection points necessary to satisfy end item testability constraints. The design objective will be to minimize the development of TPS interconnection devices and cables necessary to quickly and easily diagnose and fault isolate a failed LRU at the location of the failed end item.

### **Section II**

#### **ATE Selection Criteria for Joint Programs**

#### **4-7. Criteria**

Each Service has its own unique ATE standardization policies necessitated by basic mission differences and operational scenarios.

On joint programs, in order to minimize duplicate costs for technical publications, training, test program sets, and other logistics factors, the following guidelines will be used:

a. Built in test and BITE will be used in the design of the system to minimize reliance on off-system ATE, especially at organizational and DS/GS levels.

b. Depot level maintenance technical publications, training, TPS, and other logistics items will be procured only for the Service depots designated to perform depot-level maintenance for the joint system. Designation of the performing depots will be required early in the acquisition cycle.

#### **4-8. Redistribution of underutilized ATE**

Managers of fielded ATE will identify any underutilized ATE to the Commander, U.S. Army Aviation and Missile Command (AM-SAM-TMD), Redstone Arsenal, AL 35898-5400. The DEDT will negotiate the redistribution of the underutilized ATE with the appropriate authority.

### **Section III**

#### **TPS management**

#### **4-9. General**

The TPS requirements will be addressed as a major element in all phases of the supported system life cycle. The TPS life cycle management will be a separate and distinct action in the supported system's life cycle. Department of the Army Pamphlet 750-43 addresses specific TPS management requirements.

a. All TPS planning will be initiated as early in the supported system's life cycle as is practical. All TPS management responsibilities will be included in the prime system acquisition strategy.

b. The central document for planning, monitoring, and controlling TPS development, acquisition, and maintenance throughout the system life cycle is the TPS Management Plan (TPSMP).

(1) A TPSMP will be developed by the TPS materiel manager for each system requiring TPSs. For each system requiring TPSs, approval of the TPSMP by the USATA will be required during the demonstration and validation phase or its equivalent if the supported system program accelerates the development life cycle.

(2) The TPS center of the supporting materiel command will act as the principal staff advisor to the TPS materiel manager and will actively assist in the development of the TPSMP.

c. A formal configuration management program will be established to identify, control, account for, and audit the functional and physical characteristics of each TPS.

#### **4-10. Designated TPS standard language**

Test specifications, test procedures, and TPSs for all Army ATE will use the DOD approved American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers, Inc. (IEEE) Standard 716 C/ATLAS test language. Requests for waivers to this requirement will be processed in accordance with the following constraints:

a. The identification of a requirement for non-C/ATLAS modules, procedures, or language extensions, will not be used as a basis for a waiver of specifications currently covered by C/ATLAS constructs.

b. Each request for policy deviation must include the technical basis for each non-C/ATLAS capability in sufficient detail to permit preparation of a C/ATLAS change proposal to the DOD ATE Language Standardization Committee (DALSCOM) for sponsorship to IEEE. The proposal must include plans for implementing the change proposal on an Army C/ATLAS compiler.

c. Software necessary to process non-C/ATLAS requirements (for example, assemblers, compilers, translators, loaders, post processors, and utility programs) will be procured with sufficient rights in data to permit software support by the U.S. Government without recourse to any contractor assistance.

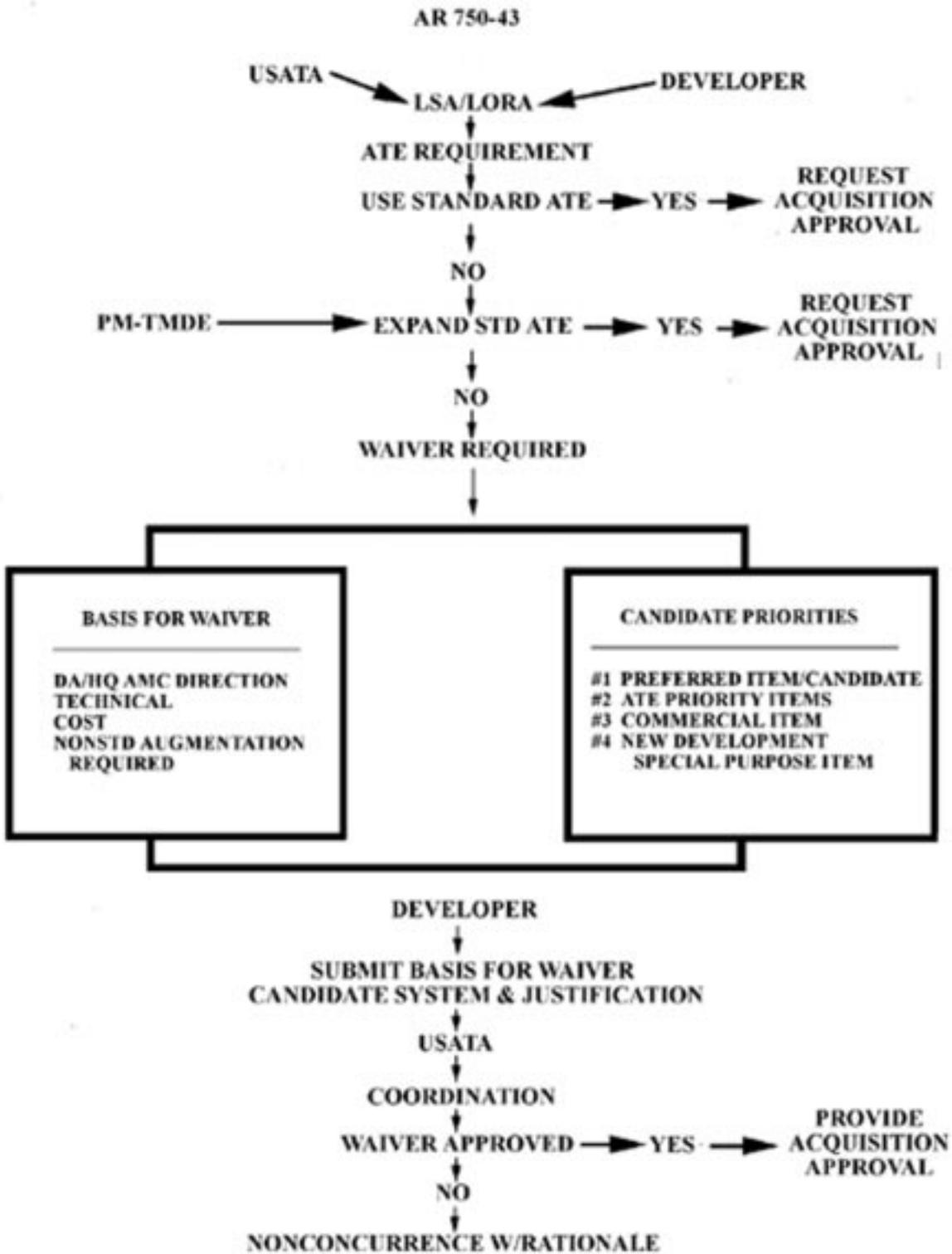


Figure 4-1. ATE selection and waiver process

## Chapter 5 DA TMDE Preferred Items List

### 5-1. General

This chapter describes the PIL.

### 5-2. Objectives of the PIL

The objectives of the PIL are—

*a.* Provide TMDE users with a catalog of instruments that are acceptable for Army use and are logistically supportable.

*b.* Identify candidate instruments that are not yet qualified for the PIL but have planned dates for type classification and system supportability. The PIL items and candidate items will be designated priority 1 for TMDE selection purposes.

*c.* Provide TMDE users with a listing of type classified standard items that are not qualified for the PIL but are still supported by the managing command. These items will be designated priority 2 for TMDE selection purposes.

*d.* Provide a listing of ATE for selection in applications for which the Army single ATE policy designated items may not be appropriate.

### 5-3. PIL qualifications and policy

*a.* An item of TMDE will be added to the DA TMDE PIL when it—

(1) Is a TEMOD or an integrated family of test equipment (IFTE) product.

(2) Is not a TEMOD or IFTE product but has been determined to be suitable for Army use.

(3) Can be supplied and supported in quantity, as certified by the materiel manager and by a supportability statement from the USATA.

*b.* The PIL item must be type classified standard. The PIL candidate items may be type classified generic.

*c.* Candidates will be recommended by the responsible materiel developer's commodity manager for inclusion in the DA TMDE PIL. All items submitted as DA TMDE PIL candidates will have complete technical specifications.

*d.* An item of TMDE will be deleted from the DA TMDE PIL when—

(1) It is no longer considered the most technically acceptable and supportable Army-adopted item.

(2) It is coded other than LCC A.

(3) The RICC has been changed to 0.

*e.* A DA TMDE PIL in-process review panel will be established to review the annual update of the PIL. The USATA will chair the panel. The panel will be composed of representatives from commands with materiel development, materiel acquisition, and combat development mission responsibility.

### 5-4. Review and update of the PIL

The USATA will—

*a.* Solicit proposed changes to the PIL and prepare a coordinating draft.

*b.* Staff a coordinating draft with panel members for review and comment.

*c.* Take action to resolve issues on PIL changes when panel consensus is not reached.

*d.* Update and make available the DA TMDE PIL.

*e.* The panel will review the recommended additions and deletions to the DA TMDE PIL.

### 5-5. Special application PIL

*a.* Items of TMDE that do not qualify as DA PIL items but require MACOM internal control and identification as a preferred item will be listed in a MACOM-specific addendum to the DA PIL. These addenda will not list items qualified for inclusion in the DA PIL.

*b.* The PIL panel will review and update the MACOM PIL addenda concurrent with the DA PIL review. The minimum requirements for inclusion in the addendums are: items are procurable, and items are logistically supportable.

## Chapter 6 Army TMDE C&RS Program

### Section I Management and Administrative Objectives

#### 6-1. Program objectives

A DA TMDE C&RS program will be established and maintained according to this chapter. The program objective is to ensure maximum availability of accurate and serviceable TMDE for use in test, measurement, and diagnostic operations associated with Army materiel during its life cycle management. The following goals are established to achieve the DA TMDE C&RS program objective:

*a.* That 95 percent or above of the TMDE inventory is available to the user in a calibrated and repaired condition. Items placed in calibrate before use (CBU) status are not considered in the activity's availability.

*b.* The TMDE owner/user delinquency rate (failure to submit for required support) is 3 percent or below.

*c.* Methods for computing availability and delinquency rates that incorporate the removal of CBU items from the Instrument Master Record File (IMRF) are—

(1) *Availability.*

$$100 - \frac{(\text{items in shop} + \text{delinquent items})}{(\text{total items in IMRF minus CBU items})} \times 100 = \% \text{ Available}$$

(2) *Delinquency.*

$$\frac{\text{delinquent items}}{(\text{total items in IMRF minus CBU items})} \times 100 = \% \text{ Delinquent}$$

#### 6-2. Management and control

*a.* The CG, AMC, as the DAEAT, will manage, direct, and control the Army wide TMDE C&RS program and will maintain the USATA and its subordinate elements in the continental United States (CONUS) and outside CONUS (OCONUS) to perform the following C&RS program functions:

(1) Maintain management and technical control of the Army wide TMDE support program.

(2) Exercise command and control of all TMDE support activities in the execution of the Army wide TMDE support mission.

(3) Provide metrology engineering support and materiel development for all calibration standards.

(4) Determine C&RS equipment requirements and control materiel acquisition and configuration of TMDE C&RS sets.

(5) Evaluate reliability of TMDE through assessment of maintenance data.

(6) Provide technical assistance and new equipment training for C&RS standards and equipment.

(7) Assist materiel developers in determining the TMDE C&RS requirements for their materiel.

(8) Monitor training and career development of military and civilian TMDE C&RS personnel and coordinate with TRADOC proponent schools on training requirements and program needs.

(9) Ensure and maintain necessary control of radioactive calibration devices and materiel, personnel safeguards, and all corresponding licenses, authorizations, permits, and related radiation records that apply to TMDE C&RS operations (AR 40-14).

(10) Provide C&RS for TMDE-GP and selected TMDE-SP as identified in TB 43-180.

(11) Ensure coordination of all Army PTTI requirements with the DOD PTTI manager and provide or arrange for PTTI support for Army commands.

(12) Maintain the U.S. Army Primary Standards Laboratory (USAPSL) to provide the Army's highest level of measurement accuracies.

*b.* The DEDT will coordinate the metrology and calibration program with other Services and DOD agencies to reduce duplication of effort and promote interservice support where applicable and cost effective.

### **6-3. The U.S. Army TMDE Activity**

*a.* The U.S. Army TMDE Activity (USATA) will maintain a centrally managed structure that provides traceable measurements from the National Institute of Standards and Technology (NIST) or fundamental physical constants, to meet all Army maintenance and operational requirements. Army measurement accuracy and TMDE C&RS will be coordinated with the other military services to identify common requirements. Whenever possible, metrology and C&RS will be provided on a joint services basis to provide the most effective support at the least cost to DOD. Army TMDE support activities (TSA) will be located at strategic locations in CONUS and OCONUS in order to provide optimum regional support. In no case will more than one nondeployable TMDE support activity exist on an installation.

*b.* The Army metrology system, the cornerstone of the Army TMDE support program, provides an unbroken chain of measurement traceability from the NIST through the USAPSL, subordinate calibration facilities, maintenance units, and to the weapon system in the field. This traceable calibration system provides commanders at all levels with the confidence that the measurement being made in the development, testing, maintenance, and operation processes are valid, that their system will perform as designed, and that they will be interoperable with other systems on the battlefield.

*c.* The USAPSL and the TMDE support activity will ensure the following:

(1) Preventive maintenance will be performed on all calibration standards consistent with the instructions contained in applicable technical or manufacturer's manuals.

(2) Reconciliation actions will be performed on TMDE in repair or evacuation status. For items that have been evacuated for more than 60 days, the supporting activity will contact the performing activity, or contractor, to determine the status of those items. Owners of TMDE awaiting repair or evacuation (that is, awaiting repair parts, in-shop repair, awaiting repair, evacuated to another activity/contractor) over 60 days will be notified of the status of those items. Thereafter, updates of status will be provided at 30-day intervals explaining options to the owner.

## **Section II Support of TMDE**

### **6-4. TMDE support coordinator**

Each command, installation, and unit that uses TMDE will designate a TMDE support coordinator in writing. The coordinator will act as the central point of contact for TMDE C&RS matters concerning command, installation, or unit organic TMDE. The coordinator will be responsible and have authority for monitoring the command, installation, or unit TMDE management program. This program will be consistent with this regulation, AR 750-1, DA Pam 738-750, and TB 750-25.

### **6-5. TMDE support concepts**

All TMDE support normally will be based on the concept that repair should be performed by the element designated in TB 43-180 as being responsible for calibration support. The C&RS for TMDE not listed in TB 43-180 will be provided by USATA based on the specific support requirement as identified by the owner or user organization on DA Form 3758-R. All TMDE support will be as follows:

*a.* All TMDE owners or users will perform organizational maintenance on organic TMDE.

*b.* The TSAs will provide C&RS for all TMDE-GP and TMDE-SP designated in TB 43-180 as being the support responsibility of the TMDE Support Center (TSC) or an Area TMDE Support Team (ATST).

*c.* Normally, calibration of TMDE will be provided on a first come/first served basis unless extenuating circumstance dictate that support be provided according to the priorities established under paragraph 6-15.

*d.* All TMDE repair will be provided on a priority basis according to the maintenance priority designator.

*e.* All DS/GS maintenance and AVIM units will provide support service for organic and supported units' TMDE-SP designated in TB 43-180.

*f.* Certain TMDE-SP may require C&RS to be performed by both a TSA and a DS/GS maintenance or AVIM unit on a coordinated basis. For example: a large TMDE-SP console may include some TMDE-GP that normally would be serviced by a TSA. The remaining components of the console are TMDE-SP and require a person with weapon system training to do the repair work. In these cases the TSA and DS/GS or AVIM unit personnel will work together to complete the required C&RS. (This will be accomplished through a local agreement.)

### **6-6. Levels of support**

*a.* All DS/GS AVIM maintenance units and owners/users of TMDE provide "F" level of support as dictated in TB 43-180 and appropriate repair parts manuals.

*b.* The ATST and TSC provides C&RS for TMDE and measurement standards requiring "T" level support. When repair of TMDE is beyond the capability of the ATST/TSC, it may be evacuated to another ATST/TSC, or the area calibration laboratory (ACL), for repair and/or calibration. If parts are no longer available, or repair expenditure limits are exceeded, the instrument will be condition coded and returned to the owner/user for turn-in.

*c.* The ACL provides C&RS for TMDE and measurement standards within its assigned mission that requires "S" level support. The following apply:

(1) When repair of an instrument is beyond the capability of the ACL, the ACL may evacuate the instrument to the USAPSL, a contractor, or the manufacturer. If parts are no longer available, or repair expenditure limits are exceeded, the instrument will be condition coded and returned to the owner/user for turn-in.

(2) Measurement standards requiring "P" level support will be evacuated to the USAPSL.

*d.* The USAPSL calibrates and repairs TMDE and measurement standards requiring "P" level support. USAPSL internal operating procedures will be established to control the processing of instruments through the USAPSL (to include evacuation to manufacturer) for calibration, repair, and return to owner/user.

*e.* When Army or Army National Guard calibrating standards are found to be out of tolerance, the activity performing the calibration will inform the owning activity of the out-of-tolerance condition. The TSA will perform actions specified in TB 9-4931-537-35.

*f.* Designated TSA provides C&RS for TMDE used to support the installation's internal mission and selected organization(s) at other locations. When calibration or repair of an instrument is beyond the capability of the TSA, the TSA evacuates the instrument to the ACL, the USAPSL, or the manufacturer. The levels of calibration provided by the TSAs may include levels T, S, and P, dependent on their mission support accuracy requirement and existing capability.

### **6-7. Interservice support**

C&RS provided to, or requested from, other military services, DOD agencies, Federal Government departments, or agencies will be accomplished through interservice support agreements (ISA) or intragovernmental support agreements. The USATA will be

responsible for ISAs concerning C&RS for general and selected special purpose TMDE.

### **6-8. Commercial contractor support**

All C&RS for Army materiel will normally be accomplished utilizing Army resources, or support agreements with other DOD agencies, in order to optimize the use of existing workload capacity. Commercial contracts may be used to provide C&RS when the required support is not available within the Army, DOD, or other U.S. Government agencies.

a. The USATA will determine when commercial contract support for TMDE-GP and selected TMDE-SP is required and will initiate appropriate actions to develop and administer the necessary contracts. Army TMDE support will not be included in contracts for other services or functions without prior approval of USATA.

b. All commercial contracts for C&RS will specify, as a minimum, adherence to ANSI Z540.1-94 and make provisions for on-site review by the USATA to validate compliance and traceability of accuracy of measurements according to paragraph 6-10.

c. In those cases where Army materiel C&RS for Army TMDE is provided through contractor operations, measurement standards must be traceable to NIST or to national standards of other countries that are correlated with U.S. national standards. Such requirements must be incorporated into the appropriate contract.

### **6-9. Metrology engineering and RDTE program**

The USATA will maintain a metrology RDTE program. This program is to advance the state of the art in metrology and to maintain pace with advancement in Army materiel and equipment technology.

### **6-10. Quality assurance and inspection program**

a. The USATA will develop and administer a technical measurement audit and analysis program to evaluate the accuracy and integrity of measurements performed by TSAs in relation to national, or international, standards.

b. The USATA, as a representative of DA, will develop and administer a periodic technical and management inspection program for the total Army, to include Government-owned contractor-operated (GOCO) TMDE support organizations and activities in accordance with this regulation, AR 702-11, and AR 20-1.

(1) As a minimum, inspections will be conducted at 24-month intervals and will also include a review of the TMDE management program with the TMDE coordinators of the support commands, installations, or activities, and an assessment of customer satisfaction. All inspected activities will be notified at least 10 days prior to the inspection.

(2) Quality assurance reviews of other DOD TMDE support activities (or contractor support operations) that provide C&RS for Army TMDE will be conducted by the USATA according to the USATA quality assurance (QA) program and any specific provisions specified in a support agreement, or contract.

c. All activities inspected will be rated. Specific pass or fail criteria will be established for various functional areas. At the discretion of the inspection team chief, a failed rating can result in the suspension of calibration support by the inspected activity. Critical findings that can cause an organization to fail overall or in a functional area are as follows:

- (1) Failure of end items to meet specifications.
- (2) Loss of measurement traceability.
- (3) Significant safety or health hazard.
- (4) A deficiency that has adverse impact on combat effectiveness of a supported weapon system or organization.
- (5) General lack of program discipline.
- (6) Consistent failure to meet program performance goals and objectives.

d. Unresolved issues, or disagreements between the inspector and inspected activities, will be arbitrated by the Director, USATA. Results of all inspections and reviews will be provided to The Department of The Army Inspector General Activity, ATTN:

SAIG-TI. Inspections and review results pertaining to the Army National Guard will also be provided to the Chief, National Guard Bureau.

## **Section III**

### **TMDE Publications, Forms, and Records**

#### **6-11. TMDE C&RS publications**

Equipment publications will be developed and published for each maintenance significant instrument introduced into the Army inventory. The use of electronic technical manuals (ETM) is mandatory for all acquisition category (ACAT) I and II systems. The combat developer will conduct an effectiveness analysis of using ETMs on all ACAT III and IV systems. This analysis will be submitted to the Director, USAMC Logistics Support Agency, Redstone Arsenal, AL 35898-7466, for approval, without which no deviation from the requirement for use of ETMs will be made. The ETMs may be in the form of interactive ETMs (IETM), preferred, or electronic "page turner" manuals (an electronic representation of existing paper manuals). The ETMs will be prepared for use on the Army's standard lightweight computer and will not be part of the embedded system software. Any request for deviation from this requirement must be submitted to LOGSA for approval. The ETM will conform to continuous acquisition and life cycle support standards.

a. The DS/GS and AVIM level maintenance manuals for TMDE-GP will be developed by the TMDE-GP materiel manager using TMDE authorized in units/activities that provide secondary transfer level TMDE support. Calibration procedures for TMDE-GP will be developed by USATA.

b. The DS/GS and AVIM level maintenance manuals and calibration procedures for TMDE-SP will be developed by the TMDE-SP materiel manager. They will include the use of TMDE authorized at the supporting DS/GS maintenance, AVIM unit, or units/activities that provide secondary transfer level TMDE support.

c. Contracts for new TMDE may allow the contractor to prepare maintenance manuals for all TMDE and calibration procedures for TMDE-SP. These contracts and calibration procedures will be coordinated with USATA. This may occur when no DA publication (maintenance or calibration) is available and when contractor preparation is more cost-effective than in-house preparation. These publications will be distributed to the appropriate TSAs concurrent with or before issuing TMDE.

d. Drafts of proposed maintenance manuals and calibration procedures for TMDE will be prepared as a part of a system's or major item's test package. All drafts will be coordinated with USATA and in accordance with AR 25-30. They will be evaluated as part of the materiel testing program before being prepared in final form for publication and general use.

(1) All draft TMDE-SP calibration publications will be reviewed and approved by USATA before they are listed in TB 43-180.

(2) All draft TMDE maintenance manuals will be coordinated according to AR 25-30 and verified by the proponent to ensure the prescribed equipment is available to the activity providing repair support.

e. Calibration procedures will be prepared as stated in MIL-M-38793A.

f. Verified commercial exception and service manuals may be used as an interim solution to accomplish first unit equipped (FUE) status.

#### **6-12. Instrument Master Record File**

Each activity providing TMDE C&RS will establish and maintain an IMRF. The IMRF will include all TMDE-GP and TMDE-SP, to include dosimeters and RADIAC meters. The TMDE owners or users will ensure their TMDE is identified in the supporting activity's IMRF. The IMRF for TMDE-SP, supported by the DS/GS maintenance or AVIM units, will be maintained by the TSA supporting those units. The TMDE owners may have several performing unit identification codes (PUIC) but will have only one scheduling unit identification code (SUIC).

### 6-13. National Instrument Historical File

The USATA will establish and maintain a National Instrument Historical File (NIHF) that has Army-wide data. The NIHF data will support establishment of calibration intervals and provide management information required for effective program administration.

### 6-14. Calibration labels and forms

Department of the Army Label 80 (U.S. Army Calibrated Instrument), DA Label 163 (U.S. Army Limited or Special Calibration), DA Form 2417 (U.S. Army Calibration System Rejected Instrument), and DA Form 7372 (TMDE Calibration and Repair Data) will be used by all activities providing C&RS, in accordance with this regulation and TB 750-25. These labels and forms attest to the current status of TMDE concerning the C&RS provided.

### 6-15. C&RS priorities

Under normal operating conditions C&RS for TMDE will be provided on a cyclic basis using an automatic recall system. Extenuating circumstances may preclude C&RS from being provided to all units as scheduled and may necessitate providing this support on a priority basis for a unit or mission essential TMDE. Priorities will be set as follows:

a. The USATA C&RS standards required to perform the mission will receive support prior to customer equipment.

b. The OCONUS host theater Army command will establish C&RS priorities for subordinate commands or units, and all tenant commands or units in the theater of operation. The commander will also identify those priorities to the AMC activity responsible for theater C&RS.

c. The CONUS installation commanders will establish C&RS priorities for subordinate and tenant units on the basis of mission requirements, and identify those priorities to the USATA support activity responsible for C&RS at that installation.

d. Commanders and TMDE coordinators will use the priority designator system when submitting C&RS request. Unique mission requirements will be coordinated with the TMDE support activity.

e. Identification of instruments requiring C&RS:

(1) The TMDE that requires calibration must be identified by reviewing TB 43-180. The C&RS requirements listed in TB 43-180 will be used by all U.S. Army units, organizations, installations, activities, and commands to include schools and training centers, ARNG, and USAR units that are responsible for the maintenance of fielded Army materiel.

(2) C&RS requirements for TMDE used by the following will be established by the TMDE owner: USAPSL, depot maintenance, facilities engineering, research and development, procurement and production, test and evaluation. Technical Bulletin 43-180 will be used only as a guide in determining C&RS for TMDE used by the above.

(3) The TMDE owner/user will ensure that the supporting organization is continuously provided accurate, complete, and up-to-date information on TMDE in order to ensure the accuracy of the IMRF. The TMDE owner/user must provide the supporting organization with changes, additions, and deletions to existing records in the IMRF when any of the following occur: activation, inactivation, or relocation of the unit(s); receipt of new types or additional quantities of TMDE; or turn-in or placement of TMDE in storage and when errors are detected on any listing provided by the supporting C&RS organization.

f. Obtaining TMDE C&RS:

(1) The TMDE requiring C&RS will be submitted to the supporting TSA in accordance with the calibration recall schedule on or before the calibration void date listed on the DA Label 80. The owner/user is responsible for obtaining C&RS for authorized TMDE and for the delivery/pickup of TMDE. The TMDE that is too heavy, bulky, or sensitive to be transported will be serviced on-site as agreed upon between the owner/user and the supporting TSA. The TMDE owner/user will perform unit maintenance (AR 750-1) on their TMDE in accordance with the maintenance allocation chart

(MAC) and the maintenance manual prior to submission of TMDE to the USATA supporting organization.

(2) TMDE must be transported in a manner that provides protection from inclement weather, vibration, and shock. It must be complete with all unique or special purpose adapters, cables and accessory items required by the supporting organization to accomplish the calibration or repair. When requested, the TMDE owner/user will provide authorized maintenance and manufacturer's manuals. If the owner/user or the TSA does not have the appropriate manufacturer's manuals, the supporting TSA will contact the USATA library to obtain the manual.

(3) The owner/user will be furnished an extract of the IMRF that pertains to their equipment by the supporting TSA. Owner/user will submit TMDE for calibration in accordance with TB 750-25 chapter 3, appendixes B and D. When support is completed, the owner/user will be notified that the TMDE is ready for pickup.

(4) Unserviceable TMDE normally falls into two categories: TMDE that becomes inoperative during use, or TMDE that is determined to require repair during the calibration process. Unserviceable TMDE must have a DA Form 2417 affixed to it, as specified in TB 750-25 (para C-6). For instruments that become inoperative during use, the owner/user will submit that TMDE to their supporting TSA for repair. When condition coding TMDE for turn-in the owner/user submits a DA Form 2407 with the item of TMDE to the supporting TSA for proper coding. Instructions for completing DA Form 2407 are contained in DA Pam 738-750 (para 3-6).

(5) It is the responsibility of the owner/user to ensure TMDE is in an operating condition and affixed with the appropriate label indication its status. A current DA Label 80 or 163 must be affixed to each item of TMDE that requires calibration. If an instrument becomes unserviceable during use, the TMDE owner/user will void the DA label. TMDE having a DA label with an exceeded calibration void date will be overprinted VOID, in order to prevent the accidental use of an instrument prior to it being turned in for calibration. A DA Label 80 overprinted with calibration not required (CNR) will be affixed to all TMDE listed in TB 43-180 that does not require calibration.

## Section IV

### TMDE Support Requirements

#### 6-16. Instruments used in Army schools

a. Instruments required by Army schools curriculum to provide individual training will not require cyclic calibration unless training efficiency or safety is adversely affected. The TMDE used for maintenance of school equipment must be calibrated at intervals specified in TB 43-180.

b. When an out-of-tolerance instrument will affect safety, cause equipment damage, or impact training efficiency, the school commandant is authorized to establish the calibration interval using TB 43-180 as a guide. The supporting TSA will be informed of the calibration interval established by the school.

#### 6-17. Emergency and contingency planning

Any C&RS is an important part of the Army's overall capability to perform its missions and functions. The C&RS must be considered in war, contingency and emergency planning. The USATA will provide input to such planning to assure adequate C&RS is addressed. The MACOMs will coordinate such plans with the USATA.

#### 6-18. International logistics

All proposals, letters of offer, or letters of acceptance that offer Army materiel to foreign customers through the security assistance program will include TMDE (PM, TMDE products, IFTE, calibration and general purpose TMDE) required for maintenance support and will identify the need for C&RS. The following applies:

a. Those cases where TMDE and/or calibration services are included, the activity responsible for letter of acceptance preparation will coordinate requirements with the TMDE Security Assistance Office, USAAMCOM, Redstone Arsenal, AL 35898-5400. The

U.S. Army cannot provide assurance of complete supportability unless the USAAMCOM, TMDE Security Assistance Office, has identified the C&RS required or verification that an organic capability has been evaluated satisfactorily by the USAAMCOM.

*b.* Periodic calibration of applicable TMDE is required to ensure conformity with maintenance specification, safety requirements, and to improve serviceability throughout the end items life cycle. Calibrations must be traceable to NIST and/or international standards. The purchaser of TMDE could have organic C&RS facilities and capabilities that can provide required calibration and repair services. In such cases the USATA should conduct an on-site technical evaluation to assure that traceable calibrations are feasible. The USAAMCOM, TMDE Security Assistance Office, can consider, through normal foreign military sales channels, a request for technical evaluation of TMDE and training required to ensure that these critical items do not cause a degradation of the equipment's operational readiness.

### **6-19. Medical equipment**

The Office of the Surgeon General (OTSG) will determine C&RS in accordance with AR 40-61, chapter 6, for any item of equipment or system that is used for diagnosing and treating patients in the Army Medical Department health care program. A TMDE-GP used for maintenance of medical materiel will be calibrated and repaired by the supporting TSC. All TMDE, to include general and special purpose, used for maintenance of medical materiel will be listed and accomplished as specified in TB 43-180.

### **6-20. Identification of TMDE C&RS requirements**

All materiel developers or other Army elements introducing TMDE into the Army inventory, or selecting existing TMDE for use with or in support of Army materiel, will identify the items and the recommended C&RS requirements to the USATA in accordance with TB 750-25, chapter 3.

*a.* The test and measurement requirements of new Army materiel and associated maintenance support TMDE will be identified and analyzed early in the exploration or formulation phase of the product life cycle to facilitate development of C&RS capability. This is to ensure that the required logistics support and measurements standards will be available when the new materiel is issued for use. All TMDE support requirements for materiel developed and procured under the integrated logistics system (ILS) management concept will be identified by the DOD system contractor. All C&RS requirements for TMDE selected by the system developer will be submitted to the USATA using DA Form 3758-R, Calibration and Repair Requirements Worksheet, in accordance with TB 750-25, appendix B. The logistics support analysis process will be used for determining TMDE support requirements where applicable. Any C&RS requirements evolving from acquisition of TMDE through processes (local acquisition) other than ILS procedures will be submitted to the USATA in accordance with TB 750-25, appendix B. The USATA will initially be notified of materiel acquisition by letter of requirement or through operational and organizational planning (O&O). Thereafter, the USATA will participate in TMDE requirement planning actions, including—

(1) Qualitative and quantitative personnel requirements information (QQPRI).

(2) Logistic support analysis and planning.

(3) In-process reviews.

(4) BOIPs.

(5) New equipment training.

(6) Technical manuals.

(7) Support list allowance cards.

(8) Type classification actions.

(9) Other life cycle management actions deemed necessary to ensure that the required skills, measurement system, measurement standards, and technical procedures will be available for TMDE C&RS when the new materiel is fielded.

*b.* C&RS requirements for TMDE used in the following applications will be established by the owner using TB 43-180 as a guide.

These C&RS requirements will not be listed in the published version of TB 43-180 but will be included in the data base and be accessible to supporting/supported activities involved in the following: APSL functions, depot maintenance, facilities engineering, research and development, procurement and production, and test and evaluation.

### **6-21. Calibration intervals**

Instruments requiring calibration will be calibrated at regularly prescribed intervals. Calibration intervals as specified in TB 43-180 will be established or changed by the USATA in coordination with the responsible materiel developer or materiel manager.

*a.* The calibration interval specified in TB 43-180 is the maximum number of days that an instrument may be used before recalibration is required. Calibration intervals for instruments not listed in TB 43-180 will be established by reviewing similar items listed in TB 43-180, manufacturer's recommendations, or sound engineering judgment. Instruments should not be used beyond the calibration void date identified on the appropriate label. However, deviation from the calibration void date may be permissible under the following conditions:

(1) Calibration of an instrument may be requested by the TMDE owner/user anytime the user suspects the TMDE is not functioning properly, or suspect an out of calibration condition.

(2) The TMDE owner/user may request, in writing, an extension beyond the calibration void date for a limited period of time (a maximum of 10 percent of the established interval) under certain specific conditions, for example, an item being used on an in process test. The owner/user will submit, in writing, to the supporting organization a request for the deviation. The activity that grants the deviation must be the activity that schedules calibration of the instrument. All TMDE used in areas for personnel safety will not be allowed deviation from prescribed calibration intervals.

(3) Army Reserve and Army National Guard assigned TMDE specified in TB 43-180 as requiring calibration at intervals less than 1 year may be extended to 360-day intervals if the TMDE is used solely during weekends and/or annual training periods, and are identified in writing to the scheduling TSA (for example, USAR 360-day intervals). This extended interval authority does not apply to aircraft, watercraft, and TMDE involved in safety of operations. DA labels affixed to TMDE with extended intervals will be overprinted with "EI" as specified in TB 750-25 (para C-7f).

*b.* Changes to established intervals will be generated based on analysis of TMDE calibration performance reliability data. USATA will establish a program to review TMDE performance reliability. Based on the results of the review the USATA will adjust calibration intervals to achieve the DA established TMDE reliability goals. The goals is: 90 percent of items on average will be in tolerance over the calibration period, and 81 percent in tolerance at the end of the period.

### **6-22. Scheduling, recording, and reporting**

The USATA will develop and maintain a standard automatic method of scheduling calibration support, recording and reporting C&RS actions.

### **6-23. Small arms and ammunition gages**

The owner/user will contact their local TSA for certification of ammunition and small arms gages. A list of ammunition and small arms gage requiring periodic inspection and certification is in TB 43-180, page III-o. The owner/user is required to maintain the DA Form 3023 (Gage Record) that comes with each ammunition and small arms gage that requires certification (see TB 750-25, app E). The owner/user will ship the respective DA Form 3023 with the ammunition and small arms gage when the item is sent for inspection and certification.

### **6-24. Nuclear weapons support**

Support of nuclear weapons TMDE will be the same as any other TMDE. C&RS requirements on nuclear weapons reliability is jointly determined by the Industrial Operations Command (IOC) and the

USATA. Calibration procedures will be developed depending on the usage and criticality of the TMDE.

## Appendix A References

### Section I Required Publications

#### **ANSI Z540.1-94**

Laboratories, Calibration, and Measuring and Test Equipment. (Cited in para 6-8.) Obtain this publication from the following address: National Conference of Standards Laboratories, 1800 30th Street (Suite 305B, Boulder, CO 80301.

#### **AR 11-1**

Command Logistics Review Program (CLRP). (Cited in para 2-4.)

#### **AR 11-2**

Management Control. (Cited in intro. para 'Internal Management Control.')

#### **AR 11-18**

The Cost and Economic Analysis Program. (Cited in table 4-1.)

#### **AR 20-1**

Inspector General Activities and Procedures. (Cited in para 6-10.)

#### **AR 25-30**

The Army Integrated Publishing and Printing Program. (Cited in para 6-11.)

#### **AR 40-14**

Occupational Ionizing Radiation Personnel Dosimetry. (Cited in para 6-2.)

#### **AR 40-61**

Medical Logistics Policies and Procedures. (Cited in para 6-19.)

#### **AR 50-6**

Nuclear and Chemical Weapons and Materiel. (Cited in Par 2-4.)

#### **AR 70-1**

Army Acquisition Policy. (Cited in paras 1-11, 2-6, 2-14, 3-2, 3-7.)

#### **AR 71-2**

Basis of Issue Plans (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI). (Cited in para 2-20.)

#### **AR 220-1**

Unit Status Reporting. (Cited in paras 1-14 and 2-4.)

#### **AR 380-5**

Department of the Army Information Security Program. (Cited in para 2-16.)

#### **AR 380-19**

Information Systems Security. (Cited in para 2-16.)

#### **AR 380-19-1**

Control of Compromising Emanations. (Cited in para 2-16.)

#### **AR 385-16**

System Safety Engineering and Management. (Cited in para 2-19.)

#### **AR 570-2**

Manpower Requirements Criteria. (Cited in para 2-20.)

#### **AR 602-2**

Manpower and Personnel Integration (MANPRINT) in the System Acquisition Process. (Cited in paras 1-5 through 1-7, 1-10, 1-11, app B.)

#### **AR 700-127**

Integrated Logistics Support. (Cited in paras 1-5, 2-6.)

#### **AR 700-138**

Army Logistics Readiness and Sustainability. (Cited in para 2-24.)

#### **AR 702-11**

Army Quality Program. (Cited in para 6-10.)

#### **AR 708-1**

Cataloging of Supplies and Equipment Cataloging and Supply Management Data. (Cited in para 2-21.)

#### **AR 750-1**

Army Materiel Maintenance Policy and Retail Maintenance Operations. (Cited in paras 2-4, 2-10, 6-4, 6-15.)

#### **DA Pam 70-3**

Army Acquisition Procedures. (Cited in para 3-7.)

#### **DA Pam 738-750**

Functional Users Manual for the Army Maintenance Management System (TAMMS). (Cited in paras 6-4, 6-15.)

#### **DA Pam 750-43**

Army Test Program Set Procedures. (Cited in paras 1-9, 2-15, 4-9.)

#### **MIL-M-38793A**

Manuals, Technical: Calibration Procedures, Preparation of. (Cited in para 6-11.) Obtain military standards from the following address: Standardization Documents Order Desk, 700 Robbins Avenue, Bldg 4, Philadelphia, PA 19111. Phone: (215) 697-2667.

#### **SB 700-20**

Army Adopted/Other Items Selected for Authorization/List of Reportable Items. (Cited in para 3-7.)

#### **TB 9-4931-537-35**

Calibration Procedures for Cross-checks, Intercomparisons, and Visual Inspections. (Cited in para 6-6.)

#### **TB 43-180**

Calibration and Repair Requirements for the Maintenance of Army Materiel. (Cited in paras 1-14, 2-2, 6-2, 6-5, 6-6, 6-11, 6-15, 6-16, 6-19, 6-20, 6-21.)

#### **TB 750-25**

Maintenance of Supplies and Equipment: Army Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Repair Support (C&RS) Program. (Cited in paras 1-8, 2-2, 6-4, 6-12, 6-14, 6-15, 6-20, 6-21.)

#### **TMDE PIL**

DA TMDE Preferred Items List. (Cited in paras 2-7, 5-1, 5-4.)

### Section II Related Publications

A related publication is a source of additional information. The user does not have to read it to understand this regulation.

#### **AR 750-10**

Modification of Materiel and Issuing Safety-of-use Messages and Commercial Vehicle Safety Recall Campaign Directive

#### **DA Pam 700-20**

The Army Test Measurement and Diagnostic Equipment Register

**ISO 10012-1-92**

Metrological Confirmation System for Measuring Equipment. Obtain this publication from the following address: International Organization for Standardization, 1 Rue de Varembe, Case Postale 56 CH-1211 Geneva 20, Switzerland.

**MIL-PRF-288000F**

General Specifications for Test Equipment and Electrical and Electronic Equipment. Obtain military standards from the following address: Standardization Documents Order Desk, 700 Robbins Avenue, Bldg. 4, Philadelphia, PA 19111. Phone: (215) 697-2667.

**MIL-STD-498**

Software Development and Documentation. Obtain from the address above.

**MIL-STD-1839A**

Calibration and Measurement Requirements. Obtain from the address above.

**MIL-STD-2165A**

Testability Program. Obtain from the address above.

**TB 11-6625-3263-25**

Test Equipment Modernization (TEMOD) Program Guide and Replacement Lists

**TB 43-0001-61 series**

Equipment Improvement Report and Maintenance Digest TMDE

**Section III****Prescribed Forms****DA Form 4062-R**

TMDE Acquisition Approval Analysis Data (Prescribed in paras 3-2, 3-7, 4-3.)

**Section IV****Referenced Forms****DA Form 11-2-R**

Management Control Evaluation Certification Statement

**DA Form 2407**

Maintenance Request

**DA Form 2417**

U.S. Army Calibration System Rejected Instrument

**DA Form 3023**

Gage Record card

**DA Form 3758-R**

Calibration and Repair Requirements Worksheet

**DA Form 7372**

TMDE Calibration and Repair Data

**DA Label 80**

U.S. Army Calibrated Instrument

**DA Label 163**

U.S. Army Limited or Special Calibration

**Appendix B****Management Control Evaluation Checklist****B-1. Function**

The functions covered by this checklist represents the minimum

essential management controls of the Army test, measurement, and diagnostic equipment program.

**B-2. Purpose**

To assist managers within the TMDE program in evaluating key management controls. The following checklist is not intended to cover all controls but does cover those controls considered to be the most importance in evaluating the overall effectiveness of the TMDE program.

**B-3. Instructions**

Answers to the below evaluation must be based on the actual testing of controls (for example, document analysis, direct observation, interviewing, sampling, simulation, evaluation reports, and so forth). Those answers that indicate deficiencies must be explained, to include corrective action taken, with supporting documentation. These controls must be evaluated at least once every year. Certification that the evaluation has been conducted must be accomplished in accordance with AR 11-2 on DA Form 11-2-R (Management Control Evaluation Certification Statement). DA Form 11-2-R may be locally reproduced on 8½- by 11-inch paper. A copy is at the back of this publication.

**B-4. Test questions**

*a.* Is there Army doctrine and organizational structures in place to support the TMDE calibration and repair support program? - (HQ AMC/EDT)

*b.* Is the overall TMDE program adequately funded to ensure execution of the program? - (HQ AMC/EDT)

*c.* Are adequate numbers of calibration and repair support personnel, military and civilian, trained and available within the total Army force structure? - (HQ AMC/EDT)

*d.* Are calibration measurements traceable to the National Institute of Standards and Technology, or an accredited national/international holder of standards? - (HQ AMC/EDT)

*e.* Is there a functional TMDE management information system(s) available to collect and provide performance data reports relative to the Army TMDE programs effectiveness? - (HQ AMC EDT/DEDT)

*f.* Are TMDE requirements addressed in the emerging material systems acquisition programs? - (Material System Developers)

*g.* Are quality assurance inspections carried out in accordance with this regulation and appropriate technical documents, with the results of such provided to the Army Inspector Generals office? - (DEDT)

*h.* Are unit/installation TMDE support coordinators monitoring the TMDE inventory availability and delinquency rates to ensure the unit/installation meets the established goals in AR 750-43? - (unit/installation commanders)

**B-5. Comments**

Help make this a better tool for evaluating management controls, please submit comments to: Deputy Chief of Staff Logistics (DALO-SMR), 500 Army Pentagon, Washington, DC 20310-0500.

## Glossary

### Section I Abbreviations

#### ACAT

acquisition category

#### ACL

area calibration laboratory

#### AMC

U.S. Army Materiel Command

#### AMEDD

U.S. Army Medical Department

#### AMSAA

Army Materiel Systems Analysis Activity

#### ANSI

American National Standards Institute

#### APSL

U.S. Army Primary Standards Laboratory

#### ARNGUS

Army National Guard of the U.S.

#### ARSTAF

Army Staff

#### ASA

Assistant Secretary of the Army

#### ASARC

Army Systems Acquisition Review Council

#### ASA(RDA)

Assistant Secretary of the Army for Research, Development, and Acquisition

#### ATE

automatic test equipment

#### ATSS

Automatic Test Support Systems Program

#### ATST

Area TMDE Support Team

#### AVIM

aviation intermediate maintenance

#### BIT

built-in test

#### BITE

built-in test equipment

#### BOIP

basis-of-issue plan

#### CAGE

commercial and Government entity

#### CALSETS

calibration sets

#### CE

concept exploration

#### C&RS

calibration and repair support

#### CAR

Chief, Army Reserve

#### CBU

calibrate before use

#### CG

commanding general

#### CNGB

Chief, National Guard Bureau

#### CNR

calibration not required

#### CONUS

continental United States

#### DAEAT

DA Executive Agent for TMDE

#### DALSCOM

DOD ATE Language Standardization Committee

#### DCSLOG

Deputy Chief of Staff for Logistics

#### DCSOPS

Deputy Chief of Staff for Operations and Plans

#### DEDT

Deputy Executive Director for TMDE

#### DEV

developmental item

#### DFT

design-for-testability

#### DLA

Defense Logistics Agency

#### DOD

Department of Defense

#### DODCEL

Department Of Defense consolidated equipment list

#### DS

direct support

#### DSN

Defense Switched Network

#### DT

developmental testing

#### EDT

Executive Director for TMDE

#### EIR

equipment improvement report

#### EMD

engineering and manufacturer development

#### ETM

electronic technical manuals

#### FMS

foreign military sales

#### FUE

first unit equipped

#### GOCO

Government-owned, contractor-operated

#### GS

general support

#### HOL

high order language

#### HQDA

Headquarters, Department of the Army

#### IEEE

Institute of Electrical and Electronics Engineers, Inc.

#### IETM

interactive ETM

#### IFTE

integrated family of test equipment

#### ILS

integrated logistics support

#### ILSMT

integrated logistics support management team

#### ILSP

integrated logistics support plan

#### IMRF

Instrument Master Record File

#### IOC

Industrial Operations Command

#### IOCOM

Industrial Operations Command

#### IPR

in-process review

#### ISA

interservice support agreement

#### JETDS

Joint Electronics Type Designation System

#### JLC

Joint Logistics Commanders

#### JWG

joint working group

#### LCC

logistic control code

#### LOGSA

Logistics Support Agency

#### LORA

level of repair analysis

<b>LRU</b> line replaceable unit	<b>OUID</b> owner unit identification code	<b>TEMOD</b> test equipment modernization
<b>LSA</b> logistic support analysis	<b>PDRR</b> Program Definition and Risk Reduction	<b>TEMP</b> test and evaluation master plan
<b>LSAR</b> logistics support analysis record	<b>PDS</b> post-deployment support	<b>TIMMS</b> TMDE integrated material management system
<b>MAC</b> maintenance allocation chart	<b>PIL</b> preferred items list	<b>TIWG</b> test integration working group
<b>MACI</b> military adaptation of commercial items	<b>PIP</b> product improvement program	<b>TMDE</b> test, measurement, and diagnostic equipment
<b>MACOM</b> major Army command	<b>PM-ATSS</b> Product Manager-Automatic Test Support System	<b>TMDE-GP</b> TMDE-general purpose
<b>MANPRINT</b> manpower and personnel integration	<b>PM-TMDE</b> Program Manager for Test, Measurement, and Diagnostic Equipment	<b>TMDE-SP</b> TMDE-special purpose
<b>MARC</b> manpower requirements criteria	<b>PM-TMOD/CALSETS</b> Product Manager, test equipment modernization/calibration sets	<b>TPS</b> test program set
<b>MOS</b> military occupational specialty	<b>PMD</b> program management documentation	<b>TPSMP</b> test program set management plan
<b>MOU</b> Memorandum of Understanding	<b>PTTI</b> precise time and time interval	<b>TRADOC</b> U.S. Army Training and Doctrine Command
<b>MSC</b> major subordinate command	<b>PUIC</b> performing unit identification code	<b>TSA</b> TMDE support activity
<b>MSD</b> materiel system developer	<b>QA</b> quality assurance	<b>TSC</b> TMDE Support Center
<b>MTBF</b> mean time between failure	<b>QQPRI</b> qualitative and quantitative personnel requirements information	<b>USAAMCOM</b> U.S. Army Aviation and Missile Command
<b>MTTC</b> mean time to calibrate	<b>RDTE</b> research, development, test, and evaluation	<b>USAPSL</b> U.S. Army Primary Standards Laboratory
<b>MTTR</b> mean time to repair	<b>RICC</b> reportable item control code	<b>USAR</b> U.S. Army Reserve
<b>NDI</b> nondevelopmental item	<b>SAIE</b> special acceptance and inspection equipment	<b>USATA</b> U.S. Army TMDE Activity
<b>NIHF</b> National Instrument Historical File	<b>SB</b> supply bulletin	<b>UIC</b> unit identification code
<b>NIST</b> National Institute of Standards and Technology	<b>SSEB</b> source selection evaluation boards	<b>UUT</b> unit under test
<b>NSN</b> national stock number	<b>SUIC</b> scheduling unit identification code	<b>Section II</b> <b>Terms</b>
<b>OCONUS</b> outside continental United States	<b>TB</b> technical bulletin	<b>Area TMDE support team</b> An organizational element of a TSC or TMDE support company. The ATST provides TMDE calibration and repair support in a mobile configuration. The ATST consists of TMDE C&RS equipment mounted in one or more vehicles and staffed with TMDE support personnel (civilian or military).
<b>ORD</b> operational requirements document	<b>TC</b> type classified	<b>Area calibration laboratory</b> An organizational element of a TSC that provides support for secondary transfer measurement standards and/or TMDE designated
<b>OT</b> operational testing	<b>TEMIS</b> TMDE management information system	
<b>OTSG</b> Office of the Surgeon General		

as requiring ACL support. The ACL consists of measurement standards, TMDE C&RS equipment, and laboratory personnel. Normally one ACL is collocated with the parent TSC.

#### **ATE/TPS center**

The central point of focus at the MSC level for ATE and TPS automatic test issues.

#### **Automatic/automated test equipment**

TMDE that performs a predetermined program to test functional or static parameters, to evaluate the degree of performance degradation, or to perform fault isolation of unit malfunctions. As a minimum, ATE must be able to sequentially perform testing/measurements, compare the measurements to predetermined values or ranges, and based on the result of this comparison, branch to other tests without manual intervention.

#### **Automatic test system**

ATE, associated system software, all items required for support, and those supported end items TPSs that may be stored with the ATE.

#### **Built-in-test**

Hardware and software that are designed into the end item to test all or part of that end item.

#### **Built-in-test-equipment**

Any identifiable device that is a part of the supported end item and is used for testing that supported end item.

#### **Calibration**

The comparison of a measurement system or device of unverified accuracy to a measurement system or standard of known greater accuracy to detect and correct any variation from the required performance specifications of the unverified measurement system or device.

#### **Calibration equipment**

Measurement standards and test, measurement, and diagnostic equipment and accessories used in performance of calibration.

#### **Calibration interval**

The period of time that a calibrated instrument can be expected to retain its specified accuracy within a predetermined confidence level before it must be recalibrated.

#### **Calibration procedure**

The document that identifies the technical specifications of an instrument to be calibrated, the required measurement standards, and the detailed technical procedure to be used to perform a calibration.

#### **Calibration requirement**

The identification of an instrument that requires calibration, a statement of the instrument's specifications that must be verified

(accuracies, ranges, frequencies, and so forth), and the support application of the instrument.

#### **Certification**

Endorsement of reliability.

#### **Diagnostic equipment**

Equipment used to analyze and identify electronic and physical characteristics.

#### **Hot mockup**

Any assemblage of repair parts, components, modules, or similar items configured to simulate an end item or subsystem for the purpose of testing or checking individual or collective parts, component, modules, or similar items.

#### **Instrument**

The term used to denote both TMDE and measurement standards.

#### **Instrument Master Record File**

The data file that contains identifying information about instruments that require cyclic calibration and repair. It also contains identifying information about instruments that require repair but do not require calibration.

#### **Interservice support agreement**

Calibration and maintenance service performed by the organic capability of one military service (or element thereof), contractor, and other Government agencies in support of another military service (or element thereof). Such action can be recurring or nonrecurring in character.

#### **Levels of support**

*a.* The letter F identifies those TMDE-SP items that are to be supported by item owner or intermediate direct support/general support (DS/GS) units.

*b.* The letter T identifies those items of TMDE that are to be supported by the Area TMDE Support Team (ATST) or TMDE Support Center (TSC).

*c.* The letter S identifies those items of TMDE that are to be supported by the Area Calibration Laboratory (ACL) or by the closest support activity that has the appropriate S-level support capability.

*d.* The letter P indicates support responsibility is assigned to the APSL or by the closest support activity that has the appropriate P-level support capability.

#### **Line replaceable unit**

A unit designated to be removed upon failure from a larger entity (equipment or system) in the operational environment.

#### **Manual test**

Test performed using manual equipment.

#### **Measurement equipment**

Equipment used to observe a quantitative value or dimension.

#### **Measurement standard**

An instrument, natural physical constant, or

materiel with known performance characteristics used as a reference to establish the value and maintain accuracy of a measurement system or instrument.

#### **National Instrument Historical File**

A data file maintained by HQ, USATA, that contains Army wide information about C&RS actions on each instrument.

#### **National Standard**

Measurement standard maintained by NIST or the Naval observatory for time and time interval constituting the highest level of accuracy and legal basis for measurement in the United States.

#### **Nondevelopmental item**

Those items available for procurement to satisfy an approved materiel requirement from existing sources (such as commercial items and items developed by other Government agencies, U.S. military services, or countries) requiring little or no additional development.

#### **Precise time**

A time requirement accurate to within 10 milliseconds. Time signifies epoch, that is the designation of an instant on a selected time scale, astronomical or atomic. It is used in the sense of time of day.

#### **Preferred items list**

Those TMDE identified that are considered the most advanced and acceptable in their respective families for military use. The TMDE are supportable and procurable in adequate quantities, capable of meeting specific requirements in military environments, and type classified 'standard.'

#### **Primary reference standard**

Measurement standards representing the highest level of measurement capability within the Army TMDE calibration and repair program that are normally used and maintained by the U.S. Army Primary Standards Laboratory (USAPSL) and Army Primary Nucleonic Laboratories.

#### **RADIAC meter**

A portable TMDE, such as Geiger counter or ionization chamber, used to detect nuclear radiation and dose rate. RADIAC meters may be used to detect or measure alpha, beta, gamma, x-ray, or neutron radiation.

#### **Secondary reference standards**

A set of measurement standards and accessories that are normally used in a fixed facility laboratory environment and maintained by ACLs.

#### **Secondary transfer standards**

A set of measurement standards and accessories that are used in mobile or fixed configuration by ATSTs and TSCs.

#### **Test accessories**

The items required to interface an ATE with TPS.

**Test equipment**

Equipment used to determine characteristics or values using specific procedures and/or methods to make a reference measurement.

**Test, measurement, and diagnostic equipment**

Any system or device used to evaluate the operational condition of an end item or subsystem thereof to identify and/or isolate any actual or potential malfunction. This TMDE includes diagnostic and prognostic equipment; semiautomatic and automatic test equipment, to include TPSs (with issued software); and calibration test or measurement equipment. *Note:* When the term TMDE is used, it refers to both TMDE-GP and TMDE-SP.

**Test program set center (TPS-Center)**

An organization for management of TPS development, acquisition, fielding, requisition, and support. The centers are normally located within AMC major subordinate commands and provide technical and management support to materiel developers.

**Test program set**

The combination of interface devices, software test programs (such as those residing in logic storage media or in permanent digital memory), and documentation (for example, technical manuals and technical data packages) that together allows the ATE operator to perform the testing/diagnostic action on the unit under test (UUT).

**TMDE-general purpose**

Any TMDE that can be used without modification for support operations of more than one end item or system. Addition of external special accessories, plug-in assemblies, logic probes, attenuators (or TPSs for ATE) are not considered modifications.

**TMDE-special purpose**

Any TMDE designed specifically for support of and functionally restricted to, one end item or system. To use this TMDE for support of another end item or system would necessitate modifications to the TMDE. Addition of external special accessories, plug-in assemblies, logic probes, attenuators (or TPS for ATE) are not considered modifications.

**TMDE support activity (TSA)**

A functional organization (personnel and equipment) specifically established to provide single source C&RS for TMDE.

**TMDE support center**

A TMDE support center established at strategic geographic locations to provide C&RS service within an assigned geographic area. The TSCs operate an ACL and deploy ATSTs within the assigned geographic area. The TSCs may be organized under TDAs or MTOES.

**U.S. Army Primary Standards Laboratory**

An organizational element of USATA that

provides the Army's highest level of measurement capability. The USAPSL maintains the Army's most precise and accurate measurement standards and provides C&RS service for selected Army materiel.

**Section III****Special Abbreviations and Terms**

This section contains no entries.

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**MANAGEMENT CONTROL EVALUATION CERTIFICATION STATEMENT**

1. REGULATION NUMBER

2. DATE OF REGULATION

For use of this form, see AR 11-2; the proponent agency is ASA(FM).

3. ASSESSABLE UNIT

4. FUNCTION

5. METHOD OF EVALUATION *(Check one)*

a. CHECKLIST

b. ALTERNATIVE METHOD *(Indicate method)*

APPENDIX *(Enter appropriate letter)*

6. EVALUATION CONDUCTED BY

a. NAME *(Last, First, MI)*

b. DATE OF EVALUATION

7. REMARKS *(Continue on reverse or use additional sheets of plain paper)*

8. CERTIFICATION

I certify that the key management controls in this function have been evaluated in accordance with provisions of AR 11-2, Management Control . I also certify that corrective action has been initiated to resolve any deficiencies detected. These deficiencies and corrective actions *(if any)* are described above or in attached documentation. This certification statement and any supporting documentation will be retained on file subject to audit/inspection until superseded by a subsequent management control evaluation.

a. ASSESSABLE UNIT MANAGER

(1) TYPED NAME AND TITLE

b. DATE CERTIFIED

(2) SIGNATURE



**TMDE ACQUISITION APPROVAL ANALYSIS DATA**  
 For use of this form, see AR 750-43; the proponent agency is DCSLOG

1. TO		2. FROM	
3. TMDE NOMENCLATURE		4. MODEL/PART NUMBER	
5. NSN	6. LIN	7. TC-LCC	8. UNIT COST
9. TYPE OF ACQUISITION	10. ITEM MANAGER	11. MANUFACTURER'S NAME	12. CAGE CODE
13. SYSTEM APPLICAITON		14. SYSTEM LIN	15. LIFE CYCLE STATUS
16. TMDE SPECIFICATIONS			
17. PUBLICATIONS			
18. RAM DATA			
a. MTBF	b. MTTR	c. MTTC	d. BIT/BITE
e. USER MOS OR SKILL	f. LEVEL OF USE	g. MAINT MOS OR SKILL	h. LEVEL OF MAINT
19. DISTRIBUTION		20. REMARKS	
21a. TYPED NAME AND TITLE		b. PHONE NUMBER	
c. SIGNATURE		d. DATE	



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