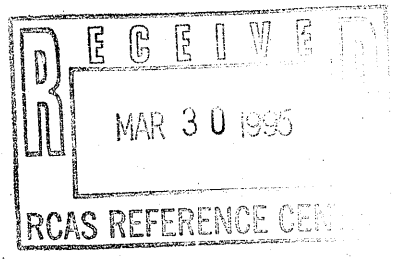
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Army Regulation 73–1

Test and Evaluation

Test and Evaluation Policy



Headquarters
Department of the Army
Washington, DC
27 February 1995

UNCLASSIFIED

SUMMARY of CHANGE

AR 73-1
Test and Evaluation Policy

This updated revision--

- References and implements the policies and procedures contained in DODD 8120.1 and DODI 8120.2, and the current changes in DODI 5000.2 and DOD 5000.2-M (chap 1).

- Revises and updates Army test and evaluation responsibilities based on organizational changes occurring since publication of the previous regulation (chap 2).

- Establishes Army test and evaluation responsibilities and implements test and evaluation policy guidance for Army Command, Control, Communications, and Intelligence (C3I) systems in accordance with DODD 4630.5 and DODI 4630.8 (chaps 2 and 3).

- Revises and updates Army test and evaluation policy guidance based on the current changes to DODI 5000.2, to include test and evaluation guidance for system changes (modifications or upgrades) and science and technology developments (chap 3).

- Revises and updates Army test and evaluation policy guidance for information systems based on DODD 8120.1 and DODI 8120.2; reflects the new life cycle phases as described in these regulations; and deletes the discussion of test and evaluation activities during the phases by referencing these regulations (para 3-2b).

- Corrects developmental and operational test terminology, to include renaming the preproduction qualification test (PPQT) to production qualification test (PQT); renaming the existing PQT to the production verification test (PVT), and correcting the definition of the follow-on operational test (FOT) (chaps 4 and 5).

- Introduces the User Acceptance Test (UAT), a test conducted by the functional proponent of an information system during the production and deployment phase (chap 5).

- Provides implementing policies concerning the Test and Evaluation Master Plan (TEMP) for system changes (modifications or upgrades), reprocurements, and science and technology programs (chap 7).

- Updates policy guidance to reflect operational test and evaluation reports (chap 7).

- Delegates TEMP approval authority for lower than DoD-level MAISRC information systems to the program milestone decision authority (chap 7).

- Deletes test funding policy guidance for materiel systems (chap 8). Test funding policy guidance will be contained in AR 37-100.

Headquarters
Department of the Army
Washington, DC
27 February 1995

*Army Regulation 73–1

Effective 27 March 1995

Test and Evaluation

Test and Evaluation Policy

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the Secretary of the Army

History. This UPDATE printing publishes a revision of this publication. Because the publication has been extensively revised, the changed portions have not been highlighted.

Summary. This regulation implements the policies and procedures contained in DODD 5000.1, DODI 5000.2, DOD 5000.2–M, DODD 8120.1, and DODI 8120.2 and specifically prescribes implementing policies for the Army's testing and evaluation program. It applies to all systems acquired under the auspices of the AR 70-series and AR 25-series. It also defines the role of the Army Test and Evaluation Committee, implements the Army's continuous evaluation program, defines the role of the independent evaluators, and includes implementing policies for the test and evaluation master plan. This update regulation states implementing polices and responsibilities for conducting test, evaluation, and experimentation. This regulation authorizes the publication of DA Pamphlet 73–1, Test and Evaluation in Support of System Aquisition; DA Pamphlet 73–2, Test and Evaluation Master Plan Guidelines; DA Pamphlet 73–3, Critical Operation Issues and Criteria Procedures and Guidelines; DA Pamphlet 73–4, Developmental Test and Evaluation Guidelines; DA Pamphlet 73–5, Operational Test and Evaluation Guidelines; DA Pamphlet 73–6, Live Fire Test and Evaluation Guidelines; DA Pamphlet 73–7, Software Test and Evaluation Guidelines; and DA Pamphlet 73–8, Other Considerations in Test and Evaluation.

Applicability. This regulation applies to the Active Army, the Army National Guard, and the U.S. Army Reserve.

Proponent and exception authority. The proponent of this regulation is the Deputy Under Secretary of the Army (Operations and Research) (DUSA(OR)). The DUSA(OR) has the authority to approve exceptions to this regulation that are consistent with law and controlling regulation. The DUSA(OR) may delegate this approval authority in writing to a division chief under his or her supervision within the proponent agency who holds the grade of colonel or the civilian equivalent.

Army management control process. This regulation contains management control provisions, but does not identify key management controls that must be evaluated.

Supplementation. Supplementation of this regulation is prohibited without prior approval from the proponent of the regulation.

Interim changes. Interim changes to this regulation are not official unless they are authenticated by the Administrative Assistant to the Secretary of the Army. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested improvements. Uses are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA, Office of the Chief of Staff of the Army, Test and Evaluation Management Agency (DACS–TE), 200 Army Pentagon, Washington, D.C. 20310–0200.

Distribution. Distribution of this publication is made in accordance with the requirements of DA Form 12–E, block number 5367, intended for command levels D for Active Army, D for U.S. Army Reserve, and D for Army National Guard.

Contents (Listed by paragraph and page number)

Chapter 1
Introduction, *page 1*
Purpose • 1–1, *page 1*
References • 1–2, *page 1*
Explanation of abbreviations and terms • 1–3, *page 1*
Test and evaluation management • 1–4, *page 1*

Chapter 2
Responsibilities, *page 1*

Section I
Headquarters, Department of the Army, Elements, page 1
Deputy Under Secretary of the Army (Operations Research) • 2–1, *page 1*
Director, Test and Evaluation Management Agency • 2–2, *page 1*
Assistant Secretary of the Army (Research, Development, and Acquisition) • 2–3, *page 2*
Director of Information Systems for Command, Control, Communications, and Computers • 2–4, *page 2*
Deputy Chief of Staff for Operations and Plans • 2–5, *page 2*
Deputy Chief of Staff for Logistics • 2–6, *page 2*
Deputy Chief of Staff for Personnel • 2–7, *page 2*
Deputy Chief of Staff for Intelligence • 2–8, *page 3*
The Surgeon General • 2–9, *page 3*
Chief of Engineers • 2–10, *page 3*
Director of Army Safety • 2–11, *page 3*
Heads of other Headquarters, Department of the Army, agencies • 2–12, *page 3*

Section II
Commanders of Major Army Commands, page 3
Commanding General, U.S. Army Materiel Command • 2–13, *page 3*
Commanding General, U.S. Army Intelligence and Security Command • 2–14, *page 4*
Commanding General, U.S. Army Training and Doctrine Command • 2–15, *page 4*

*This regulation supersedes AR 73–1, 15 October 1992.

UNCLASSIFIED

Commanding General, Military Traffic Management Command • 2–16, *page 4*
Commanding General, U.S. Army Medical Command • 2–17, *page 4*
Commanding General, U.S. Army Information Systems Command • 2–18, *page 4*

Section III
Heads of Other Army Elements, page 4
Commanding General, U.S. Army Operational Test and Evaluation Command • 2–19, *page 4*
Director, U.S. Army Concepts Analysis Agency • 2–20, *page 5*
Commanding General, U.S. Army Space and Strategic Defense Command • 2–21, *page 5*
Commander, U.S. Army Logistics Evaluation Agency • 2–22, *page 5*
Commanding General, U.S. Army Medical Research and Development Command • 2–23, *page 5*
Commander, U.S. Army Medical Materiel Agency (USAMMA) • 2–24, *page 5*
Other Army commands and agency heads • 2–25, *page 5*

Section IV
Key Responsibilities for Test and Evaluation, page 5
Army Test and Evaluation Committee • 2–26, *page 5*
Functional responsibilities • 2–27, *page 6*

Chapter 3
Test and Evaluation in Support of System Acquisition and Development, *page 7*
Developmental and operational testing • 3–1, *page 7*
Relationship of test and evaluation to the life-cycle system management models • 3–2, *page 7*
Test and evaluation in support of system changes • 3–3, *page 7*
Test and evaluation of nondevelopment items (NDIs) • 3–4, *page 7*
Test and evaluation in support of reprocurements • 3–5, *page 7*
Test and evaluation in support of science and technology development and transition • 3–6, *page 8*
Test and evaluation to support materiel release • 3–7, *page 8*
Test and evaluation in support of tailored acquisition approaches • 3–8, *page 8*
Joint test and evaluation • 3–9, *page 8*
Test and evaluation of joint (or multiservice) acquisition programs • 3–10, *page 8*
Foreign comparative testing • 3–11, *page 8*
Waivers of approved testing • 3–12, *page 9*
Delay, suspension, or termination of testing • 3–13, *page 9*

Chapter 4
Developmental Test and Evaluation, *page 9*
Types of developmental testing • 4–1, *page 9*
Premilestone III testing (materiel systems) • 4–2, *page 9*
Premilestone III testing (information systems) • 4–3, *page 10*
Production and deployment phase testing (materiel systems) • 4–4, *page 11*
Production and deployment phase testing (information systems) • 4–5, *page 11*
Operations and support phase testing (materiel systems) • 4–6, *page 11*
Operations and support phase testing (information systems) • 4–7, *page 12*
Critical system characteristics and critical technical parameters • 4–8, *page 12*
Independent developmental evaluation and independent developmental assessment • 4–9, *page 12*
Contractor participation in developmental test and evaluation activities • 4–10, *page 13*

Chapter 5
Operational Test, Experimentation, and Evaluation, *page 13*
Materiel systems and information systems • 5–1, *page 13*
Operational tests and experiments • 5–2, *page 13*
Premilestone III testing and experimentation (materiel systems) • 5–3, *page 13*
Premilestone III testing (information systems) • 5–4, *page 14*
Production and deployment phase testing (materiel systems) • 5–5, *page 14*
Production and deployment phase testing (information systems) • 5–6, *page 14*
As-required testing and experimentation • 5–7, *page 14*
Critical operational issues and criteria • 5–8, *page 15*
Independent operational evaluation • 5–9, *page 15*
Other evaluations • 5–10, *page 15*
Use of system contractors and developers in operational test and evaluation • 5–11, *page 15*

Chapter 6
Test Integration Working Groups, *page 16*
Essential role • 6–1, *page 16*
Test Integration Working Group composition • 6–2, *page 16*
Other groups interfacing with the Test Integration Working Group • 6–3, *page 16*

Chapter 7
Test and Evaluation Review and Documentation Requirements, *page 16*
Document content • 7–1, *page 16*
Office of the Secretary of Defense briefing relevant to test and evaluation • 7–2, *page 16*
Department of the Army briefing relevant to test and evaluation • 7–3, *page 16*
Test and evaluation master plan • 7–4, *page 16*
Independent developmental evaluation plan • 7–5, *page 17*
Developmental test design plan • 7–6, *page 17*
Operational test and evaluation plan • 7–7, *page 17*
Outline test plan • 7–8, *page 17*
Five-Year Test Program • 7–9, *page 17*
Detailed test plan • 7–10, *page 18*
Test incident and related reporting • 7–11, *page 18*
Developmental test readiness statement • 7–12, *page 18*
Developmental test readiness review • 7–13, *page 18*
Operational test readiness statement • 7–14, *page 18*
Operational test readiness review • 7–15, *page 18*
Developmental test report and developmental expanded test report • 7–16, *page 18*
Developmental independent evaluation report • 7–17, *page 18*
Developmental independent assessment report • 7–18, *page 19*
Operational test and evaluation report • 7–19, *page 19*
Operational assessments • 7–20, *page 19*
Live-fire test and evaluation documentation • 7–21, *page 19*

Appendixes

A. References, *page 20*

Glossary

Index

Chapter 1
Introduction

1–1. Purpose

This regulation implements the policies and procedures of DODD 5000.1, DODI 5000.2, DOD 5000.2-M, DODD 8120.1, and DODI 8120.2, and specifically prescribes implementing policies and assigns responsibilities for the test and evaluation (T&E) activities during the force development and system acquisition processes. This regulation—

a. Applies to all systems developed and managed under the auspices of AR 70–1; these systems are referred to as materiel systems in this regulation. This category includes systems that contain computer hardware and software specifically designed, configured, and acquired as an integral element of the system and needed so that the system can fully perform its mission (Materiel System Computer Resources).

b. Applies to all systems developed and managed under the auspices of AR 25–3; these systems are referred to as information systems in this regulation. As used in this regulation, the term information system applies to systems that evolve, are acquired, or are developed and that incorporate information technology. It applies to all information systems of the information mission area (IMA) disciplines not developed and managed under AR 70–1. It encompasses automated information systems, except those that are used exclusively for cryptological activities or those acquired under the National Foreign Intelligence Program for operational support of intelligence and electronic warfare systems.

c. Coordinates T&E policy for both materiel systems and information systems by establishing a single structure to promote the accomplishment of the T&E activities, and defines and establishes a separate policy for the two categories of systems for which the T&E activities should be distinguished.

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 special terms used in this regulation are explained in the glossary.

1–4. Test and evaluation management

a. Test and evaluation planning

(1) All acquisition programs, except certain programs indicated in paragraph 7–4*b*, require a Test and Evaluation Master Plan (TEMP). All testing planned during a system's acquisition, including the live-fire T&E strategy, will be identified in the TEMP. There will be one TEMP per system. A capstone TEMP is required for a program consisting of a collection of individual programs (see DODI 5000.2). An Army approved TEMP is required before commitment of T&E resources.

(2) Planning, programming, and budgeting for T&E must begin early in the system's life-cycle management process. The TEMP will show T&E costs by appropriation, amount, and budget year of the planning, programming, budgeting, and execution system.

(3) The Army T&E Committee (ATEC) is the primary consulting body assisting the Deputy Under Secretary Army (Operations Research) (DUSA(OR)) in managing and supervising Army T&E. The ATEC recommends T&E policy, resources to support T&E, and planning of T&E to support materiel acquisition. Details of ATEC responsibilities and functions are contained in paragraph 2–26.

(4) Key management controls for T&E in support of the acquisition process are provided by the development, approval, and execution of the system TEMP. Major provisions in the TEMP become key management controls once TEMP execution is begun. The ATEC serves as the administrative body for overseeing and monitoring the key management controls.

b. Provisions of this regulation—

(1) Apply to the T&E of all ancillary equipment and components, such as training devices (AR 350–38), ground support equipment, and field maintenance test sets.

(2) Apply to the T&E of Army aircraft systems, subsystems, and allied equipment (AR 70–62).

(3) Apply to the T&E of nonsystem training devices (AR 350–38).

c. Testing performed by the National Security Agency on communications security equipment will fulfill the requirements of this regulation.

d. Clothing and individual equipment will be tested and evaluated in accordance with AR 700–86.

e. Where critical environmental concerns have been identified, test and evaluation will be performed to identify and quantify the emissions, effluents, and wastes produced by the system (see AR 200–2).

Chapter 2
Responsibilities

Section I
Headquarters, Department of the Army, Elements

2–1. Deputy Under Secretary of the Army (Operations Research)

For Headquarters, Department of the Army (HQDA), the DUSA(OR) will—

a. Establish, review, supervise, and enforce Army T&E policy and procedures.

b. Oversee all Army T&E associated with the system research, development, and acquisition, as well as T&E associated with doctrine, training, force design, leader development, and materiel requirements programs.

c. Approve all T&E documents requiring Office of the Secretary of Defense (OSD) review.

d. As delegated by the Army Acquisition Executive, approve all TEMPs (acquisition categories (ACATs) I and II, other OSD T&E oversight programs, and DOD-level MAISRC programs) for the Department of the Army (DA).

e. Provide staff management of all test programs of interest to the Office of the Secretary of the Army (OSA).

f. Establish software T&E policy by providing HQDA staff supervision for the preparation, staffing, promulgation, and execution of Army software T&E policy.

g. Establish, review, and integrate pollution prevention into Army T&E policy and procedures.

h. Represent the Army on the OSD forums for coordinating T&E policy and resources.

i. Serve as the chair of ATEC.

j. Recommend candidate systems for live-fire T&E.

2–2. Director, Test and Evaluation Management Agency

The Director, T&E Management Agency (TEMA), Office of the Chief of Staff, will—

a. Develop and monitor developmental and operational test policy.

b. Coordinate all T&E policy and resource actions with the Assistant Secretary of the Army (Research, Development, and Acquisition) (ASA(RDA)); other HQDA agencies; OSD; Chief of Naval Operations; Headquarters, U.S. Air Force; U.S. Army Operational Test and Evaluation Command (USAOPTEC); U.S. Army Materiel Command (USAMC); U.S. Army Training and Doctrine Command (TRADOC); U.S. Army Space and Strategic Defense Command (USASSDC); U.S. Army Information Systems Command (USAISC); U.S. Army Medical Command (MEDCOM); U.S. Army Medical Research and Development Command (USAMRDC); U.S. Army Medical Materiel Agency (USAMMA); and U.S. Army Intelligence and Security Command (INSCOM).

c. Serve as HQDA coordination agent for all T&E policy, resource programming, and related programmatics.

d. Provide staff management of all test programs of interest to the Chief of Staff of the Army.

e. Manage the HQDA staffing and approval process for TEMPs requiring DA approval and OSD approval.

f. Oversee the development, updating, and accreditation of T&E related models and simulations.

g. Coordinate and facilitate communications with OSD on T&E matters.

h. Develop and monitor Army major range and test facility management and funding policy.

i. Coordinate and oversee T&E funding for investment research, development, test, and evaluation (RDTE) and Other Procurement, Army (OPA), accounts and operational test support.

j. Oversee development of T&E personnel strategy plans for identifying and training individuals.

k. Oversee Army joint T&E and T&E for multiservice acquisition programs.

l. Ensure that test planning and certification for interoperability for Army Command, Control, Communications, and Intelligence (C3I) systems are conducted in accordance with DODD 4630.5 and DODI 4630.8.

m. Serve as the Army representative to the Department of Defense (DOD) Executive Committee for threat simulators and targets and the CROSSBOW-S Committee.

n. Provide HQDA oversight on the funding of the Army Threat Simulator Program (ATSP), Army Targets Program, and Army Instrumentation Program, and coordinate with the program manager for instrumentation, targets, and threat simulators (ITTS).

o. Ensure that threat representative targets and threat simulators are validated and accredited.

p. Provide centralized T&E management by establishing and chairing a T&E managers committee.

q. Manage the Army portion of the Central T&E Investment Program (CTEIP) and Resource Enhancement Program (REP).

2–3. Assistant Secretary of the Army (Research, Development, and Acquisition)

The ASA(RDA) will—

a. Execute RDTE and OPA funds for T&E.

b. Serve as a member of ATEC.

c. Assist the DUSA(OR) and TEMA in developing developmental test and evaluation policy.

d. Participate in the Test Schedule and Review Committee (TSARC) process. (See AR 15–38.)

2–4. Director of Information Systems for Command, Control, Communications, and Computers

For the Army staff, the Director of Information Systems for Command, Control, Communications, and Computers (DISC4) will—

a. Manage IMA activities in support of the Army Acquisition Executive, including T&E IMA life-cycle management.

b. Plan, program, and budget Operation and Maintenance, Army (OMA) funds for fixed and recurring costs for T&E conducted by USAISC.

c. Assign responsibilities, normally to a functional proponent, for reviewing, coordinating, and approving requirements and critical operational issues and criteria (COIC) for all information systems except those having tactical missions (except in instances where the functional proponent is the assigned operational evaluator). Assist the Deputy Chief of Staff for Operations and Plans (DCSOPS) in reviewing, coordinating, and approving requirements and COIC for information systems having tactical missions.

d. Assign developmental T&E responsibilities for information systems. (USAISC will normally be assigned responsibility for developmental T&E of information systems.)

e. Assign operational T&E responsibilities for non-MAISRC-level information systems through the IMA Architectural Control Committee.

f. With assistance from the DCSOPS as appropriate, ensure that Army C3I systems with joint and combined interoperability requirements are scheduled through the Army Participating Test Unit (APTU) for joint certification or recertification testing.

g. Designate the operational T&E responsibilities for strategic information systems when the Army is assigned as the lead military department. Designation will be coordinated with the Defense Information Systems Agency and USAOPTEC.

h. Serve as a member of ATEC.

i. Assist the DUSA(OR) and TEMA in developing IMA related test and evaluation policies.

2–5. Deputy Chief of Staff for Operations and Plans

For the Army general staff, the DCSOPS will—

a. Plan, program, and budget RDTE, OPA, and OMA T&E funds.

b. Participate in the TSARC process and approve the Five Year Test Program (FYTP). (See AR 15–38.)

c. Review, coordinate, and approve requirements and COIC for ACAT I programs, ACAT II programs, OSD T&E oversight programs, and all information systems having tactical missions.

d. Assist the DUSA(OR) and TEMA in developing operational T&E policy.

e. Serve as HQDA point of contact and provide oversight for OSD chartered joint T&E. Manage, solicit, and coordinate Army participation in joint T&E. Provide Army members to the Joint T&E Planning Committee and Joint T&E Senior Advisory Council. Provide Army liaison to OSD on joint T&E issues. Solicit the annual call for Army joint T&E nominations.

f. Serve as a member of the ATEC.

2–6. Deputy Chief of Staff for Logistics

For the Army general staff, the Deputy Chief of Staff for Logistics (DCSLOG) will—

a. Provide integrated logistics support (ILS) and related T&E policy to include input to program management documents (AR 750–1). (See AR 700–127.)

b. Participate in the COIC review and approval process for those COIC requiring HQDA approval.

c. Participate in the ATEC and TSARC process as required.

d. Using the U.S. Army Materiel Systems Analysis Activity (USAMSAA), the DCSLOG will—

(1) Perform the ILS program surveillance for Army materiel systems.

(2) Perform independent logistics supportability assessments.

(3) Evaluate all materiel acquisition programs and deployed systems, except for medical items for which the U.S. Army Medical Materiel Agency is responsible.

(4) Oversee and evaluate the logistics aspects of materiel acquisition and modification programs and deployed systems to ensure supportability.

(5) Participate in program reviews, ILS management teams, TIWG and other working and review groups, and in the development of requests for proposal, statements of work, and contract data requirements lists.

2–7. Deputy Chief of Staff for Personnel

For the Army general staff, the Deputy Chief of Staff for Personnel (DCSPER) will—

a. Ensure that Manpower and Personnel Integration (MANPRINT) T&E concerns are addressed in appropriate testing and T&E documents. (See AR 602–2.)

b. Participate in the ATEC, as required.

c. Participate in the TSARC process. (See AR 15–38.)

d. Participate in the COIC review and approval process for those COIC requiring HQDA approval.

e. Perform MANPRINT assessments. (See AR 602–2.)

2–8. Deputy Chief of Staff for Intelligence

The Deputy Chief of Staff for Intelligence (DCSINT) will—

a. Provide guidance on representation of threat in testing.

b. Establish threat policy and procedures, and provide HQDA approval of the threat to be used for T&E for ACAT I programs, ACAT II programs, and programs on the OSD T&E oversight list. (See AR 381–11).

c. Coordinate Defense Intelligence Agency validation for ACAT ID programs and programs on the OSD T&E oversight list.

d. Participate in the COIC review and approval process for those COIC requiring HQDA approval.

e. Participate in the ATEC, as required.

2–9. The Surgeon General

The Surgeon General (TSG) has Army general staff responsibility for medical RDTE. TSG will—

a. Provide support to testers and evaluators concerning health hazards.

b. Provide recommendations concerning the use of humans as volunteers. (See AR 70–25.)

c. Perform health-hazard assessments. (See AR 40–10.)

d. Review and provide medical input to safety releases for tests, as required.

e. Serve as a program manager for tests of medical materiel.

f. Using the USAMMA, TSG will—

(1) Perform the ILS program surveillance for Army medical materiel systems.

(2) Perform ILS assessments for Army medical materiel.

(3) Evaluate all medical materiel acquisition programs and deployed medical systems.

(4) Monitor tests of medical materiel on an exception basis.

g. Participate in the ATEC, as required.

h. Participate in the TSARC, as required. (See AR 15–38.)

2–10. Chief of Engineers

For the Army general staff, the Chief of Engineers will—

a. Support program managers in development of materiel for operation in extreme climatic conditions in accordance with AR 70–38.

b. Provide policy, guidance, and support of T&E for environmental effects on Army materiel and operations.

c. Execute test and evaluation of those commercial items of equipment procured for use in engineer maintenance and supply activities.

d. Review digital terrain data for accurate representation in demonstrations and tests.

e. Participate in the ATEC, as required.

f. Act as the program manager for Chief of Engineers acquisition programs.

g. Establish and maintain a Human Use Committee (HUC) in accordance with AR 70–25.

h. Participate in the TSARC, as required. (See AR 15–38.)

2–11. Director of Army Safety

The Director of Army Safety (DASAF) has primary Army staff responsibility for system safety. (See AR 385–16.) The DASAF will be assisted by the U.S. Army Safety Center (USASC), which ensures that system safety issues are monitored and evaluated. The USASC will provide an independent safety assessment before milestone decisions.

2–12. Heads of other Headquarters, Department of the Army, agencies

Heads of other HQDA agencies will monitor T&E programs that affect their areas of mission responsibilities.

Section II
Commanders of Major Army Commands

2–13. Commanding General, U.S. Army Materiel Command

The Commanding General (CG), USAMC, will act as a materiel developer for assigned materiel systems required by the Army.

a. The CG, USAMC, will—

(1) Assist the DUSA(OR) and provide staff support to TEMA in developing and promulgating developmental test and evaluation policy.

(2) Provide a member to the ATEC and a member and support to the TSARC process.

(3) Appoint a T&E manager to serve as Executive Secretary to the T&E managers committee.

b. By means of the CG of a major subordinate command or a direct reporting program manager, the CG, USAMC, will—

(1) Act as a program manager for assigned systems.

(2) Plan, program, and formulate budgets associated with the developmental T&E function in support of designated program executive officers, program managers, laboratories, and centers.

(3) Provide centralized T&E management by establishing T&E managers at USAMC major subordinate commands.

(4) Develop system threat assessment reports after milestone I (AR 381–11).

(5) Develop Threat Test Support Packages (TTSPs) as required for developmental testing of Army materiel systems (AR 381–11).

(6) Maintain a long-range plan for T&E resource requirements.

c. Using a developmental tester (TECOM), the CG, USAMC, will—

(1) Perform the duties of developmental tester for Army materiel systems (except medical materiel assigned to USAMRDC, and systems assigned to INSCOM and the Chief of Engineers). Developmental tests are listed in Chapter 4. Developmental test report requirements are discussed in Chapter 7.

(2) Provide test facilities and technical expertise in support of life-cycle developmental T&E activities.

(3) Maintain the Army's Major Range and Test Facility Base (except for the U.S. Army Kwajalein Atoll).

(4) Provide testers with a safety release for all systems before the start of pretest training for any test that uses soldiers as test players, except for systems developed by USAISC, MEDCOM, and U.S. Army Medical Research and Development Command.

(5) Provide safety confirmations.

(6) Research, develop, and acquire instrumentation, and develop new and improved test methodology to increase the efficiency, validity, and reliability of developmental testing.

(7) Establish and maintain a HUC in accordance with AR 70–25.

(8) Ensure that all developmental testing complies with the Intermediate-Range Nuclear Forces (INF) Treaty.

(9) Ensure that developmental tests conducted by other Army activities are effectively planned, conducted, and reported.

(10) Review TEMPs for adequacy, and together with the developmental tester and independent evaluator or assessor, prepare specific portions of the T&E Resource Summary of the TEMPs.

(11) Support the validation and accreditation of targets and threat simulators.

d. Using an independent developmental evaluator (the U.S. Army Materiel Systems Analysis Activity (USAMSAA)) or developmental assessor (TECOM), the CG, USAMC, will—

(1) Perform the duties of developmental evaluator or assessor for Army materiel systems (except medical materiel assigned to USAMRDC, and systems assigned to INSCOM and the Chief of Engineers). Developmental evaluation and assessment report requirements are discussed in Chapter 7.

(2) Review TEMPs for adequacy and prepare the developmental T&E portion of the TEMP together with the developmental tester.

e. Using an element participating in the C3I interoperability process (U.S. Army Communications-Electronics Command (USACECOM) APTU), the CG, AMC will support interoperability testing of C3I systems conducted by the Defense Information

Systems Agency (DISA) for system certification and recertification. The USACECOM APTU will arrange for and coordinate all Army interoperability testing with the DISA and coordinate the participation of all Army elements and systems.

f. Using the program manager for ITTS, the CG, USAMC, will—

(1) Serve as the Army's single manager and as a proponent for major test ITTS, and represent the U.S. Army on joint Service programs.

(2) Plan, program, budget, defend, and oversee the execution of major test ITTS funding.

(3) Coordinate and consolidate customer technical and functional requirements in an Operational Requirements Document (ORD) for instrumentation, targets, and threat simulators.

(4) Monitor threat representative targets and threat simulators to ensure they are programmed for validation.

(5) Plan, program, budget, and execute the CTEIP.

(6) Maintain a capability inventory of current Army test ITTS.

(7) Initiate the development, engineering, procurement, and modification of major ITTS programs, and deliver them to user organizations for accountability, operation, and maintenance.

(8) Serve on Validation and Threat Accreditation Working Groups for targets and threat simulators.

(9) Consolidate, coordinate, and recommend development priorities for requirements established by Army and DOD user agencies, and document them in a long-range plan.

(10) Manage foreign materiel required to support developmental and operational test and evaluation not managed by the USAOPTEC Threat Simulators Activity (OTSA).

2–14. Commanding General, U.S. Army Intelligence and Security Command

The CG, INSCOM, will conduct developmental T&E, serve as an operational tester and evaluator for assigned classified or secure systems, and participate in the TSARC process, as required.

2–15. Commanding General, U.S. Army Training and Doctrine Command

The CG, TRADOC, is the Army's principal combat and training developer and trainer for materiel systems and theater and tactical information systems. The CG, TRADOC, will provide a member to ATEC.

a. As the combat and training developer, the CG, TRADOC, will—

(1) Develop, evaluate, and approve U.S. Army doctrine, training, organization, leader development, and materiel requirements, and plan and evaluate these products as required to support decisions.

(2) Prepare and coordinate COIC for materiel systems and information systems having tactical missions and approve COIC for those systems that are not reserved for approval by the Office of the DCSOPS (ODCSOPS).

(3) Develop doctrinal and organizational test support packages.

(4) Participate in the TSARC process.

(5) Provide centralized T&E management by establishing a T&E manager.

b. As the trainer for materiel systems and information systems having tactical missions, the CG, TRADOC, will—

(1) Define the training concept, and develop training literature to support individual and crew training.

(2) Develop training test support packages.

(3) Develop the requirements for instrumentation to support training at Army training ranges.

c. As a developer for system threat assessments, the CG, TRADOC, will—

(1) Develop, coordinate, and obtain approval and validation of the initial System Threat Assessment Report (AR 381–11).

(2) Develop, coordinate, and obtain approval and validation (if required) of TTSPs for operational testing (AR 381–11).

d. As the proponent of Battle Labs, the CG, TRADOC will—

(1) Provide horizontally integrated requirements for doctrine, training, leader development, organization, and materiel focused on the soldiers.

(2) Provide linkage between technology base efforts and warfighting concepts via experiments, simulations, or prototypes.

(3) Expedite high payoff solutions to priority operational requirements through early experimentation.

(4) Integrate operational test planning early in Battle Lab experimentation and, where possible, use data collected to reduce requirements for future operational testing.

2–16. Commanding General, Military Traffic Management Command

The CG, Military Traffic Management Command (MTMC), will—

a. Execute the Army transportability agent mission.

b. Review and analyze the transportability engineering aspects of test related documents.

c. Ensure that appropriate transportability testing is planned, conducted, and reported by the program manager.

d. Provide technical expertise at the test site for transportability testing.

2–17. Commanding General, U.S. Army Medical Command

The CG, MEDCOM, will—

a. Provide operational T&E of medical materiel (AR 40–60).

b. Conduct the health hazard assessment program (AR 40–10).

c. Establish and maintain an HUC according to AR 70–25.

d. Participate in the TSARC process (see AR 15–38).

e. Provide a safety release before the start of pretest training for any test that uses soldiers as test players for MEDCOM developed systems.

2–18. Commanding General, U.S. Army Information Systems Command

The CG, USAISC, will act as the materiel developer of assigned information systems required by the Army. The CG, USAISC, will provide a member to ATEC and a member and support to the TSARC process. The CG, USAISC, will assist the DUSA(OR) and TEMA to develop and promulgate developmental testing policy. The CG, USAISC, will—

a. Execute the responsibilities of a program manager for assigned information systems.

b. Plan, program, and formulate budgets associated with the developmental T&E function for assigned information systems.

c. Perform the duties of developmental tester and evaluator of assigned information systems.

d. Provide technical expertise in support of life-cycle T&E activities for information systems.

e. Provide a safety release before the start of pretest training for any test that uses soldiers as test players for USAISC developed systems.

f. Establish and maintain an HUC according to AR 70–25.

g. Provide centralized T&E management by establishing a T&E manager.

Section III
Heads of Other Army Elements

2–19. Commanding General, U.S. Army Operational Test and Evaluation Command

The CG, USAOPTEC, will support the system acquisition and force development processes through overall management of the Army's operational test and continuous evaluation programs reporting directly to the Chief of Staff, U.S. Army. The CG, USAOPTEC, will—

a. Using an operational tester (Test and Experimentation Command (TEXCOM)), perform the duties of an operational tester for all materiel systems (except pharmaceutical or biological systems

assigned to USAMRDC, and systems assigned to MEDCOM, INSCOM, and the Chief of Engineers), all MAISRC-level information systems, and joint and multiservice systems; and perform the duties of an operational tester for these systems in support of doctrine, training, organization, leader development, and materiel requirements activities. Operational tests are listed in Chapter 5.

b. Using an operational evaluator (Operational Evaluation Command (OEC)), perform the duties of an operational evaluator for all systems listed in a above. Operational test and evaluation report requirements are discussed in Chapter 7.

c. Use functional expertise throughout the Army for operational T&E of MAISRC-level information systems. Coordinate this effort and retain system evaluation responsibility.

d. Plan, program, execute, and report on scientific field experimentation in support of HQDA.

e. Ensure that operational tests conducted by other Army activities are effectively planned, conducted, and reported.

f. Coordinate test resources to include chairing the TSARC and the User Test Instrumentation Subcommittee. (See AR 15–38.)

g. Develop the requirements for operational test instrumentation, and manage the acquisition of sustaining test instrumentation.

h. Develop and promulgate operational T&E methodology, and assist the DUSA(OR) and TEMA in developing and promulgating operational test and evaluation policy.

i. Serve as the Army manager and resource coordinator for joint T&E, which includes chartered phases, and coordinate the nomination and selection of the Army Joint Test Director or Deputy Test Director for approval by ODCSOPS. (See para 3–4.)

j. Review programmed tests for possible use of modeling and simulation to enhance evaluations and reduce costs.

k. Establish and maintain an HUC according to AR 70–25.

l. Chair Operations Test Readiness Reviews (OTRRs) as appropriate.

m. Review TEMPs for adequacy for all systems, and prepare part IV of TEMPs for systems assigned for evaluation.

n. Manage and fund the USAOPTEC Threat Support Activity.

o. Serve as a member of the ATEC.

p. Ensure that all operational testing complies with the INF Treaty.

q. Maintain a long-range plan for operational T&E resource requirements.

r. Provide centralized T&E management by establishing a T&E manager.

s. Support the validation and accreditation of targets and threat simulators.

t. Prepare Army input to the Resource Enhancement Program (REP).

2–20. Director, U.S. Army Concepts Analysis Agency

The Director, U.S. Army Concepts Analysis Agency (USACAA), will formulate test requirements to generate performance data for required analyses and will assist the tester and evaluator by using contractor studies and analyses and by developing models and simulations.

2–21. Commanding General, U.S. Army Space and Strategic Defense Command

The CG, USASSDC, will act as a materiel developer for assigned materiel systems required by the Army. The CG, USASSDC, will provide a member to ATEC and a member and support to the TSARC process. The CG, USASSDC, will assist the DUSA(OR) and TEMA to develop and promulgate developmental T&E policy. Additional responsibilities of the CG, USASSDC, are described in *a* through *c* below.

a. The CG, USASSDC will—

(1) Provide test facilities and technical expertise in support of strategic, and, where requested, theater missile defense life-cycle developmental T&E activities.

(2) Maintain the Army's Kwajalein Atoll and the U.S. Army Kwajalein Missile Range.

(3) Provide centralized T&E management by establishing a T&E manager.

(4) Ensure that all strategic missile defense testing complies with the INF Treaty and the Anti-Ballistic Missile Treaty.

b. Using a direct reporting program manager, the CG, USASSDC, will—

(1) Exercise program management for assigned systems.

(2) Plan, program, and formulate budgets associated with the developmental T&E function in support of designated program executive officers, program managers, laboratories, and centers.

(3) Develop system threat assessment reports after milestone I for assigned programs (AR 381–11).

(4) Develop TTSPs as required for developmental testing of designated Army materiel systems.

(5) Maintain a long-range plan for T&E resource requirements of designated Army materiel systems.

c. By means of a program manager for strategic and theater ballistic missile targets, the CG, USASSDC will—

(1) In coordination with PM ITTS, serve as a manager and proponent for strategic and theater missile defense test targets, and represent the Army on joint service programs.

(2) Plan, program, defend, and oversee the execution of the strategic and theater missile defense test target budget.

(3) Document technical requirements in appropriate requirement documents.

(4) Maintain an inventory of current Army strategic and theater missile defense test targets.

(5) Serve on validation and threat accreditation working groups for strategic and theater missile defense targets and threat simulators.

2–22. Commander, U.S. Army Logistics Evaluation Agency

The Commander, U.S. Army Logistics Evaluation Agency (USALEA), will assist the DCSLOG in executing automated logistics system functional proponent responsibilities. USALEA will assist USAOPTEC and functional proponents with evaluation and assessment of automated logistics systems under MAISRC control.

2–23. Commanding General, U.S. Army Medical Research and Development Command

a. The CG, USAMRDC, will perform the duties of developmental tester and evaluator of items of medical materiel (AR 40–60).

b. As the developmental tester for TSG, the CG, USAMRDC, will establish and maintain an HUC according to AR 70–25.

c. USAMRDC is not required to develop a TEMP for any pharmaceutical and biological products. (See para 7–4*b*(6).)

d. The CG, USAMRDC will provide a safety release before the start of pretest training for any test that uses soldiers as test players for USAMRDC developed systems.

2–24. Commander, U.S. Army Medical Materiel Agency (USAMMA)

As the mission assignee for TSG, the Commander, USAMMA will coordinate developmental and operational testing of all nondevelopmental medical materiel systems, items, and medical assemblages (AR 40–60).

2–25. Other Army commands and agency heads

Commanders and heads of other Army agencies will, as appropriate, monitor T&E programs that affect their areas of mission responsibility and will support Five-Year Test Program (FYTP) requirements and tasks.

Section IV
Key Responsibilities for Test and Evaluation

2–26. Army Test and Evaluation Committee

a. The members of the ATEC will—

(1) Provide a forum where all elements of the Army T&E community, acting as a committee of the whole, may formulate recommendations to the Army senior leadership regarding T&E policy, procedures, organization, and resources.

(2) Study and review specific T&E matters, such as, but not limited to, the test instrumentation program, development of automated test data retrieval systems, and quality assurance of T&E products (test plans, designs, and so forth).

(3) Review the missions, functions, composition, responsibilities, and concept of operations of all T&E activities within the Army and provide recommendations for change to the senior Army leadership.

b. The members of the ATEC will provide senior-level focus on and centralized guidance to the management and coordination for all major T&E policy and resource issues.

c. The members of the ATEC will—

(1) Develop and review Army T&E policy and procedures.

(2) Review Army T&E requirements and recommend allocation of available resources across functional lines.

(3) Review, forecast, and prioritize future Army T&E instrumentation requirements.

(4) Review and coordinate modernization of T&E facilities.

(5) Ensure that proper coordination is implemented between the T&E community and the program executive officers so that requirements for T&E resources unique to a specific program are resourced by the program executive officer.

2–27. Functional responsibilities

a. Materiel developer. As the development and acquisition command or agency for the system under development or being acquired, the materiel developer—

(1) Provides T&E support relative to designing, planning, executing, assessing, and reporting developmental T&E programs, or portions of developmental T&E programs, in support of systems managed by program executive officers and program managers.

(2) Ensures effective and timely system integration during the life cycle of the system to allow for T&E of the total system.

(3) Provides adequate and efficient design reviews, audits, and quality assurance in support of the T&E program for the system being acquired.

(4) Provides verification and validation activities during software development.

b. Program executive officer. The program executive officer provides the overall management of the T&E activities of assigned systems.

c. Program manager. The program manager is the actual manager of a specific acquisition or development program. The program manager may be the product manager or the project manager. The program manager ensures the planning, coordination, and support of the T&E activities of the specific program by—

(1) Preparing, coordinating, distributing, and maintaining the TEMP.

(2) Establishing and chairing a Test Integration Working Group (TIWG) to implement T&E coordination and solve routine problems. Substantive issues that cannot be resolved by the TIWG will be elevated up through the chains of command of the participating TIWG members for resolution. If resolution is not achieved, the issues will be elevated to the DUSA(OR).

(3) Providing the testers and evaluators the opportunity to participate in preparing the testing portion of the request for proposal (RFP) to ensure that T&E requirements are accurately reflected in contractual documents. Changes occurring during the contract negotiations that affect testing will be communicated to the TIWG. The TEMP will be updated to reflect those changes.

(4) Conducting developmental test readiness reviews (DTRRs) and preparing a developmental test readiness statement (DTRS) to verify that the system is ready for the production qualification test (PQT) for materiel systems or the software qualification test for information systems.

(5) Providing formal certification (via an operational test readiness statement (OTRS)) that the system is ready for initial operational test (IOT). Upon request from the user, providing formal certification that the system, including brassboards in the development stage, is ready for use in any other operational test or experiment.

(6) Ensuring that developmental T&E of all systems are conducted in representative environments, including testing in natural environments (or simulation of the environments where applicable).

(7) Establishing, documenting, and providing the system support package and new equipment training support package.

(8) Coordinating all testing with the U.S. Army Materiel Command (USAMC) and U.S. Army Test and Evaluation Command (TECOM) to maximize the value of the Army's capital investment in its test facilities. This coordination takes place before milestone I and facilitates the generation of the developmental testing requirements as well as determining the extent and nature of contractor services, if required. If TECOM cannot conduct the test, the program manager has the authority to use contractor support. This decision and rationale will be documented in the TEMP.

(9) Determining if the program satisfies the requirements as a live-fire T&E program.

(10) Preparing environmental documentation in accordance with AR 200–2 and providing the documentation to the developmental and operational testers before start of testing at Army or contractor facilities.

d. Combat or training developer. In support of T&E, the combat or training developer develops system requirements, critical operational issues and criteria (COIC) and test support packages (doctrinal, organizational, training, and threat) for proponent systems.

e. Functional proponent. The functional proponent is a command, Army staff element, or agency that establishes and documents system requirements, COIC, and test support packages for information systems, and formulates the concepts explaining the intended use of the system.

f. Developmental tester. The developmental tester is an Army command or agency that plans and conducts developmental testing (see chap 4). The developmental tester will provide test reports (TRs) directly to the program manager, independent evaluators, and the Army Systems Acquisition Review Council (ASARC), in-process review (IPR) body, or Major Automated Information System Review Council (MAISRC) review body.

g. Independent developmental evaluator or assessor. The independent developmental evaluator or assessor is an Army command or agency, independent from the materiel developer, that addresses the acquisition of an effective, supportable, and safe system by assisting in the engineering design and development and by determining the degree to which the technical parameters of the system have been achieved. The independent developmental evaluator or assessor will optmize the use of data obtained from models, simulations, and testbeds as well as prototypes or full-scale development models of the system. The independent developmental evaluator or assessor will provide evaluation and assessment reports directly to the program manager and the ASARC, IPR, or MAISRC review body. The independent developmental evaluator will continuously evaluate all assigned systems; the independent developmental assessor will continuously assess all assigned systems during the development phases of the acquisition cycle, and postmilestone III as required.

h. Operational tester. The operational tester is an Army command or agency that conducts operational tests (see chap 5). The operational tester will provide input to operational test and evaluation reports (TERs) through Command headquarters directly to the program manager, independent evaluators, ASARC, IPR, and MAISRC review bodies.

i. Independent operational evaluator. The independent operational evaluator is an Army command or agency, independent from the materiel developer, that addresses the operational effectiveness and suitability of systems to be acquired by including the degree to

which the system's COIC have been satisfied. The independent operational evaluator provides evaluation reports directly to the program manager, ASARC, IPR, and MAISRC review bodies. The independent operational evaluator continuously evaluates all assigned systems.

j. Trainer. The trainer, in support of T&E, is an Army command or agency that trains personnel to operate and maintain systems during testing.

k. Logistician. The logistician, in support of T&E, is an Army command or agency that conducts the logistic evaluation of systems being acquired and assures that logistics are adequately addressed in the TEMP and detailed test plans.

Chapter 3
Test and Evaluation in Support of System Acquisition and Development

3–1. Developmental and operational testing

a. Implementation of DODI 5000.2 and DODI 8120.2 requires the conduct of developmental and operational testing as prescribed herein. Appropriate developmental testing will be conducted to assess compliance with critical technical parameters, identify technological and design risks, and determine readiness to proceed to the IOT. Appropriate operational testing will be conducted to provide data for operational assessments, with the IOT being conducted to determine operational effectiveness and suitability of the system under realistic conditions.

b. Continuous evaluation is a process that provides a continuous flow of T&E information on system status and will be employed on all acquisition programs. It is a strategy that ensures responsible, timely, and effective assessments of the status of a system. Continuous evaluation can begin as early as the battlefield functional mission area analysis for materiel systems and as early as the Information Management Plan (IMP) process for information systems and continue through a system's postdeployment activities.

c. For software intensive systems and information systems, T&E of software must be accomplished as part of the overall system development and test program. This T&E must be sufficient to provide an acceptable level of risk that system requirements and mission objectives will not be impaired by deficiencies attributable to software. T&E of the software must reflect a systematic and measurable process. Clearly defined risk assessment criteria for each phase, metrics, and continuous evaluations form the basis for a logical progression of the T&E which supports software development. Due to the inherent incremental nature of software development, incremental T&E of the software, in which the software is divided into incremental blocks for development, testing, and fielding, may be appropriate.

3–2. Relationship of test and evaluation to the life-cycle system management models

a. Relationship of T&E to materiel systems. The phases, milestones, and descriptions of life-cycle activities for the life-cycle system management model (LCSMM) for materiel systems are contained in DODI 5000.2.

b. Relationship of T&E to information system acquisition. The phases, milestones, and descriptions of life-cycle activities for the LCSMM for information systems are contained in DODI 8120.2.

(1) *Theater and tactical information systems.* Theater and tactical information systems are systems that direct, coordinate, and support deployable combat, combat support, and combat service support forces in their projection of combat power throughout the spectrum of combat (peace, transition to and from conflict, and conflict). A theater and tactical information system is an item that a table of organization and equipment (TOE) unit requires to perform its mission and functions.

(2) *Nontheater and nontactical information systems.* Nontheater and nontactical information systems include the categories of sustaining base information systems and strategic information systems.

(a) Sustaining base information systems are systems that are used for efficiently managing Army resources, managing Army installations, and deploying and sustaining the fighting force.

(b) Strategic information systems are managed under DOD and Joint Chiefs of Staff publications and AR 525–1. Most strategic information systems are developed under the aegis of the Defense Information Systems Agency. Normally, acquisition follows OSD and joint regulations; however, some strategic information systems may be developed under AR 25–3 policies.

3–3. Test and evaluation in support of system changes

a. Changes (modifications and upgrades) to an existing system must be adequately tested and evaluated. A modification is a change to a system that is still in production. An upgrade is a change to a system that is out of production. Such changes can be improvements to system capabilities or fixes to correct deficiencies after milestone III. System modifications and upgrades include multi-system changes (that is, the application of a common technology across multiple systems), block changes, preplanned product improvements, Class I Engineering Change Proposals (see MIL STD 973), and system change packages.

b. The actual test and evaluation strategy developed for a given change will depend on the impact of the change. If a change responds to a new or revised operational requirement or is a preplanned product improvement to fill an existing operational requirement, independent developmental and operational evaluations are required to support the decision to apply the change. If the previous case does not apply, but the combat developer or functional proponent determines the change to have (or have significant potential for) operational impact (operational effectiveness or suitability), then the level of the developmental and operational evaluations is determined by the TIWG principals (see chap 6). If a change does not have operational impact, then the procuring command will determine the action necessary to support the decision to apply the change. In all cases, the need for and intensity of the testing must reflect the level of the evaluation required to address the impact of incorporating the change. In particular, for computer resources (software, hardware, or firmware), the proportion of change and the criticality of affected computer software units must be considered.

c. If a change causes an operational impact to the system, to include the user's operation or maintenance of the system, the system TEMP will be updated (see chap 7).

3–4. Test and evaluation of nondevelopment items (NDIs)

Program managers and the developmental and operational evaluators are encouraged to make maximum use of prior test information (including information from commercial manufacturers, users, other Services, agencies, or countries) supporting NDI acquisitions. Market investigations supporting NDI acquisitions (including reprocurements) may include developmental and operational testing when determined necessary by the materiel and combat developers (or functional proponents) to support development and updates to the system specification. However, all NDI T&E programs will be structured according to the policies and procedures used for new acquisition T&E programs.

3–5. Test and evaluation in support of reprocurements

Reprocurement of an item is authorized when a continuing need has been identified and validated by the combat developer or functional proponent. Test and evaluation requirements for reprocurements vary depending on whether the reprocurement is for an NDI or a Government controlled technical data package, an item from a different contractor than the original item contractor, or an item with a significant break in production. The following applies to systems procured under the AR 70-series and, where applicable, the AR 25-series:

a. Reprocurements to a current military technical data package require only the appropriate developmental test and evaluation determined by the procuring agency to verify production compliance with the specifications. If either the materiel developer or combat

developer (or functional proponent) introduces system modifications or upgrades relating to the current military technical data package, the system modifications or upgrades will be treated as system changes and the test and evaluation requirements as described in paragraph 3–3 apply. The test and evaluation requirements for both the system changes and the reprocurement will be integrated.

b. Reprocurement of an NDI (off-the-shelf or modified off-the-shelf) to a current performance specification from the original contractor (make and model) without significant break in production requires only the appropriate developmental test and evaluation determined by the procuring agency to verify production compliance with the specifications.

c. Reprocurement of an NDI (off-the-shelf or modified off-the-shelf) to a current performance specification from a contractor different than the original contractor (different make) or to the original contractor (different model), or to a performance specification modified or upgraded by the materiel developer or combat developer, requires appropriate developmental test and evaluation. This determination will be made by the procuring agency, in coordination with the TIWG principals (see chap 6) to ensure production compliance with the specification and to determine the need for additional developmental or operational test and evaluation.

d. Independent developmental and operational evaluations will be required to support the milestone decision authority in determining whether to authorize a reprocurement when there has been a significant break in production.

e. Independent developmental and operational evaluations will be required to support milestone decision reviews if market investigations reveal that an item previously procured is no longer available and significant configuration changes or technology advances have occurred to require a new acquisition strategy.

3–6. Test and evaluation in support of science and technology development and transition

Technological advances in the form of modifications or upgrades to existing systems will be tested and evaluated as discussed in paragraph 3–3. New programs will be started only when the technologies have been demonstrated, thoroughly tested, and shown to be producible (see DODI 5000.2). Life-cycle activities for new development of technologies are contained in DODI 5000.2.

3–7. Test and evaluation to support materiel release

Materiel release actions in support of new procurement, reprocurement, and system changes will be supported by assessments or evaluations conducted by the independent developmental and operational evaluators (see AR 700–142).

3–8. Test and evaluation in support of tailored acquisition approaches

a. Integrated approach. An integrated developmental and operational testing approach will be used to provide the maximum benefits from a complete, unified T&E program by shortening the acquisition time and by using resources efficiently. However, evaluation efforts will remain separate. See DODI 5000.2.

b. Combined milestones. A combined milestones I and II decision may be appropriate for certain systems. T&E before milestones I and II verify both the technical approach and the operational concept. This goal is reached through early involvement of users, testers, and evaluators or assessors in the T&E process and the T&E of breadboard and brassboard components, or surrogates, as well as early prototypes. An early operational assessment is required before the combined milestones I and II to support decisions to commit funds for long-lead items (LLIs) or low-rate initial production (LRIP).

c. Tailoring developmental and operational testing

(1) An example of tailoring is concurrent developmental and operational testing. Concurrent testing is authorized if the integrity of results is not jeopardized. Concurrent testing implies that developmental and operational tests were conducted on separate prototypes but overlapped in time. However, before operational testing, sufficient developmental testing must be done to ensure system readiness and to support a safety release for operational testing.

(2) Tailoring may also include combined developmental and operational testing. Combined testing is encouraged for T&E programs if the independence of evaluations will not be compromised and the integrity of the results is not jeopardized. This testing is conducted simultaneously on the same hardware and software.

(3) When either combined or concurrent testing is conducted, separate independent developmental and operational evaluations must be conducted.

3–9. Joint test and evaluation

a. OSD develops and administers testing programs requiring two or more Services or other Government agency participation in planning, conducting, or supporting OSD requirements.

b. Joint T&E is usually oriented toward interoperability, tactics, or doctrine, and is usually not acquisition oriented. DCSOPS (HQDA (DAMO–FDR), WASH DC 20310–0400) publishes the annual call for Army joint T&E nominations. OSD directed joint T&E normally are initiated through nominations submitted to the OSD Senior Advisory Council. HQDA, TEMA, and USAOPTEC screen, coordinate, and prioritize proposals for OSD directed joint T&E and consolidate nominations for the ODCSOPS Senior Advisory Council member. The ODCSOPS reviews the joint T&E nominations and, as a member of the Senior Advisory Council, presents a coordinated Army position on test proposals. USAOPTEC acts as the manager for joint T&E programs. USAOPTEC is the resourcer (Army) for joint T&E, including the chartered phases. (See para 2–19.) Participants in joint T&E notify USAOPTEC and coordinate all resources early in the joint T&E process. All joint T&E programs will coordinate the required resources with USAOPTEC. Commands and agencies with expertise in test planning, development, and execution must support USAOPTEC, as appropriate. When the Army is the lead Service, USAOPTEC provides the initial administrative assistance to the designated Joint Test Director. DOD 5000.3–M–4 is used for all joint T&E.

c. USAOPTEC manages the Army funds for joint T&E and assists the Joint Test Director in managing OSD funds when the Army is the lead Service. All Army participants in joint T&E identify bill payers or a funding strategy before presentation at the Joint T&E Planning Committee.

3–10. Test and evaluation of joint (or multiservice) acquisition programs

a. Test and evaluation of joint (or multiservice) acquisition programs is conducted on systems being acquired by more than one DOD component. T&E planning, conduct, reporting, and evaluation must include the participation and support of all TIWG members. The lead Service prepares and coordinates a single TEMP, a single test plan, and a single T&E report reflecting the system's technical performance and operational effectiveness and suitability, including interoperability, for each Service component. Testing procedures follow those of the lead Service, with variation as required, and are resolved through mutual agreements. (See DODI 5000.2 and DOD 5000.2–M.)

b. The Memorandum of Agreement (MOA) on T&E in support of joint acquisitions and joint T&E provides a basic framework and guidelines for planning, conducting, evaluating, funding, and reporting T&E involving two or more operational T&E agencies. USAOPTEC is the Army proponent for this MOA. The MOA is reviewed and updated annually, and the lead is rotated among the Services.

3–11. Foreign comparative testing

Foreign comparative testing involves the test and evaluation of North Atlantic Treaty Organization (NATO) and non-NATO Allies' defense equipment to determine whether such equipment meets valid existing DOD component requirements or mission area shortcomings, while reducing duplication in research and development,

enhancing standardization and interoperability, improving cooperative support, and promoting competition and international technology exchange. DOD 5000.3–M–2 is used for foreign comparative testing.

3–12. Waivers of approved testing

a. Waivers of testing set forth in the approved TEMP will depend on the availability and acceptability of relevant data and information from other sources and will not negate the requirement for separate independent developmental evaluations and independent operational evaluations.

b. Testing specified in the approved TEMP must be conducted unless a written request for waiver is submitted to and approved by the TEMP approval authority.

c. Any command or agency may submit a request to waive approved testing (or portions thereof). Requests will provide sufficient justification and documentation to warrant approval and will be coordinated with TIWG members before they are forwarded.

(1) For developmental testing, the program manager prepares a recommendation for approval or disapproval, coordinates the recommendation with TIWG members, and forwards it to the appropriate TEMP approval authority for decision. In addition, for live-fire testing, the request is submitted before milestone II through the DUSA(OR) to the Army Acquisition Executive for approval. If approved, the waiver is submitted by the DUSA(OR) to OSD per DODI 5000.2. For C3I interoperability testing, the waiver is submitted by the program manager through the APTU to the DISA.

(2) For operational testing, a request for waiver is coordinated with the TIWG members and submitted to USAOPTEC. USAOPTEC recommends approval or disapproval and forwards it to the TEMP approval authority for decision.

d. Requests to waive approved testing contained in the TEMP for—

(1) ACAT I, ACAT II, and other OSD T&E oversight programs are forwarded to HQDA (DACS–TE), WASH DC 20310–0102, for appropriate coordination at HQDA and OSD.

(2) Other programs are forwarded to HQDA (DACS–TE), WASH DC 20310–0280, for coordination and DUSA(OR) resolution only if the TIWG and the TIWG members' chains of command are unable to agree on waiver approval.

e. Written approval or disapproval of the waiver will be provided to all TIWG members.

f. For those tests for which waivers have been granted for reasons other than availability of data from other sources, production testing or follow-on operational testing will be expanded to address those aspects not previously tested.

3–13. Delay, suspension, or termination of testing

Start of testing will be delayed when a problem is identified that would affect the validity of the data being collected to address critical issues. Start of testing will also be delayed when it is apparent that the system has little chance of successfully attaining critical technical parameters or satisfying critical operational criteria, and deficiencies cannot be resolved before the start of the test. Testing will be suspended when a problem is identified during the test which cannot be resolved within the test schedule. Testing is terminated when test resources are released and the test must be rescheduled.

a. Either the developmental or operational testers may delay or suspend testing when critical or catastrophic safety hazards to personnel or equipment are discovered.

b. The program manager may delay or suspend developmental testing. Any TIWG member may recommend delay or suspension of developmental testing to the program manager (see chap 6).

c. The CG, USAOPTEC may delay or suspend operational testing. Any TIWG member may recommend delay or suspension of operational testing to the CG, USAOPTEC (see chap 6). For those systems where operational test and evaluation responsibility is assigned to another activity, the commander of the operational test and evaluation activity has the authority to delay or suspend operational testing.

d. When a test is delayed or suspended, the program manager convenes a program review to consider future actions. Once the program manager has solved the problem, the TIWG will be convened to determine necessary additional tests to validate the solutions. Before testing is restarted, appropriate test readiness reviews will be conducted.

e. The program manager notifies the milestone decision authority when there are cost and schedule implications.

f. The program manager recommends termination of developmental testing to the milestone decision authority when circumstances warrant. The CG, USAOPTEC, or commanders of other assigned operational test and evaluation activities, recommend termination of operational testing to the Vice Chief of Staff, Army when circumstances warrant.

Chapter 4
Developmental Test and Evaluation

4–1. Types of developmental testing

Developmental testing is a generic term encompassing engineering-type tests used to verify that design risks are minimized, substantiate achievement of contractor technical performance, and certify readiness for operational test and evaluation. It generally requires instrumentation and measurements and is accomplished by engineers, technicians, or soldier operator-maintainer test personnel. All types of developmental tests are listed in *a* and *b* below. Tests should be selected from this listing with the objective of building an efficient and effective developmental test and evaluation strategy to support a given program. Software intensive systems and theater and tactical information systems may undergo testing listed in both *a* and *b* below.

a. Materiel systems.
(1) Premilestone III—
(a) Research effort or test.
(b) Technical feasibility test.
(c) Engineering development test.
(d) Production prove-out test.
(e) PQT.
(f) Live-fire test.
(g) Logistic demonstration.
(h) C3I interoperability certification test.
(2) Production and deployment phase—
(a) Production verification test (PVT).
(b) Comparison test.
(c) Quality conformance (acceptance) inspection.
(d) Tests in support of postdevelopment software support (PDSS).
(e) C3I interoperability recertification test.
(3) Operations and support phase—
(a) Surveillance test.
(b) Reconditioning test.
(c) Tests in support of PDSS.

b. Information systems.
(1) Premilestone III—
(a) Software development test (SDT).
(b) Software qualification test.
(c) C3I interoperability certification test.
(2) Production and deployment phase—
(a) Tests in support of PDSS.
(b) C3I interoperability recertification test.
(3) Operations and support phase—tests in support of PDSS.

4–2. Premilestone III testing (materiel systems)

a. Premilestone III testing for materiel systems ranges from mission needs determination to the milestone III production decision and covers funding categories 6.1 through 6.4. (See AR 70–1 for information on funding categories.) The following developmental tests constitute developmental premilestone III tests: research effort

or test, technical feasibility test, engineering development test, production prove-out test, PQT, live-fire test, logistic demonstration, and C3I interoperability certification test.

b. Premilestone III tests for materiel systems are defined in (1) through (8) below.

(1) *Research effort or test.* A research effort or test is conducted before milestone 0 to determine early technical characteristics, to support the research of these items, and to provide fundamental knowledge for solutions of identified military problems. The program funding categories are 6.1 and 6.2.

(2) *Technical feasibility test.* A technical feasibility test is a developmental test typically conducted postmilestone 0, premilestone I, or combined premilestones I and II to assist in determining safety and establishing system performance specifications and feasibility. The program funding category is 6.3.

(3) *Engineering development test.* An engineering development test is a developmental test typically conducted postmilestone I and premilestone II to provide data on performance, safety, the achievability of critical system technical parameters, refinement and ruggedization of hardware configurations, and determination of technical risks. The engineering development test includes the testing of compatibility and interoperability with existing or planned equipment and systems and the system effects caused by natural and induced environmental conditions. The program funding categories are 6.3 and 6.5.

(4) *Production prove-out test.* A production prove-out test is a developmental test conducted postmilestone II or combined postmilestones I and II and before production testing with prototype hardware for the selected design alternative. The production prove-out test is usually performed at the subsystem level and provides data on safety, the achievability of critical technical parameters, refinement and ruggedization of hardware and software configurations, and determination of technical risks. The program funding categories are 6.4 and 6.5.

(5) *Production qualification test.* A production qualificaton test (PQT) is a system-level developmental test conducted postmilestone II or combined postmilestones I and II that ensures design integrity over the specified operational and environmental range. The PQT normally uses prototype or preproduction hardware and software fabricated to the proposed production design specifications and drawings. Such tests include contractual reliability and maintainability demonstration tests required before production release. The program funding category is 6.4. The objectives of the PQT are to obtain Government confirmation that the design will meet the performance and user requirements and to assess the performance envelope; to determine the adequacy and timeliness of any corrective action indicated by previous (premilestone III) tests; and to validate the manufacturer's facilities, procedures, and processes. The PQT may also include tests that are not included in the contract (for example, environmental extremes and test-to-failure) when such tests are necessary to obtain engineering data to verify corrective action and to support a materiel release to the field or other purposes. The PQT may be accomplished in phases (for example, preliminary engineering, specific problem correction, and so on).

(6) *Live-fire test.*

(a) For programs designated for live-fire T&E, legislation requires that live-fire T&E be conducted and that DOD report the results before the system enters full-rate production.

(b) The DUSA(OR) must be notified, through TEMA, if the program is a live-fire T&E program. The program manager sends this notification before milestone I, or the acquisition team sends it if a program manager has not been identified.

(c) Live-fire tests are a part of developmental testing of system vulnerability and lethality. The scope of live-fire T&E should build on early developmental tests of components and system vulnerability and lethality modeling. (See DODI 5000.2 and DOD 5000.2–M.)

(d) Vulnerability testing must address crew, hardware, and system (crew and hardware) vulnerability for threats and impact conditions likely to be encountered in combat. Lethality testing must address lethality against the threat systems by firing the munitions or missile at appropriate targets configured for combat or targets comparable with such targets.

(e) Vulnerability and lethality tests must be conducted sufficiently early in system development to allow significant design deficiencies demonstrated by the testing to be corrected in the design of the system, munitions, or missile before proceeding to full-rate production.

(f) The costs of all tests for vulnerability and lethality must be paid from funds for the system being tested.

(g) The live-fire T&E strategy will be described in the TEMP.

(7) *Logistic demonstration.* A logistic demonstration (LD) evaluates the achievement of maintainability goals; the adequacy and sustainability of tool, test equipment, selected test programs sets, built-in test equipment, associated support items of equipment, technical publications, maintenance instructions, trouble-shooting procedures, and personnel skill requirements; the selection and allocation of spare parts, tools, test equipment, and tasks to appropriate maintenance levels; and the adequacy of maintenance time standards. An LD is required for all new acquisition systems or system changes which have an operational impact, including any new or improved support and test equipment intended for support of the system. Within available resources, a dedicated engineering prototype will be provided for the LD. The LD requires a test plan, to include the data to be recorded and the evaluation procedures, and a final report that documents the results, analysis of findings, and recommendations for corrective actions. The TEMP will contain and schedule the LD.

(8) *C3I interoperability certification test.* The interoperability certification test is a test which applies to C3I systems having interfaces or interoperability requirements with other systems. This test may consist of simple demonstrations using message analysis or parsing software with limited interface connectivity, or extend to full-scale scenario-driven exercises with all interfaces connected. The APTU will coordinate certification testing requirements with the DISA.

c. Premilestone III test requirements will be incorporated into the premilestone III TEMP.

4–3. Premilestone III testing (information systems)

a. Premilestone III testing for information systems ranges from mission needs determination to the milestone III production decision but is typically conducted during the development phase. SDTs, software qualification tests, and C3I interoperability certification tests constitute the developmental premilestone III tests for information systems.

b. Premilestone III tests for information systems are defined in (1) and (2) below.

(1) *Software development test.* The software development test (SDT) consists of program or module and cycle or system levels of testing. The software developer conducts the SDT, and the independent quality control element of the software development center also participates in the SDT. The proponent agency also participates and validates that the functional requirements are being met. The unit or module test is the initial testing level. Testing is executed on local testbed hardware, and benchmark test files are used. This testing provides data to assess the effectiveness of the instruction code and economy of subroutines for efficient processing. It also ensures that input and output formats, data handling procedures, and outputs are produced correctly. The cycle or system test involves testing the combination of linkage of programs or modules into major processes. It is a formal test conducted by the software developer and the proponent agency to ensure that the technical and functional objectives of the system are met. It requires a formal test plan, test analysis report, and certification that the objectives were met and were satisfactory to all participants.

(2) *Software qualification test.* The software qualification test is a system test conducted by the developmental tester using live-data files supplemented with user prepared data and executed on target hardware. Conversion procedures and special training requirements are introduced as additional elements for verification and validation. The objectives of the software qualification test are to obtain Government confirmation that the design will meet performance and

operational requirements and to determine the adequacy and timeliness of any corrective action indicated by previous testing. System users participate in the technical and functional aspects of the software qualification test.

(3) *C3I interoperability certification test.* See paragraph 4–2*b*(8).

c. Premilestone III test requirements will be incorporated into the premilestone III TEMP.

4–4. Production and deployment phase testing (materiel systems)

a. Testing during the production and deployment phase of the materiel life cycle includes the testing necessary to verify that requirements specified in technical data packages and production contracts for hardware and software are met. Production testing also provides a baseline for postproduction testing in the operations and support phase. Production and deployment phase testing includes the following developmental tests: PVTs, comparison tests, quality conformance inspections, tests in support of PDSS, and C3I interoperability recertification tests.

b. Production and deployment tests are defined in (1) through (5) below.

(1) *Production Verification Test (PVT).* PVTs are system-level tests conducted to verify that the production item meets critical technical parameters and contract specifications, to determine the adequacy and timeliness of any corrective action indicated by previous (premilestone III) tests, and to validate the manufacturer's facilities, procedures, and processes. A PVT will also provide a baseline for the test requirements in the technical data package for postproduction testing. The PVT is accomplished during the first limited production or full-scale production contract.

(a) The PVT may take the form of a first-article test if such testing is required in the technical data package for quality-assurance purposes to qualify a new manufacturer or procurements from a previous source out of production for an extended period (usually 2 years) and to produce assemblies, components, or repair parts conforming to requirements of the technical data package. Requirements for first-article testing may be invoked in production contracts by citing the applicable Federal Acquisition Regulation first-article inspection and approval clause. When a first-article test is specified in a contract, it may not be waived or changed without prior approval of the head of the contracting activity. First-article tests may be conducted at Government facilities or at contractor facilities when observed by the Government.

(b) The PVT may also include tests that are not included in the data package or contract (for example, environmental extremes and test-to-failure) when necessary to obtain engineering data for corrective action verification, to support a materiel release decision, or to meet another purpose.

(c) Follow-on PVTs may be conducted as necessary if the production process or design is significantly changed or to verify the adequacy and timeliness of corrective actions indicated by the PVT.

(2) *Comparison test.* Comparison tests are tests of a randomly drawn sample from production. A comparison test is conducted as a quality-assurance measure to detect any manufacturing or quality deficiencies that may have developed during volume production which may have reduced effective operation of the item or resulted in item degradation. Comparison testing is conducted or supervised by an agent independent of the producer or Government onsite quality-assurance personnel. A comparison test may be conducted at procuring agency facilities, Government testing installations, or contractor facilities.

(3) *Quality conformance (acceptance) inspection.* This inspection examines and verifies tests that are normally prescribed in the technical data package for performance by the contractor and that are subject to performance or witnessing by the onsite quality-assurance representative on the items, lots of items, or services to be offered for acceptance under a contract or purchase order. These examinations and tests include, as necessary, in-process and final measurements or comparisons with technical quality characteristics required to verify that the materiel meets all the terms of the contract and should be accepted by the Government.

(4) *Tests in support of PDSS.* Developmental tests in support of PDSS for software intensive materiel systems parallel those described for premilestone III, but are usually abbreviated based on the number, magnitude, and complexity of the modifications or maintenance.

(5) *C3I interoperability recertification test.* The interoperability recertification test for C3I systems is conducted if major hardware and software modifications to the C3I system have been made that impact on previously established joint interface requirements. Recertification test schemes must be developed and must be commensurate with the level of changes involved in both the C3I system and the systems it must interoperate with. The APTU will coordinate recertification testing requirements with the DISA.

c. Planning, programming, and budgeting for testing during the production and deployment phase will begin early in the life cycle. In general, production items are procured with Army Procurement Appropriation funds, while costs of procuring repair parts are OMA funded. Costs of conducting tests are similarly funded.

d. Provisions will be made in the Long Range Army Materiel Requirements Plan (LRAMRP) for test items, facilities, and resources to support quality-assurance testing during the production and deployment phase.

e. Production and deployment test requirements will be incorporated in the premilestone III TEMP.

f. Criteria for production and deployment testing will be prescribed in the appropriate technical data package based on the performance demonstrated during development or on contract performance specifications for NDIs. The test, methods of analysis, and criteria will be described. The number of items to be tested and the duration of tests will be based on engineering practices taking into account costs, schedule, item complexity, known problem areas, statistical confidence, and other factors. Prior test data and analytically derived design data will be used when the test and sampling plan are developed.

g. The program manager will ensure that the total system is tested during the PVT. When individual components and subsystems are tested separately by other activities, such testing itself will not meet total system test requirements.

h. Materiel development and acquisition commands will establish procedures to ensure the timely planning, testing, reporting, and resolution of deficiencies on newly produced materiel and to ensure that developmental T&E requirements are identified to allow appropriate flexibility regarding the test, such as—

(1) Tailoring sample sizes to meet specific contract requirements.

(2) Terminating during early testing if performance is so poor that retesting will be required regardless of the results of the remaining portion of the tests.

(3) Reducing, eliminating, or terminating early certain tests when a low rate of failures or when process capability provides sufficient confidence that the materiel meets the requirements.

4–5. Production and deployment phase testing (information systems)

a. Developmental testing in the production and deployment phase generally supports PDSS. If a software baseline change of major proportions (for example, redesign) appears necessary, the development phase of the information system LCSMM will be re-entered, and testing will follow the same procedures as discussed in paragraph 4–3. Minor software changes may also require testing in accordance with paragraph 4–3, but test objectives, functions, and responsibilities are scaled down depending on the number, magnitude, and complexity of the modifications being tested. Interoperability recertification tests of C3I systems may also be conducted in this phase.

b. Production and deployment phase test requirements will be incorporated into the premilestone III TEMP.

4–6. Operations and support phase testing (materiel systems)

a. Testing in this phase includes surveillance and reconditioning tests that are required to measure the ability of materiel in the field,

in storage, and after maintenance actions (including repair, rebuild, retrofit, overhaul, and modification) to meet user requirements. It may also contain tests in support of PDSS as described in paragraph 4–4*b*(4).

b. Operations and support tests are defined in (1) and (2) below.

(1) *Surveillance tests.* Surveillance tests include destructive and nondestructive tests of materiel in the field or in storage at field, depot, or extreme environmental sites. Surveillance tests are conducted to determine suitability of fielded or stored materiel for use, evaluate the effects of environments, measure deterioration, identify failure modes, and establish or predict service and storage life. Surveillance test programs may be at the component-through-system level. System-level programs may include dedicated hardware allocated for this purpose, fielded materiel, or supplies in storage. Storage sites may include depots, field storage, or extreme environmental locations. " Libraries" of component parts provide a baseline for subsequent surveillance test data comparisons and may be established at contractor or Government facilities. Criteria for surveillance testing will be prescribed in the appropriate technical bulletins (TBs), technical manuals (TMs), storage serviceability standards, and surveillance test program plans. Criteria for reconditioning testing, including pilot reconditioning tests, initial reconditioning tests, control tests, acceptance tests, total systems tests, and baseline evaluation tests at depot or contractor facilities, will be incorporated in depot maintenance work requirements, modification work orders, TMs, TBs, and contracts. Test criteria will be based on performance demonstrated during development and production. The number of items to be tested and the duration of tests will be based on sound engineering practices that consider schedules, costs, item complexity, known problem areas, statistical confidence, and other factors. Prior test data and analytically derived design data will be used when the test and sampling plan is developed. Existing test facilities will be used rather than building new Government or contractor facilities.

(2) *Reconditioning tests.* Reconditioning tests fall into the categories described in (a) through (e) below.

(a) Pilot reconditioning tests. Pilot reconditioning tests are conducted to demonstrate the adequacy of the documented technical requirements, processes, facilities, equipment, and materials that will be used during volume reconditioning activities. The pilot model will be reconditioned in strict accordance with depot maintenance work requirements, modification work orders, TMs, TBs, and contracts. Pilot reconditioning tests will be applied when depot maintenance work requirements, TMs, or TBs are used for the first time when major changes are made.

(b) Initial reconditioning tests. Initial reconditioning tests are conducted to demonstrate the quality of the materiel when reconditioned under volume (rate) procedures and practices. These tests relate to PVTs during production. Initial reconditioning tests will be conducted when an item is reconditioned for the first time by a Government or contractor facility, when changes in processes or facilities occur, or when there has been a significant break in reconditioning operations.

(c) Control tests. Control tests are conducted on randomly selected items from volume reconditioning operations to verify that the process is still producing satisfactory materiel. Criteria should be the same as for initial reconditioning tests. Control tests relate to comparison tests during production.

(d) Acceptance tests. Acceptance tests are conducted on in-process materiel and when reconditioning activities are completed. An accept or reject decision is based on an acceptance test.

(e) Baseline evaluation tests. Baseline evaluation tests are conducted simultaneously on reconditioned and new production materiel of the same configuration to compare performance and to determine the degree of reconditioning required. Baseline evaluation tests will be considered when the item is being reconditioned for the first time, when significant modifications affecting performance are incorporated, or when data are needed to decide on upgrading versus new procurement.

c. Planning, programming, and budgeting for testing during the operations and support phase will begin early in the life cycle. In general, this testing, including materiel and conduct of tests, will be OMA funded.

d. Provisions will be made in the LRAMRP for test items, facilities, and resources to support operations and support testing.

e. Operations and support test requirements will be identified in the premilestone III TEMP.

4–7. Operations and support phase testing (information systems)

Testing in this phase is similar to the testing discussed in paragraph 4–5. Operations and support test requirements will be identified in the premilestone III TEMP.

4–8. Critical system characteristics and critical technical parameters

Critical system characteristics are design features that determine how well the proposed concept or system will function in its intended operational environment. They are usually contained in the system operational requirements documents, along with the associated minimum acceptable operational performance requirements. The critical technical parameters are derived from these requirements by the independent developmental evaluator or assessor, in coordination with the materiel developer and combat developer. The critical technical parameters are developed in such a way that when achieved, they allow for the attainment of the associated operational requirements in the projected threat environments. These critical technical parameters must be included in the independent developmental evaluation or assessment plan and, along with their appropriate thresholds, in the TEMP. (See DOD 5000.2–M.)

4–9. Independent developmental evaluation and independent developmental assessment

a. The objectives of developmental evaluation and assessment are to—

(1) Assist the developer by providing information relating to technical parameters and contractor performance.

(2) Ensure the effectiveness of the manufacturing process, equipment, and procedures through production qualification T&E.

(3) Confirm readiness for operational testing by ensuring that the system is stressed to at least the levels expected in the operating environment, and demonstrate a level of achievement of system performance, safety, survivability, human factors engineering, integrated logistics support, and reliability, availability and maintainability (RAM) requirements to ensure an acceptable level of probability of successfully and safely completing the operational test.

(4) Provide information to the decision authority at each decision point about a system's technical performance and readiness to proceed to the next phase of acquisition.

(5) Determine the system's operability in the required climatic and realistic battlefield environments, including natural, induced, and countermeasure environments.

b. The independent developmental evaluator performs the developmental evaluation. The evaluation addresses the system's technical parameters (hardware and software) and contributes to the acquisition and fielding of an effective, supportable, and safe system. Developmental evaluation encompasses the use of models, simulations, and testbeds, as well as prototypes, full-scale development models, and production models of the system.

c. The developmental evaluation is conducted under the continuous evaluation concept. Developmental evaluation is generally performed on ACAT I programs, ACAT II programs, and OSD T&E oversight and MAISRC-level systems. Continuous evaluation is a process that provides a continuous flow of T&E information to ensure responsible, timely, and effective determination of system status.

d. Developmental assessments will be performed on systems that are not developmentally evaluated. A developmental assessment is a basic engineering or mathematical assessment of test results and appropriate data analysis with respect to system performance, RAM,

ILS, human factors engineering, MANPRINT, and system safety against system specifications and user requirements. It does not normally address battlefield significance and contribution.

e. In general, independent evaluations and assessments are prepared to support milestone decisions. In addition, under the continuous evaluation concept, the evaluator or assessor periodically updates the evaluation or assessment of the system.

4–10. Contractor participation in developmental test and evaluation activities

The Army policy for system contractor participation in developmental T&E activities for ACAT I and ACAT II programs is described in *a* and *b* below.

a. An objective of developmental testing is to achieve reliability, availability, maintainability, and durability maturity. This can occur only if the testing is designed to find, analyze, fix, and verify problems through representative testing in a timely manner. These factors suggest that engineering-level discussions with system contractor personnel are desirable or required. These discussions should, in general, take place before or during the scoring conference. Contractor personnel should not be physically present, however, during the formal voting and scoring period. The system contractors should speak primarily at the request of the materiel developer spokesperson. The chairperson will maintain reasonable participation by all observers.

b. In those cases where it is known that testing will be conducted under conditions similar to IOT, and an operational test is to be conducted during the same phase, the USAOPTEC will notify the materiel developer that the developmental test results are to be combined with IOT results. If the materiel developer agrees, system contractor participation in the developmental test scoring conferences will be the same as for IOT scoring conferences.

c. The program manager should keep a written record of all separate Government and system contractor discussions of test incidents, including issues, system contractor positions, causal analysis, and any other pertinent data.

Chapter 5
Operational Test, Experimentation, and Evaluation

5–1. Materiel systems and information systems

Operational test and experimentation means testing and experimentation in realistic operational environments with users who represent those expected to operate and maintain the system when it is fielded or deployed. All operational tests and experiments will be categorized as listed in *a* and *b* below. Tests should be selected from this listing with the objective of building an efficient and effective operational test strategy to support a given program. Software intensive systems and theater and tactical information systems may undergo testing as listed in both *a* and *b* below.

a. Materiel systems.

(1) Premilestone III—

(a) Early user test (EUT).

(b) Early user experiment (EUE).

(c) IOT.

(d) Limited user test (LUT).

(2) Production and deployment phase—follow-on operational test (FOT).

(3) As required—

(a) Force development test (FDT).

(b) Force development experiment (FDE).

(c) Concept evaluation program (CEP) test.

(d) Customer test (CT).

b. Information systems.

(1) Premilestone III—

(a) LUT.

(b) IOT.

(2) Production and deployment phase—

(a) FOT.

(b) User Acceptance Test (UAT).

(3) As required—

(a) Supplemental site test (SST).

(b) CT.

5–2. Operational tests and experiments

All operational tests and experiments related to acquisition of systems under AR 70–1 or AR 25–3 will be documented in part IV of the TEMP, approved in the TSARC process, and included in the FYTP. Requirements for any added (out-of-cycle) testing must be generated by the TIWG process, submitted as a change to the TEMP, and accepted by the TSARC unless the requirements for added testing are generated by a higher authority. Costs for unprogrammed testing must be borne by the activity that generates the requirement for conduct of the test. Other operational tests and experiments will be approved in the TSARC process and included in the FYTP. All tests that require U.S. Forces Command (FORSCOM) and TRADOC test assets (such as user troops) must comply with FORSCOM and TRADOC notification requirements (AR 15–38).

5–3. Premilestone III testing and experimentation (materiel systems)

a. Premilestone III testing and experimentation for materiel systems range normally from milestone I to the milestone III production decision. The following items constitute user premilestone III tests and experiments: EUT, EUE, IOT, and LUT.

b. Premilestone III tests and experiments for materiel systems are defined below.

(1) *Early user test and experimentation (EUTE).* EUTE, a generic term, encompasses all system tests or experiments employing representative user troops during the demonstration validation phase before milestone II. The EUTE may test a materiel concept, support planning for training and logistics, identify interoperability problems, and identify future testing requirements. EUTE provides data for early operational assessment to support milestone II decisions. FDTE or CEP or both may comprise all or part of EUTE.

(a) EUT. An EUT is conducted before milestone II with RDTE funds. EUTs use procedures that are described for IOT and modified as necessary by maturity or availability of test systems and support packages. EUTs seek answers to known issues that must be addressed before milestone II.

(b) EUE. An EUE is a field experiment conducted to generate data that are subsequently used to identify potential system related solutions or to define issues to be addressed at milestone II and beyond.

(2) *IOT.* The IOT is a field test, under realistic operational conditions, of a production or production-representative system (or key component of such a system) to determine its operational effectiveness and operational suitability for use by typical users in combat or when otherwise deployed. The IOT environment is as operationally realistic as possible and includes use of realistic threats. Typical users operate and maintain the system under conditions simulating actual deployment conditions.

(3) *LUT.* The LUT is any type of RDTE funded operational test conducted between milestone II and milestone III other than the IOT. The LUT normally addresses a limited number of operational issues. The LUT may be conducted to provide a data source for operational assessments in support of LRIP decisions and for reviews conducted before IOT. The LUT may be conducted to verify fixes to problems discovered in IOT that must be verified prior to milestone III (that is, the fixes are of such importance that verification cannot be deferred to the FOT). The LUT will not be used to circumvent requirements for an IOT before a full-production decision as prescribed by statute, DOD directives, and this regulation; segment an IOT through a series of limited objective tests; or replace planned FDTE or a CEP test that can address the required issues.

c. Premilestone III test and experiment requirements will be incorporated into the premilestone III TEMP.

5–4. Premilestone III testing (information systems)

a. Premilestone III testing for information systems is typically conducted during the development phase and normally consists of an IOT and a LUT. (See paras 5–3*b*(2) and 5–3*b*(3).)

b. Premilestone III tests and experiments for information systems are defined below.

(1) The premilestone III IOT for information systems is similar in purpose to the IOT for materiel systems. In addition, for information systems, the IOT uses a production database and is executed on target hardware. The test should include the conversion, training, and software verification and validation processes, and ensure that the system meets the collective user and proponent needs, can be operated by users, and is ready for deployment.

(2) The premilestone III LUT for information systems is similar in purpose to the LUT for materiel systems. For information systems, the LUT is an operational test conducted between milestone II and the IOT. The LUT normally addresses a limited number of operational issues. The LUT may be conducted to provide a data source for operational assessments in support of acceptance of hardware and commercial off-the-shelf software for operational testbeds and interim blocks of software functionality prior to the IOT. Additional LUTs may be conducted to verify fixes to problems discovered in IOT or to support acceptance of blocks of functionality subsequent to the IOT but prior to acceptance of the objective system. The LUT will not be used to circumvent requirements for an IOT as prescribed by DOD directives and this regulation.

c. The testing unit retains the information system after a LUT or the IOT is completed for use as a continuous evaluation testbed pending formal fielding decision. The TIWG plans this and documents it in the TEMP to ensure feasibility, supportability, and funding. A signed memorandum of agreement after completion of the test among the program manager, operational evaluator, and testing unit, including supportability and funding, will confirm the use of the system as a testbed.

d. Premilestone III test requirements will be incorporated into the premilestone III TEMP.

5–5. Production and deployment phase testing (materiel systems)

Production and deployment phase testing for materiel systems normally consists of an FOT. An FOT is an operational test that may be necessary during or after the production phase to refine the estimates made during IOT, provide data to evaluate changes, verify that deficiencies in materiel, training, or concepts have been corrected, and provide data to ensure that the system continues to meet operational needs and that it retains its effectiveness in a new environment or against a new threat. For software intensive systems, the FOT typically serves as the operational test in support of PDSS. Production and deployment phase test requirements will be incorporated into the premilestone III TEMP.

5–6. Production and deployment phase testing (information systems)

Operational testing in the production and deployment phase supports both development and fielding subsequent to the IOT, and supports PDSS.

a. When the strategy is to develop and field additional blocks of functionality subsequent to the IOT, LUTs will be conducted on intermediate blocks (see para 5–4*b*(2)) and an FOT will be conducted prior to the acceptance of the objective system.

b. If operational testing is required to support PDSS, then an FOT will be conducted by the operational tester. Otherwise, a UAT will be conducted by the functional proponent or combat developer. For systems that have both a functional proponent and a combat developer, the UAT will be conducted by the functional proponent. The UAT is limited in scope relative to an FOT. Its primary purpose is to verify the functionality of the changes to the information system in the user environment. Production and deployment phase test requirements will be incorporated into the premilestone III TEMP.

5–7. As-required testing and experimentation

All as-required testing and experimentation requirements which pertain to a specific system acquisition will be incorporated into the premilestone III TEMP.

a. Force development test and experimentation (FDTE). FDTE is a generic term that encompasses a range of tests and experiments conducted with troops under field conditions to support both materiel system acquisition and the development of doctrine, training, organizations, logistics, and materiel concepts and requirements. In support of materiel acquisition, FDTE may support definition of the materiel requirement or may assess the doctrine, training, organization, and logistics developed for the materiel system. FDTE also supports the development and approval of concepts and doctrine, training, and organizations not specifically tied to a materiel system acquisition. FDTE is conducted with OMA funds.

(1) *FDT.* An FDT is conducted to generate data to evaluate the effectiveness and suitability of doctrine, training, organizations, and logistics, either related to a materiel system or a separate development. The major purpose of an FDT is to determine if the product tested meets the stated requirement. Results of the test may also be used to further refine the product (for example, doctrine or training).

(2) *FDE.* An FDE is conducted to generate data to identify and refine proposed solutions in the areas of doctrine, training, organizations, and logistics, as well as materiel requirements.

(3) *CEP test.* The CEP provides TRADOC commanders, Battle Labs, and combat developers with a quick reaction and simplified process to resolve combat development, doctrinal, and training issues; to solidify combat developmental requirements; and to support early milestone decisions. CEP tests are used to provide an experimental database for requirements documents and to expedite the materiel acquisition process. CEP tests are not to be used as the primary tests to support decision review production decisions. CEP tests may be conducted at any time to support the continuous evaluation process. Data from CEP tests may be used as an additional source for preparation of operational test and evaluation reports (TERs) and operational assessments (OAs).

(4) *Schedules.* In support of materiel acquisition, FDTE are scheduled as required throughout the acquisition process. Although there are no absolute requirements for either an FDE or FDT, an FDE will normally be more applicable early in the acquisition process when combat and training developers are seeking to solidify and mature the doctrine, training, organization, and logistics aspects of the system. An FDT will normally be scheduled later in the process, especially just before an IOT or FOT, to ensure that these aspects are ready to be included in the operational test of the total system. An FDT following the full-production decision, using the initial operational capability unit, is also appropriate to address open issues after an FOT.

b. SST. An SST may be necessary for information systems that execute in multiple hardware and operating system environments if there are differences between user locations that could affect performance or suitability. The SST supplements the IOT and UAT.

c. CT. A customer test is a test conducted by USAOPTEC for a requesting agency external to USAOPTEC. The requesting agency coordinates support requirements and provides funds and guidance for the test. A CT is not directly responsive to Army program objectives and is not scheduled or approved by the TSARC unless external sources are required for test support.

d. Reduction in test requirements. Where possible, data collected during Battle Lab experimentation will be used to reduce operational test requirements, decreasing the time required for the acquisition cycle and conserving resources. Experimentation is unlikely to provide all data required for system acquisition. However, to the maximum extent possible, experimental design will be used to reduce overall operational test requirements. Operational testing will then be conducted to provide the data that could not be obtained through Battle Lab experimentation.

5–8. Critical operational issues and criteria

Critical operational issues (COIC) are the operational effectiveness and operational suitability concerns that must be examined in operational test and evaluation to determine the degree to which the system is capable of performing its mission. (See DODI 5000.2.) COIC are the critical operational issues with associated scope, criteria, and rationale. The criteria must relate directly to the minimum acceptable operational performance requirements or thresholds. A breach of a criterion is reason to delay entry into full production unless other evidence of acceptable system operational effectiveness and suitability is provided. The COIC continually focus on the milestone III decision. COIC are initially developed and approved for the milestone I TEMP and are revised and approved for the milestone II TEMP. Subsequent revisions occur for preplanned product improvements to achieve existing operational requirements, and changes responding to revised operational requirements (ORD for materiel systems and MNS for information systems). The approved COIC are included in the TEMP and are the basis for planning the operational evaluation of the system.

5–9. Independent operational evaluation

a. The primary objective of an independent operational evaluation (IOE) is to address the operational effectiveness and suitability of Army systems for use by typical users in realistic operational environments. Other objectives include—

(1) Assisting combat and materiel developers and functional proponents by providing information relative to operational performance, doctrine, tactics, logistics, MANPRINT, system safety, technical publications, RAM, correction of deficiencies, and refinement of requirements.

(2) Ensuring that only operationally effective and suitable systems are delivered to users.

(3) Providing timely information to the decision authority at each decision point.

(4) Providing an assessment of readiness to proceed to the next phase of acquisition.

(5) Assessing system suitability, benefits, and burdens when compared with systems already fielded or deployed.

b. The independent operational evaluator performs the IOE. IOE is conducted under the continuous evaluation concept. Operational evaluation will be conducted on all systems and normally consists of the types described in (1) through (4) below.

(1) *Operational evaluation.* The operational evaluation normally reports system evaluations and continuous evaluation status of ACAT I, ACAT II, other OSD T&E oversight, and MAISRC-level programs to support any milestone review preceded by a phase of operational testing. Typically, an independent evaluator reports the results of an IOT or FOT.

(2) *Operational assessment.* The operational assessment normally reports system evaluations and continuous evaluation status of ACAT I, ACAT II, other OSD T&E oversight, and MAISRC-level programs to support milestone decision reviews not preceded by a dedicated or completed phase of operational testing. An operational assessment reports interim evaluations of incomplete operational testing as required.

(3) *Early operational assessment.* The early operational assessment is used to support milestones I and II decision reviews. Typically, an early operational assessment reports the results of an EUT or an EUE.

(4) *Abbreviated operational assessment.* The abbreviated operational assessment normally reports system evaluations and continuous evaluation status of certain programs other than those listed in (1), (2) and (3) above for all testing in support of milestone decision reviews.

(5) *Baseline.* Evaluation of a combat system incorporates a comparison of the system to a baseline. The baseline represents the capability of the replaced system, the capability of a similar system, the capability of a force without the new system, or the capability of the original system (for materiel changes). The independent operational evaluator, based on input from the combat developer, defines the baseline for the given system. Part IV of the TEMP describes the baseline concept and evaluation approach. A combination of data from studies, field exercises, models and simulations, side-by-side testing, or other operational testing compares performance of the system with the baseline. To the maximum extent possible, existing baseline data will be used in lieu of baseline testing for system evaluations.

5–10. Other evaluations

a. To support their programs or when tasked and resourced by HQDA, Army organizations conduct evaluations of products other than materiel and information systems (for example, doctrine, training, organization, and logistics). While these evaluations do not require the degree of scientific rigor required for IOE of materiel and information systems, they will be planned, conducted, and reported in a manner (patterned after IOE) that will produce credible results to support the appropriate decision. When dedicated testing or experimentation is required to provide the necessary data to support the evaluation, FDTE will be scheduled through the TSARC process. Funding and quick reaction dynamics may preclude the use of FDTE. In such cases, innovative data collection efforts may be used at the discretion of the command conducting the evaluation. Planning and execution of such efforts must be as scientifically rigorous as conditions permit to make evaluation results more credible. These evaluations are normally OMA funded.

b. CEP evaluations. The CEP is a TRADOC program to provide quick reaction and innovative evaluation to resolve combat and training development issues (see para 5–7*a*(3)). The primary focus is to develop a materiel requirement. TRADOC conducts a CEP schedule and review committee, similar to the TSARC, to approve and prioritize CEP requirements. As with FDTE, planning and execution are patterned after IOE of materiel systems, with as much scientific rigor as practical. Separate, dedicated tests may be necessary to provide data to support the CEP evaluation. As indicated in paragraph 5–7*a*(3), these tests are called CEP tests to distinguish them from other USAOPTEC tests conducted for customers. TRADOC provides USAOPTEC with prioritized CEP test requirements. When dedicated testing by USAOPTEC is not required, other innovative data collection efforts will be used.

5–11. Use of system contractors and developers in operational test and evaluation

Policy stated in this paragraph is based on public law and will be applied to the T&E of defense acquisition programs costing more than $300 million in RDTE or more than $1.8 billion in procurement (in fiscal year 1990 dollars). It is also recommended for application to the T&E of other programs. There must be no system contractor manipulation or influence during initial operational T&E or activities that provide input for consideration in the operational evaluation leading to a full-production decision for major defense acquisition programs. The policy described in a through c below must be followed.

a. During initial operational T&E or activities, system contractor personnel will not—

(1) Participate except to the extent that they are involved in the operation, maintenance, and other support of the system when it is deployed.

(2) Participate in collecting, reducing, processing, authenticating, scoring, assessing, analyzing, or evaluating operational test data.

(3) Attend or be directly involved as members or observers in data authentication group sessions or RAM scoring and assessment conferences that address data supporting operational evaluation and assessment of their systems.

b. Discussions with system contractor and developers personnel may be necessary to ensure full technical understanding of test incidents observed during initial operational T&E or activities. All such discussions will be held separately from any scoring and assessment activities. The program manager should maintain a written record of the nature of these contractor and Government discussions.

c. Results of developmental testing using contractor personnel or results of contractor in-house testing may be considered in operational evaluation and assessments along with operational testing data collected in accordance with the policy stated in *a* and *b* above.

Chapter 6
Test Integration Working Groups

6–1. Essential role

a. A TIWG must be established for every program to ensure that test integration is accomplished. The primary purpose of the TIWG is to optimize the use of appropriate T&E expertise, instrumentation, facilities, simulations, and models to achieve test integration, thereby reducing costs to the Army. The TIWG—

(1) Integrates test requirements, accelerates the TEMP coordination process by producing a TIWG coordinated TEMP, resolves cost and scheduling problems, and determines test data confirmation requirements.

(2) Provides a forum to assist personnel responsible for T&E documentation and execution, and ensures that T&E planning, execution, and reporting are directed toward common goals. The TIWG will be the forum through which T&E coordination among all members of the acquisition team is accomplished.

(3) Supports continuous evaluation by accomplishing early, more detailed, and continuing T&E documentation, planning, integration, and sharing of data.

b. A TIWG must be established and chaired by the program manager (if appointed) between milestone 0 and milestone I for all programs. If a program manager has not been appointed, the TIWG must be established and chaired by the combat developer or functional proponent, in coordination with the materiel developer, until a program manager has been appointed. The TIWG will be established in sufficient time to assist in finalizing the initial critical technical parameters and COIC. The TIWG will facilitate early development of the TEMP and the T&E portions of the acquisition strategy, the RFP, and supporting documentation. To ensure an integrated effort, the TIWG must coordinate with other functional groups. (See para 6–3.)

c. Within their area of expertise, members of the TIWG assist in preparing the T&E portions of the acquisition strategy, the RFP, and related contractual documents, and assist in evaluating contractor or developer proposals when there are T&E implications.

d. TIWG members, as appropriate, coordinate on waivers of approved testing.

e. Although not a decisionmaking body, the TIWG is the appropriate forum to coordinate and solve routine problems. However, this group should not submerge the airing of substantive developmental and operational concerns in a consensus process. Disagreement on matters of substance will be elevated through command channels to the next higher level for decision. Problems not resolved at this point will be brought to the DUSA(OR) for decision.

f. Minutes of all TIWG meetings will be prepared by the TIWG chairperson and distributed within 10 working days.

6–2. Test Integration Working Group composition

a. Representatives from all commands and agencies which may have a role in a particular program's T&E must attend the initial TIWG meeting. At the conclusion of the initial meeting, those organizations which are critical to the TIWG body will be identified. A TIWG charter must be developed which names representatives from these organizations as principal TIWG members. Members of the TIWG must be empowered by their respective organizations to provide command positions. Principal members of the TIWG develop the T&E strategy and resolve issues, with support from the other members.

b. The TIWG will establish, as necessary, a RAM subgroup and a supportability T&E subgroup. These subgroups coordinate and jointly developT&E strategies and identify corrective actions. Other subgroups may be chartered as appropriate.

6–3. Other groups interfacing with the Test Integration Working Group

The groups listed in *a* through *j* below interface with the TIWG.

a. DTRR working group.
b. OTRR working group.
c. Computer resources working group.
d. Data authentication group.
e. System safety working group (AR 385–16).
f. Threat coordination group.
g. Threat accreditation working group.
h. MANPRINT joint working group (AR 602–2).
i. ILS management team (AR 700–127).
j. Live-fire T&E group.

Chapter 7
Test and Evaluation Review and Documentation Requirements

7–1. Document content

a. This chapter addresses the principal program reviews and T&E documents developed during the system acquisition process. These documents describe how the T&E requirements will be satisfied throughout the acquisition process.

b. Technical documentation will contain a distribution statement that notes the conditions of its availability for distribution, release, and disclosure (AR 70–31).

c. Submission to OSD of documentation, to include T&E plans and results, will comply with the policies and procedures in DODI 5000.2 (Part 11, Section C), and DOD 5000.2–M.

7–2. Office of the Secretary of Defense briefing relevant to test and evaluation

Program managers within the OSD will provide briefings relevant to T&E during the process leading to the Defense Acquisition Board review or MAISRC in accordance with DOD 5000.2–M.

7–3. Department of the Army briefing relevant to test and evaluation

The T&E results must be comprehensive and complete before presentation to the Army Acquisition Executive. As a minimum, final draft T&E reports, authenticated by the responsible testing or evaluation agency head or both, are required before ASARC and Army MAISRC reviews. If necessary, the program executive officer or program manager chairs a T&E review 30 days before the decision review. The purpose is to review adequacy of past tests, test results and evaluations, planning for future testing (including critical issues and requirements), and modifications of the test strategy to accommodate the evolving acquisition strategy. Inconsistencies and problems not resolved in this forum will be brought to the attention of the DUSA(OR). A separate T&E review may be requested by the DUSA(OR).

7–4. Test and evaluation master plan

a. Army TEMP policy and procedures will comply with DODI 5000.2 and DOD5000.2–M.

b. Every Army acquisition program will have a TEMP. Additional TEMP policy, including exceptions, are listed in (1) through (6) below.

(1) If system changes (modifications or upgrades) cause an operational impact to the system, the system TEMP must be updated. (See chap 3.)

(2) Any reprocurement involving system modifications or upgrades relative to the current technical data package or performance specification which causes an operational impact to the system must have an updated system TEMP. (See chap 3.)

(3) Test and evaluation strategies must be developed for new science and technology programs and documented using the TEMP format. No formal TIWG meetings are required, and the documents

do not require formal staffing or approval. The strategies must focus on planning advanced technology demonstrations to validate the viability and military utility of the technologies. The documents will be maintained by the science and technology program advocate, usually a research, development and engineering center, with assistance from the combat developer and the developmental and operational testers and evaluators.

(4) Programs beyond milestone I having approved TEMPs, but redesignated as science and technology developments must continue to maintain TEMPs. The TEMPs reside with the materiel developer who maintains them. If a program is directed to reenter the formal acquisition process, the materiel developer will follow the formal policy and procedures in obtaining TEMP approval by the appropriate approval authority.

(5) Level VI information systems do not require TEMPs.

(6) Food and Drug Administration (FDA) regulations (published at Title 21, Parts 50, 56, and 312 of the Code of Federal Regulations) describe the procedures to be followed to allow testing of unapproved drugs or unlicensed vaccines in humans. The regulatory filing required is an Investigational New Drug (IND) Application. The USAMRDC, or any other sponsor of an investigational drug or vaccine, must file an IND application with the FDA for each drug or vaccine administered to research volunteers. Documentation of the acceptance of the IND by the FDA along with human use review committee approvals of individual research protocols will be submitted with each outline test plan (OTP) covering tests with investigational drugs or vaccines. This documentation replaces the TEMP requirement and provides authority for testing investigational drugs and vaccines in human volunteers.

c. TEMPs will be coordinated with the TIWG and documented on a TIWG coordination sheet to be included in the TEMP.

d. Within the Army, the approval authorities for TEMPs are as indicated in (1) and (2) below.

(1) DUSA(OR) is the TEMP approval authority for the following programs: ACAT I programs, ACAT II programs, any program on the OSD T&E oversight list,and DoD-level MAISRC programs.

(2) The milestone decision authority is the TEMP approval authority for all programs not included in (1) above.

e. Updates of the TEMP for all Army acquisition programs must be in accordance with DOD 5000.2–M.

f. All Army acquisition programs must have an Army approved TEMP before the TSARC can approve them for inclusion in the FYTP.

g. Live-fire vulnerability and lethality testing will be integrated into the overall developmental testing strategy in TEMPs for designated systems.

7–5. Independent developmental evaluation plan

a. The independent developmental evaluator prepares an independent evaluation plan (IEP), and the independent developmental assessor prepares an independent assessment plan (IAP) that addresses all aspects of developmental evaluation responsibilities relative to the system. The IEP and IAP detail the independent developmental evaluator's planned actions for the developmental evaluation of the system, and the independent developmental assessor's planned actions for the developmental assessment of the system, respectively. The IEP and IAP are updated as needed to reflect materiel and program changes.

b. The objectives of the IEP and IAP are to state the critical technical parameters, identify data needs and sources, state the approach to the independent developmental evaluation and assessment, specify the analytical plan, and identify program constraints.

c. IEPs and IAPs are prepared in cooperation with the TIWG members to ensure that the intent of the requirements is reflected in the planning. IEPs and IAPs do not require TIWG approval.

d. The developmental IEP serves as input to the developmental test design plan (TDP). The developmental IAP incorporates the TDP.

7–6. Developmental test design plan

a. The developmental TDP is a formal document that supports the developmental IEP and the TEMP. The independent developmental evaluator prepares the developmental TDP. Developmental TDPs are coordinated among TIWG members.

b. The developmental TDP is responsive to the critical technical parameters developed by the independent developmental evaluator, in coordination with the materiel developer and combat developer (or functional proponent). The TDP includes a complete developmental test design, a description of required tests, the conditions under which the system is to be tested, and a statementof test criteria and methodology. The developmental TDP includes plans for data collection and analysis and specifies data requirements. Developmental TDPs will address both Government and contractor testing, modeling, or simulation efforts. The developmental evaluator will review and approve contractor developmental TDPs when contractor test results are to be used instead of Government test results. For assessed programs, contractor test plans will be reviewed and approved by the independent developmental assessor.

c. For information systems, the TDP may include test plan formats as indicated in DOD–STD 7935A.

d. The TDP provides information to aid in creating the developmental detailed test plan (DTP).

e. The developmental IEP and developmental TDP may be combined into a single document at the discretion of the independent developmental evaluator. If the U.S. Army Test and Evaluation Command (TECOM) performs an independent developmental assessment, the IAP includes the developmental TDP.

7–7. Operational test and evaluation plan

a. The operational T&E plan documents the planning for the operational T&E of the system. The operational tester and independent operational evaluator jointly prepare the operational T&E plan. The T&E plan states the COIC, identifies data sources, and provides information necessary to develop the operational DTP.

b. The operational T&E plan will be provided to the TIWG for review and comment. Operational T&E plans for ACAT I and other OSD T&E oversight programs will be forwarded through the DUSA(OR) to OSD per DOD 5000.2–M and will conform to the briefing requirements stated therein.

7–8. Outline test plan

a. The outline test plan (OTP) is a formal resource planning and tasking document that is prepared for TSARC review. (See AR 15–38.) All programs must have an Army approved TEMP before they can compete in the TSARC process for resources and commitments to provide such resources.

b. The OTP lists the necessary resources required and administrative information necessary to support all Army FYTP tests when user troops are required.

c. OTPs for operational tests are prepared by the operational tester and submitted to the TSARC. OTPs for developmental tests are prepared by the developmental tester requiring user troops and are submitted to the TSARC.

7–9. Five-Year Test Program

The FYTP is a compendium of operational test and selected developmental test OTPs approved by DCSOPS for the Chief of Staff, Army. (See AR 15–38.) USAOPTEC publishes and disseminates the FYTP. The FYTP identifies and assigns tasks for validated requirements to support the Army's operational test program. It is developed within existing budget and program constraints according to Army priorities. The FYTP contains tasking documents for the current, budget, and Program Objective Memorandum (POM) years and provides test-planning guidelines for the out-years (years subsequent to the current, budget, and POM years). OTPs contained in the FYTP out-years must be continuously updated in TSARC working group sessions as data become available. OTPs for developmental tests that require user troops must be included in the

FYTP. The FYTP contains tasking documents (OTPs) that all commands and agencies are required to support.

7–10. Detailed test plan

The detailed test plan (DTP) is a document prepared by the organization conducting the test. It provides explicit instructions for the conduct of tests and subtests. The DTP is derived from and implements the TDP, IAP, or operational T&E plan. The DTP governs test control, data collection, data analysis, and administrative aspects of the tester's operations.

a. The developmental DTP responds to evaluation requirements, must be coordinated with the independent developmental evaluator or assessor, and may be coordinated with other TIWG members to ensure that it reflects the requirements of the TEMP and TDP (or IAP). The independent developmental evaluator or assessor will review the DTP to ensure that it accurately and completely reflects the requirements for data, information, and analysis set forth in the IEP or IAP.

b. The operational DTP is an informal document. There is no requirement to staff the DTP outside the test activity. The independent operational evaluator may review the DTP at the test activity to ensure that T&E plan requirements are accurately reflected.

c. If a DTP envisions the use of military or civilian personnel who are not qualified to test by duty assignment that calls specifically for such qualifications, the DTP must be reviewed by the Human Use Committee (HUC) per AR 70–25.

7–11. Test incident and related reporting

a. Program managers, combat developers, evaluators, assessors, and other organizations participating in the acquisition process must be informed of system performance during tests in a timely manner so that corrective actions may be initiated and continuous evaluation conducted.

b. The test incident report (TIR) describes the minimum essential data for test incidents, their respective corrective actions and status, and other test information. The TIR form and data stream formats will be used for reporting these data for all premilestone III tests and for tests in the production and deployment phases which support a materiel release decision. The TIWG will determine which tests require TIRs and will identify these in the TEMP.

c. Test incident and corrective action data, with the exception of classified data, will be entered by the materiel developer promptly by electronic means into the Army Test Incident Reporting System to enable all members of the T&E community access to the data and information in a timely manner. The data will also be provided to others per agreements reached by the TIWG.

d. Critical and major TIRs require the production of corrective action data. All other TIRs will be reviewed as necessary. A corrective action review team will review all corrective action data to verify that all proposed corrective actions are appropriate and effective. The program manager, combat developer (or functional proponent), operational evaluator, and developmental evaluator or assessor comprise the members on the corrective action review team. The testers serve as advisers.

7–12. Developmental test readiness statement

DTRSs are written statements prepared by the chairman of the DTRR as part of the minutes. The statement documents that the materiel system is ready for the PQT or that the information system is ready for the software qualification test.

7–13. Developmental test readiness review

DTRRs are conducted by the program manager to determine if the materiel system is ready for the PQT or the information system is ready for the software qualification test.

7–14. Operational test readiness statement

Operational test readiness statements (OTRSs) are written statements prepared by the combat developer (or functional proponent), program manager, trainer, and test unit commander before the start of IOTs or FOTs for use during the OTRR. The OTRS addresses or certifies the readiness of the system for testing in each member's area of responsibility. OTRSs may also be required for some FDTE and should be specified in the TEMP and the OTP.

7–15. Operational test readiness review

OTRRs are conducted, as deemed necessary by the operational tester, before each operational test of a system. An OTRR identifies problems that may impact on starting or adequately executing the test.

7–16. Developmental test report and developmental expanded test report

a. The developmental TR is a formal document of record that reports the data and information obtained from developmental testing and describes the conditions that actually prevailed during test execution and data collection. The TR includes an audit trail of deviations from the planned testing.

b. Developmental TRs are prepared at the end of the developmental test. Interim TRs may be prepared after significant blocks of testing or as required to support the decision making process. Interim TRs are submitted at least annually for developmental test phases that extend for lengthy periods. For ACAT I and other OSD T&E oversight programs, the developmental tester must submit its developmental TRs to OSD through the DUSA(OR) per DOD 5000.2–M. If the TR is not available, an interim TR will be submitted. TR requirements will be defined in the TEMP.

c. The test organizations that conducted the developmental tests also prepare, approve, and publish the TRs.

d. The TR is a source of data and information to prepare the independent evaluations and to update the cost and operational effectiveness analysis for the decision review.

e. For systems not selected for full evaluation, an expanded developmental TR may be written. In these cases, TRs include evaluative statements by the developmental assessor. The expanded developmental TR also includes a safety confirmation, conclusions, and recommendations instead of a separate evaluation.

f. All TRs will be provided to the milestone decision review body.

7–17. Developmental independent evaluation report

a. The developmental independent evaluation report (IER) documents the independent developmental evaluation of the system and is based on test data, reports, studies, analyses, simulations, and other appropriate sources. The independent developmental evaluators prepare, approve, and publish IERs for all milestone decision reviews beginning with milestone II. Under the continuous evaluation concept, the independent developmental evaluators periodically update their evaluations of the system.

b. The developmental IER is a formal document of record and contains the independent developmental evaluator's assessment of the issues, conclusions, and position on the future capability of the system to fulfill the approved requirements. The developmental IER will determine the adequacy of developmental testing and the need for additional developmental testing and will identify program constraints and their impact on the evaluation. For ACAT I and other OSD T&E oversight programs, the independent developmental evaluator must submit its developmental IERs to OSD through the DUSA(OR) per DOD 5000.2-M. If the IER is not available, an interim IER will be submitted. Developmental IER requirements will be defined in the TEMP. All developmental IERs will be provided to the milestone decision review body.

c. Developmental IERs will be coordinated with the developmental tester to ensure that test data used to assess the critical technical parameters are accurate. The independent developmental evaluator normally briefs developmental IERs directly to the pre-ASARC, pre-MAISRC, and in-process reviews (IPRs).

7–18. Developmental independent assessment report

a. For assessed programs, the independent developmental assessor prepares an independent assessment report (IAR). A developmental assessment is a basic engineering and mathematical assessment of test data and analysis results with respect to system performance, RAM, ILS, human factors engineering, survivability, MANPRINT, and system safety against system specifications and user requirements. It does not normally address battlefield significance and contribution.

b. The developmental IAR is a formal document of record that addresses the same issues as the developmental IER, is coordinated with the developmental tester, and is provided to the decision maker.

7–19. Operational test and evaluation report

The operational test and evaluation report (TER) is prepared by the operational tester and independent operational evaluator. In reporting the results of operational tests and operational evaluations, the operational TER combines the features of the TR and IER as described in paragraphs 7–16 through 7–17. For systems not selected for full evaluation, a TER (Abbreviate Evaluate (AE)) will be written. The TER(AE) is a TR with evaluative content. For ACAT I, DoD-level MAISRC, and other OSD T&E over sight programs, the independent operational evaluator must submit operational TERs to OSD through the DUSA(OR) per DOD 5000.2-M. If the TER is not available, an interim TER will be submitted. Operational TER requirements will be defined in the TEMP. All operational TERs will be provided to the milestone decision review body. The independent operational evaluator normally briefs operational TERs directly to the ASARC, MAISRC, and IPRs. The independent operational evaluator will brief the developmental IER at the ASARC and MAISRC in addition to the operational TER. This format is also appropriate for documenting the results of a UAT.

7–20. Operational assessments

An operational assessment is an abbreviated, less formal TER. An operational assessment is produced instead of a TER when scheduling, testing limitations, decision making requirements, or other factors preclude a comprehensive operational evaluation. An operational assessment results from a limited assessment of a system when a less-than-full operational evaluation is desired or necessary. Before milestone II, the operational assessment is titled a nearly operational assessment. The operational assessment usually reports the results of EUTE or FDTE. An operational assessment or early operational assessment may also include the results of an evaluation of developmental testing, market surveys, or modeling and simulation. An abbreviated operational assessment is a type of operational assessment that confirms the evaluative content of the TER(AE).

7–21. Live-fire test and evaluation documentation

a. Live-fire T&E strategies will be developed for each program designated for live-fire T&E and will be included in the TEMP. Because all such programs are contained in the OSD T&E oversight list, approval by OSD of the TEMPs constitutes approval of the live-fire T&E strategies.

b. For each program designated for live-fire T&E, a dedicated IEP, TDP, DTP, detailed test report (DTR), and IER will be prepared. The IEP, TDP, and DTP are submitted to the DUSA(OR) for approval and to OSD for review and comment. Any changes to an approved DTP must also be approved by the DUSA(OR) and reviewed by OSD. The DTP and IER will be submitted to the DUSA(OR) for approval and to OSD per DOD 5000.2–M.

Appendix A
References

Section I
Required Publications

AR 15–38
Test Schedule and Review Committee. (Cited in paras 2–3, 2–5, 2–7, 2–9, 2–10, 2–17, 2–19, 5–2, 7–8, and 7–9.)

AR 25–3
Army Life Cycle Management of Information Systems. (Cited in paras 1–1, 3–2, and 5–2.)

AR 70–1
Army Acquisition Policy. (Cited in paras 1–1, 4–2, and 5–2.)

DODI 4630.8
Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems. (Cited in para 2–2.)

DODI 5000.2
Defense Acquisition Management Policies and Procedures. (Cited in paras 1–1, 3–1, 3–2, 3–6, 3–8, 3–10, 3–12, 4–2, 5–8, 7–1, and 7–4.)

DODD 4630.5
Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems. (Cited in para 2–2.)

DODD 5000.1
Defense Acquisition Management. (Cited in para 1–1.)

DOD 5000.2–M
Defense Acquisition Management—Documentation and Reports. (Cited in paras 1–1, 3–10, 4–2, 4–8, 7–1, 7–2, 7–4, 7–7, 7–16, 7–17, 7–19, and 7–21.)

DODD 8120.1
Life-Cycle management (LCM) of Automated Information Systems (AISs). (Cited in para 1–1.)

DODI 8120.2
Automated Information System (AIS) Life-Cycle Management (LCM) Process, Review, and Milestone Approval Procedures. (Cited in paras 1–1, 3–1, and 3–2.)

Section II
Related Publications

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

AR 25–1
The Army Information Resources Management Program

AR 37–100
Account/Code Structure

AR 40–10
Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process

AR 40–60
Policies and Procedures for the Acquisition of Medical Materiel

AR 50–4
Safety Studies and Reviews of Nuclear Weapon Systems

AR 70–6
Management of the Research, Development, Test, and Evaluation, Army Appropriations

AR 70–24
Special Procedures Pertaining to Nuclear Weapon System Development

AR 70–25
Use of Volunteers as Subjects of Research

AR 70–31
Standards for Technical Reporting

AR 70–38
Research, Development, Test, and Evaluation of Materiel for Extreme Climatic Conditions

AR 70–44
DOD Engineering for Transportability

AR 70–47
Engineering for Transportability

AR 70–60
Army Nuclear Survivability

AR 70–62
Airworthiness Qualification of U.S. Army Aircraft Systems

AR 70–69
Major Range and Test Facility Base

AR 70–71
Nuclear, Biological, and Chemical Contamination Survivability of Army Materiel

AR 71–13
The Department of the Army Equipment Authorization and Usage Program

AR 105–2
Electronic Counter-Countermeasures (ECCM)—Electronic Warfare Susceptibility and Vulnerability

AR 200–1
Environmental Protection and Enhancement

AR 200–2
Environmental Effects of Army Actions

AR 350–38
Training Device Policies and Management

AR 380–5
Department of the Army Information Security Program

AR 381–11
Threat Support to U.S. Army Force, Combat, and Materiel Development

AR 385–16
System Safety Engineering and Management

AR 385–62
Regulations for Firing Guided Missiles and Heavy Rockets for Training, Target Practice, and Combat

AR 385–63
Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat

AR 525–1
The Department of the Army Command and Control System (DACCS)

AR 525–22
Electronic Warfare (EW) Policy

AR 530–1
Operations Security (OPSEC)

AR 602–2
Manpower and Personnel Integration (MANPRINT) in the Materiel Acquisition Process

AR 700–86
Life Cycle Management of Clothing and Individual Equipment

AR 700–127
Integrated Logistic Support

AR 700–142
Materiel Release, Fielding, and Transfer

AR 710–2
Inventory Management Supply Policy Below the Wholesale Level

AR 750–1
Army Materiel Maintenance Policy and Retail Maintenance Operations

AR 750–10
Modification of Materiel and Issuing Safety-of-Use Messages and Commercial Vehicle Safety Recall Campaign Directive

AR 750–43
Army Test, Measurement, and Diagnostic Equipment Program

DA Pam 700–50
Integrated Logistic Support: Developmental Supportability Test and Evaluation Guide

DOD–STD 7935A
Automated Data Systems Documentation Standards

MIL–STD 781
Reliability Design Qualification and Production Acceptance Tests: Exponential Distribution

MIL–STD 810
Environmental Test Methods and Engineering Guidelines

MIL–STD 882
System Safety Program Requirements

Section III
Prescribed Forms

This section contains no entries.

Section IV
Referenced Forms

This section contains no entries.

Glossary

Section I
Abbreviations

ASARC
Army Systems Acquisition Review Council

ASA(RDA)
Assistant Secretary of the Army (Research, Development, and Acquisition)

CEP
concept evaluation program

CG
commanding general

DA
Department of the Army

DASAF
Director of Army Safety

DCSINT
Deputy Chief of Staff for Intelligence

DCSLOG
Deputy Chief of Staff for Logistics

DCSOPS
Deputy Chief of Staff for Operations and Plans

DCSPER
Deputy Chief of Staff for Personnel

DISC4
Director of Information Systems for Command, Control, Communications, and Computers

DOD
Department of Defense

DOTE
Director of Operational Test and Evaluation

DTP
detailed test plan

DUSA(OR)
Deputy Under Secretary of the Army (Operations Research)

FDA
Food and Drug Administration

FDTE
force development test and experimentation

FORSCOM
U.S. Forces Command

FOTE
follow-on operational testing and evaluation

FYTP
Five-Year Test Program

HQDA
Headquarters, Department of the Army

IEP
independent evaluation plan

IER
independent evaluation report

ILS
integrated logistics support

IMA
Information Mission Area

IMP
Information Management Plan

INF
Intermediate-Range Nuclear Forces

INSCOM
U.S. Army Intelligence and Security Command

IPR
in-process review

LCSMM
life-cycle system management model

LRIP
low-rate initial production

LSAR
logistics support analysis record

MACOM
major Army command

MAISRC
Major Automated Information System Review Council

MANPRINT
Manpower and Personnel Integration

MEDCOM
Medical Services Command

MOA
Memorandum of Agreement

MTMC
Military Traffic Management Command

NATO
North Atlantic Treaty Organization

NDI
nondevelopmental item

ODCSOPS
Office of the Deputy Chief of Staff for Operations and Plans

OMA
Operation and Maintenance, Army

OPA
Other Procurement, Army

OSA
Office of the Secretary of the Army

OSD
Office of the Secretary of Defense

OTP
outline test plan

OTRR
operational test readiness review

RAM
reliability, availability, and maintainability

RDTE
research, development, test, and evaluation

RFP
request for proposal

SDT
software development test

TB
technical bulletin

TDP
test design plan

TECOM
U.S. Army Test and Evaluation Command

TEMP
Test and Evaluation Master Plan

TEXCOM
TRADOC Experimentation Command

TIWG
Test Integration Working Group

TM
technical manual

TOE
table of organization and equipment

TR
test report

TRADOC
U.S. Army Training and Doctrine Command

TSARC
Test Schedule and Review Committee

TSG
The Surgeon General

TTSP
Threat Test Support Package

USAISC
U.S. Army Information Systems Command

USASC
U.S. Army Safety Center

Section II
Terms

Appraisal
A user-oriented, short-term test and assessment of low-cost NDIs, contractor proposal, or developer-submitted materiel. The results of an appraisal may be used to determine whether a proposal or concept warrants further consideration, to establish the operational feasibility of a product, to initiate a requirement, or to expedite the materiel acquisition process.

Battle Lab
A process established by the U.S. Army Training and Doctrine Command to identify, develop, and experiment with new capabilities offered by emerging technologies. It encourages experimentation via simulations or prototypes using real soldiers and real units to determine technology insertion or new requirements.

Brassboard configuration
An experimental device (or group of devices) used to determine feasibility and to develop technical and operational data. It will normally be a model sufficiently hardened for use outside of laboratory environments to demonstrate the technical and operational principles of immediate interest. It may resemble the end-item but is not intended for use as the end-item.

Breadboard configuration
An experimental device (or group of devices) used to determine feasibility and to develop technical data. It will normally be configured only for laboratory use to demonstrate the technical principles of immediate interest. It may not resemble the end-item and is not intended for use as the projected end-item.

Combat developer
Command or agency that formulates doctrine, concepts, organization, materiel requirements, and objectives.

Command, Control, Communication, and Intelligence (C3I) interoperability certification test
A test which applies to C3I systems having interfaces or interoperability requirements with other systems. This test may consist of simple demonstrations using message analysis or parsing software with limited interface connectivity, or extend to full-scale scenario-driven exercises with all interfaces connected.

Command, Control, Communication, and Intelligence (C3I) interoperability recertification test
A test conducted for C3I systems if major hardware and software modifications to the C3I system have been made that impact on previously established joint interface requirements.

Concept evaluation program (CEP)
A program which provides TRADOC commanders, Battle Labs, and combat developers with a quick reaction and simplified process to resolve combat development, doctrinal, and training issues and to solidify combat development requirements and support early milestone decisions. In addition, CEP tests are used to provide an experimental database for requirements documents and to expedite the materiel acquisition process; however, CEP tests are not to be used as the primary tests to support decision review production decisions. CEP tests may be conducted at any time to support the continuous evaluation process.

Continuous evaluation
A process that provides a continuous flow of information regarding system status, including planning, testing, data compilation, analysis, evaluation, conclusions, and reporting to all members of the acquisition team from the drafting of the initial Mission Need Statement through deployment reviews and assessment. Continuous evaluation will be performed by all members of the acquisition team.

Critical operational issues and criteria
The operational effectiveness and operational suitability concerns, including scope, criteria, and rationale, that must be examined to determine the degree to which the system is capable of performing its mission. The COIC continually focus on the milestone III decision.

Customer test
A test conducted by USAOPTEC for a requesting agency external to USAOPTEC. The requesting agency coordinates support requirements and provides funds and guidance for the test. It is not directly responsive to Army program objectives and is not scheduled or approved by the TSARC unless external sources are required for test support.

Developmental test
Any engineering-type test used to verify status of technical progress, verify that design risks are minimized, substantiate achievement of contract technical performance, and certify readiness for IOT. Developmental tests generally require instrumentation and measurements and are accomplished by engineers, technicians, or soldier operator-maintainer test personnel.

Developmental tester
The command or agency that plans, conducts, and reports the results of Army developmental testing. Associated contractors may perform technical testing on behalf of the command or agency.

Developmental test readiness review
A review conducted by the program manager to determine if the materiel system is ready for the PQT or the information system is ready for the software qualification test.

Developmental test readiness statement
A written statement prepared by the chairman of the DTRR as part of the minutes. The statement documents that the materiel system is ready for the PQT or the information system is ready for the software qualification test.

Early user test and experimentation (EUTE)
Testing or experimentation that employs user personnel during the proof of principle (or demonstration-validation) phase before entering development-production prove-out or full-scale development. The purposes are to test a materiel concept, to support planning for training and logistics, to identify interoperability problems and future testing requirements, and to provide data for an operational evaluation to support the milestone I or II decision. A specific test or experiment during EUTE may be a CEP, an innovative test, FDTE, operational feasibility test, or other test as appropriate.

Electromagnetic environmental effects
The impact of the electromagnetic environment on the operational capability of military forces, equipment, systems, and platforms. These effects encompass all electromagnetic disciplines, including electromagnetic compatibility; electromagnetic interference; electromagnetic vulnerability; electromagnetic pulse; electronic counter-countermeasures; hazards of electromagnetic radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning and p-static.

Engineering development test
A developmental test conducted postmilestone I and premilestone II to provide data on safety, the achievability of critical technical parameters, and refinement and ruggedization of hardware configurations, and to determine technical risks. Engineering development testing is performed on components, subsystems, materiel improvement, NDIs, hardware-software integration, and related software. Engineering development testing includes the testing of compatibility and interoperability with existing or planned equipment and systems and the system effects caused by natural and induced environmental conditions during the development phases of the materiel acquisition process. Program funding category is 6.3.

Follow-on operational test (FOT)
A test conducted during and after the production phase to refine information obtained during IOT; to provide data to evaluate changes; and to provide data to reevaluate the system to ensure that it continues to meet operational needs.

Force development testing and experimentation (FDTE)
The testing conducted early to support the force development and materiel development processes by examining the effectiveness of

existing or proposed concepts of training, logistics, doctrine, organization, and materiel. FDTE are conducted early and can be scheduled as needed during any phase of the materiel acquisition process. They may be related to, combined with, or used to supplement operational testing. During the requirement formulation effort, FDTE may be used to determine essential and desirable capabilities or characteristics of proposed systems. Before milestone II, FDTE will be used to assist in refining concepts of employment, logistics, training, organization, and personnel, and instead of early operational testing when operational issues are adequately addressed. FDTE also includes field experiments designed to gather data through instrumentation to address a training development problem or to support simulations, models, wargames, and other analytical studies. Requirements for RDTE may also be generated by the results of combat developments, training developments, or training effectiveness analysis testing and studies.

Foreign comparative testing
The test and evaluation of NATO and non-NATO Allies' defense equipment to determine whether such equipment meets valid existing DOD component requirements or mission area shortcomings, while reducing duplication in research and development, enhancing standardization and interoperability, improving cooperative support, and promoting competition and international technology exchange.

Functional proponent
A command, Army staff element, or agency that establishes and documents system requirements, COIC, and test support packages for information systems, and formulates the concepts explaining the intended use of the system.

Independent developmental evaluator
A command or agency independent of the project manager or developing subordinate command that conducts developmental evaluations of Army systems, normally USAMSAA, TECOM, or USAISC.

Independent evaluation
The process used by the independent evaluators to independently determine if the system satisfies the approved requirements. It will render an assessment of data from all sources, simulation, and modeling, and an engineering or operational analysis to evaluate the adequacy and capability of the system.

Independent operational evaluator
A command or agency independent of the materiel developer and the user that conducts operational evaluations of Army systems, normally USAOPTEC.

Initial operational test (IOT)
The dedicated field test, under realistic combat conditions, of production or production-representative items of weapons, equipment, or munitions to determine operational effectiveness and suitability for use by representative military or civilian users.

Innovative tests
Tests conducted with command controlled funds, personnel, and equipment to provide information on the operational feasibility of a concept or system for which a requirement may exist. Results may lead to new requirements documents, materiel improvement, or an FDTE. These tests are not directly responsive to Army program objectives and are not scheduled or approved through the general officer TSARC process unless external resources are required for test support.

Limited user test
Any type of RDTE funded operational test conducted between milestone II and milestone III other than the IOT. The LUT normally addresses a limited number of operational issues. The LUT may be conducted to provide a data source for operational assessments in support of LRIP decisions and for reviews conducted before IOT. The LUT may be conducted to verify fixes to problems discovered in IOT that must be verified prior to milestone III (that is, the fixes are of such importance that verification cannot be deferred to the FOT).

Logistic demonstration
A demonstration which evaluates the achievement of maintainability goals; the adequacy and sustainability of tool, test equipment, selected test programs sets, built-in test equipment, associated support items of equipment, technical publications, maintenance instructions, trouble-shooting procedures, and personnel skill requirements; the selection and allocation of spare parts, tools, test equipment, and tasks to appropriate maintenance levels; and the adequacy of maintenance time standards.

Logistician
An Army command or agency that conducts the logistic evaluation of systems being acquired and assures that logistics are adequately addressed in the TEMP and detailed test plans.

Materiel developer
The Research, Development, and Acquisition command, agency, or office assigned responsibility for the system under development or being acquired.

Operational effectiveness
The overall degree of mission accomplishment of a system when used by representative personnel in the environment planned or expected (for example, natural, electronic, threat, and so forth) for operational employment of the system considering organization, doctrine, tactics, survivability, vulnerability, and threat (including countermeasures; initial nuclear weapons effects; nuclear, biological, and chemical contamination threats).

Operational suitability
The degree to which a system can be satisfactorily placed in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistic supportability, and training requirements.

Operational test
Any testing and experimentation conducted in realistic operational environments, with users that are representative of those expected to operate, maintain, and support the system when fielded or deployed.

Operational tester
A command or agency that plans, conducts, and reports the results of operational testing. The operational tester is normally USAOPTEC.

Operational test readiness review
A review conducted, as deemed necessary by the operational tester, before each operational test of a system. The purpose is to identify problems that may impact on starting or adequately executing the test.

Operational test readiness statement
A written statement prepared by the combat developer (or functional proponent), program manager, trainer, and test unit commander before the start of IOTs or FOTs for use during the OTRR. The OTRS addresses or certifies the readiness of the system for testing in each member's area of responsibility. OTRSs may also be required for some FDTE and should be specified in the TEMP and the OTP.

Pilot production item
An item produced from a limited production run on production tooling to demonstrate the capability to mass produce the item.

Preproduction prototype
An article in final form employing standard parts and representative of articles to be produced on a production line with production tooling.

Production qualification test (PQT)
A system-level developmental test conducted postmilestone II or a combined postmilestones I and II test that ensures design integrity over the specified operational and environmental range. This test usually uses prototype or preproduction hardware fabricated to the proposed production design specifications and drawings. Such tests include contractual reliability and maintainability demonstration tests required before production release.

Production prove-out test
A developmental test conducted postmilestone II or postmilestone I or II (under the

Army streamlined acquisition process concept) before production testing with prototype hardware. This test provides data on safety, the achievability of critical system technical characteristics, refinement and ruggedization of hardware configurations, and determination of technical risks. After type classification, production prove-out testing may also be conducted to provide data that could not be obtained before type classification, such as survivability or environmental. Program funding category is 6.4.

Production verification test (PVT)
A system-level developmental test conducted postmilestone III to verify that the production item meets critical technical parameters and contract specifications, to determine the adequacy and timeliness of any corrective actions indicated by previous tests, and to validate the manufacturer's facilities and procedures. This test may take the form of a first-article test if such testing is required in the technical data package for quality assurance purposes to qualify a new manufacturer or procurements from a previous source out of production for an extended period and to produce assemblies, components, or repair parts satisfying the requirements of the technical data package.

Program executive officer
The individual who provides the overall management of the T&E activities of assigned systems.

Program manager
An HQDA board selected manager (military or civilian) of a system or program. A program manager may be subordinate to either the Army Acquisition Executive, program executive officer, or a materiel command commander.

Realistic test environment
The conditions under which a system is expected to be operated and maintained, including the natural weather and climatic conditions, terrain effects, battlefield disturbances, and enemy threat conditions.

Research effort or test
A technical effort or test conducted before milestone 0 to determine early technical characteristics and to support the research of these items. Program funding categories are 6.1 and 6.2.

Safety release
A formal document issued by the developmental tester to the operational test organization indicating that the system is safe for use and maintenance by typical user troops and describing the specific hazards of the system based on test results, inspections, and system safety analyses.

Software development test
Formal tests conducted by the software developer and the proponent agency to ensure that the technical and functional objectives of the system are met. These tests consist of program or module and cycle or system levels of testing. The unit or module test is the initial testing level. Testing is executed on local testbed hardware, and benchmark test files are used. This testing provides data to assess the effectiveness of the instruction code and economy of subroutines for efficient processing. It also ensures that input and output formats, data handling procedures, and outputs are produced correctly. The cycle or system test involves testing the combination of linkage of programs or modules into major processes.

Software qualification test
A system test conducted by the developmental tester using live-data files supplemented with user prepared data and executed on target hardware. The objectives of the software qualification test are to obtain Government confirmation that the design will meet performance and operational requirements and to determine the adequacy and timeliness of any corrective action indicated by previous testing.

Subtest
An element of a test program. A subtest is a test conducted for a specific purpose (for example, rain, dust, transportability, missile firing, and fording).

Supplemental site test
A test which may be necessary for information systems that execute in multiple hardware and operating system environments if there are differences between user locations that could affect performance or suitability. It supplements the IOT and UAT.

Surveillance tests
Destructive and nondestructive tests of materiel in the field or in storage at field, depot, or extreme environmental sites. Surveillance tests are conducted to determine suitability of fielded or stored materiel for use, evaluate the effects of environments, measure deterioration, identify failure modes, and establish or predict service and storage life. Surveillance test programs may be at the component-through-system level.

System
An item or group of items that consists of materiel or software which when put in the hands of users will enable those users to accomplish their assigned missions.

System change
A modification or upgrade to an existing system. A modification is a change to a system that is still in production. An upgrade is a change to a system that is out of production. Such changes can be improvements to system capabilities or fixes to correct deficiencies after Milestone III. System modifications and upgrades include multi-system changes (that is, the application of a common technology across multiple systems), block changes, preplanned product improvements, Class I Engineering Change Proposals (see MIL STD 973), and system change packages.

System tests
Tests which are conducted on complete systems (to include supporting elements for use in their intended environment).

Technical feasibility test
A developmental test conducted postmilestone 0 and premilestone I or milestone I or II (under the Army streamlined acquisition process concept) to assist in determining safety and establishing system performance specifications and feasibility. Program funding category is 6.3.

Testbeds
A system representation consisting partially of actual hardware or software or both and partially of computer models or prototype hardware or software or both.

Test instrumentation
Scientific or technical equipment used to measure, sense, record, transmit, process text, or display data during materiel testing and examination; equipment used to create test environments representative of natural and battlefield conditions; simulators or system stimulators used for measuring or depicting threat or training, teaching, and proficiency during testing; or targets used to simulate threat objects when destruction of real objects is not practical.

Test integration working group
A working group chaired by the program manager for a system designed to optimize the use of T&E expertise, instrumentation, facilities, simulations, and models to achieve test integration, thereby reducing costs to the Army. The TIWG ensures that T&E planning, execution, and reporting are directed toward common goals.

Test resources
All elements necessary to plan, conduct, collect, or analyze data from a test event or program. Elements include test funding and support manpower (including travel costs), test assets (or units under test), test asset support equipment, technical data, simulation models, testbeds, threat simulators, surrogates and replicas, special instrumentation unique to a given test asset or test event, targets, tracking and data acquisition, instrumentation, and equipment for data reduction, communications, meteorology, utilities, photography, calibration, security, recovery, maintenance and repair, frequency management and control, and base or facility support services.

Theater and tactical information system
Systems that direct, coordinate, and support deployable combat, combat support, and combat service support forces in their projection of combat power throughout the spectrum of combat (peace, transition to and from conflict, and conflict.) A theater and

tactical information system is an item that a table of organization and equipment (TOE) unit requires to perform its mission and functions.

Trainer
An Army command or agency that trains personnel to operate and maintain systems during testing to support T&E.

User Acceptance Test
A test conducted by the functional proponent or combat developer. It is limited in scope relative to an FOT with the primary purpose of verification of the functionality of the changes to the information system in the user environment.

Section III
Special Abbreviations and Terms

ACAT
acquisition category

ATEC
Army Testing and Evaluation Committee

ATSP
Army Threat Simulator Program

COIC
critical operational issues and criteria

CTEIP
Central Test and Evaluation Investment Program

DISA
Defense Information Systems Agency

DTSE&E (OUSD (A&T))
Director for Test, System Engineering and Evaluation (Office of the Under Secretary of Defense (Acquisition & Technology))

DTR
detailed test report

DTRR
developmental test readiness reviewers

DTRS
developmental test readiness statement

EUE
early user experiment

EUT
early user test

EUTE
early user test and experimentation

FDE
force development experiment

FDT
force development test

FOT
follow-on operational test

HUC
Human Use Committee

IAP
Independent assessment plan

IAR
independent assessment report

IND
investigational new drug

IOE
independent operational evaluation

IOT
initial operational test

ITTS
instrumentation, targets, and threat simulators

LD
logistics demonstration

LLI
long-lead item

LUT
limited user test

OEC
Operational Evaluation Command

OTRS
operational test readiness statement

PDSS
postdeployment software support

PQT
production qualification test

PVT
production verification test

REP
Resource Enhancement Program

SST
supplemental site test

T&E
testing and evaluation

TEMA
Test and Evaluation Management Agency

TER
Test and Evaluation Report

TIR
test incident report

UAT
User Acceptance Test

USACAA
U.S. Army Concepts Analysis Agency

USALEA
U.S. Army Logistics Evaluation Agency

USAMC
U.S. Army Materiel Command

USAMRDC
U.S. Army Medical Research and Development Command (Washington, DC)

USAMSAA
U.S. Army Materiel Systems Analysis Activity

USAOPTEC
U.S. Army Operational Test and Evaluation Command

USASSDC
U.S. Army Space and Strategic Defense command

Index

This index is organized alphabetically by topic and subtopic within a topic. Topics and subtopics are identified by paragraph number.

Abbreviations and terms, 1-3

Acceptance tests, 4-6

Acquisition process. See System acquisition and development

Agency heads, 2-25

Army Acquisition Executive, 2-1, 2-4

Army Instrumentation Program, 2-2

Army Targets Program, 2-2

Army Test and Evaluation Committee (ATEC), 1-4
Responsibilities, 2-26

Army Threat Simulator Program (ATSP), 2-2

Assistant Secretary of the Army (Research, Development, and Acquisition)(ASA)(RDA)), 2-2, 2-3

Baseline evaluation tests, 4-6

Battle Labs, 2-15, 5-7

Chief of Engineers, 2-10

Combat and training developer, 1-4, 2-15, 7-11, 7-14

Combined developmental and operational testing, 3-8

Command, Control, Communications, and Intelligence (C3I)
Interoperability certification testing, 4-1, 4-3
Interoperability recertification testing, 4-1, 4-4
Responsibilities, 2-2, 2-4, 2-13

Commander, U.S. Army Logistics Evaluation Agency (USALEA), 2-22

Commander, U.S. Army Medical Materiel Agency (USAMMA), 2-24

Commanders of major Army commands, 2-13—2-18

Commanding General, Military Traffic Management Command (CG, MTMC), 2-16

Commanding General, U.S. Army Health Services Command (CG, MEDCOM), 2-17

Commanding General, U.S. Army Information Systems Command (CG, USAISC), 2-18

Commanding General, U.S. Army Intelligence and Security Command (CG, INSCOM), 2-14

Commanding General, U.S. Army Materiel Command (CG, USAMC), 2-13

Commanding General, U.S. Army Medical Research and Development Command (CG, USAMRDC), 2-23

Commanding General, U.S. Army Operational Test and Evaluation Command (CG, USAOPTEC), 2-19

Commanding General, U.S. Army Space and Strategic Defense Command (CG, USASSDC), 2-21

Commanding General, U.S. Army Training and Doctrine Command (CG, TRADOC), 2-15

Comparison test, 4-4

Concept evaluation program (CEP), 5-7, 5-10

Concurrent developmental and operational testing, 3-8

Continuous evaluation, 2-19, 3-1

Contractor personnel, 4-10, 5-11

Contractor studies and analyses, 2-20

Control tests, 4-6

Corrective action data, 7-11

Critical operational issues and criteria (COIC), 2-15, 5-8, 7-7

Critical system characteristics, 4-8

Critical technical parameters, 4-8

Customer test, 5-7

Department of the Army (DA), 2-1, 2-12, 7-3

Deputy Chief of Staff for Intelligence (DCSINT), 2-8

Deputy Chief of Staff for Logistics (DCSLOG), 2-6

Deputy Chief of Staff for Operations and Plans (DCSOPS), 2-5

Deputy Chief of Staff for Personnel (DCSPER), 2-7

Deputy Under Secretary Army (Operations Research) (DUSA(OR)), 1-4, 2-1, 2-13, 4-2, 6-1, 7-3, 7-4

Detailed test plan (DTP), 7-10

Developers
System contractors and, 5-11

Developmental test and evaluation, 4-1—4-10

Developmental tester, 1-4, 2-13, 2-18

Developmental testing, 4-1
Delay, suspension, or termination, 3-13
Integrated developmental and operational testing, 3-8
Materiel changes, 3-7
System changes, 3-3
Waivers, 3-12

Developmental tests, 1-4, 2-13
Contractor participation, 4-10
Policy, 2-1, 2-2

Development process. See System acquisition and development

Developmental feasibility test, 4-2

Director, Test and Evaluation Management Agency, 2-2

Director, U.S. Army Concepts Analysis Agency (USACAA), 2-20

Director of Army Safety (DASAF), 2-11

Director of Information Systems for Command, Control, Communications, and Computers (DISC4), 2-4

Documentation requirements
Review and, 7-1—7-21

Early user experiment (EUE), 5-3

Early user test (EUT), 5-3

Early user test and experimentation (EUTE), 5-3

Engineering development test, 4-2

Environmental concerns, 2-10

Evaluation
Concept evaluation program (CEP), 5-7, 5-10
Independent operational, 5-9
Other, 5-10
Use of contractor personnel in support of, 5-11

Experimentation
As-required testing and, 5-7
Operational tests and, 5-2
Premilestone III testing for materiel systems, 5-3
Premilestone III testing for information systems, 5-4

First-article test, 4-4

Five-Year Test Program (FYTP), 2-25, 5-2, 7-9

Follow-on operational test (FOT), 1-4

Follow-on production test, 4-4

Force development experiment (FDE), 5-7

Force development process, 2-19

Force development test (FDT), 5-7

Force development test and experimentation (FDTE), 5-7, 5-10

Foreign comparative testing, 3-6

Functional roles, 1-4

Funding, 2-2

Glossary, 1-3

Heads of other Army elements, 2-19—2-24

Heads of other Headquarters, Department of the Army, agencies, 2-12

Health hazards, 2-9, 2-17

Human Use Committee (HUC), 2-10, 2-13, 2-17, 2-18, 2-19, 2-23

Independent assessment report (IAR), 7-18

Independent developmental assessment, 4-9

Independent developmental evaluation, 4-9

Independent evaluation plan (IEP), 7-5

Independent evaluation report (IER), 7-17

Independent developmental evaluator or assessor, 1-4, 2-13, 7-5

Independent operational evaluation (IOE), 5-9

Information Management Plan (IMP), 3-1

Information mission area (IMA)
Disciplines, 1-1

Information systems, 1-1, 2-4, 2-18, 4-2

Initial operational test (IOT), 1-4, 5-3, 5-4

Initial reconditioning tests, 4-6

Instrumentation, targets, and threat simulators (ITTS), 2-13

Integrated logistics support (ILS), 2-6, 2-13

Joint test and evaluation, 3-9

Limited user test (LUT), 5-3, 5-4

Live-fire test and evaluation, 1-4, 4-2
Candidate systems, 2-1
Documentation, 7-21

Logistic demonstration, 4-2

Logistician, 1-4, 2-13

Logistics systems, 2-22

Major Automated Information System Review Council (MAISRC), 2-19, 2-22, 7-2, 7-3, 7-4

Major Range and Test Facility Base, 2-13

Manpower and Personnel Integration (MANPRINT), 2-7, 7-16

Materiel developer, 1-4, 2-13, 2-18, 2-21, 2-23

Materiel systems, 1-1, 2-13, 2-15
Premilestone III tests, 4-2

Medical materiel, 2-9, 2-17, 2-23, 2-24

Memorandum of Agreement (MOA), 3-10

Models and simulations, 2-20, 3-1

Multiservice acquisition programs, 3-10
Memorandum of Agreement (MOA), 3-10
Program oversight, 2-2

Nondevelopment items (NDI), 3-4

Nontheater and nontactical information systems, 3-2

Office of the Secretary of Defense (OSD), 2-1, 2-2, 7-2

Office of the Secretary of the Army (OSA), 2-1

Operational assessment, 7-20

Operational evaluator, 1-4, 2-19

Operational test and evaluation plan, 7-7

Operational testing
Concurrent developmental testing and, 3-8
Delay, suspension, or termination, 3-13
Integrated approach, 3-8
Programs, 2-19
System changes, 3-3
Testers, 1-4, 2-19
Waivers, 3-12

Operational test readiness review (OTRR), 7-13

Operational test readiness statement (OTRS), 7-14

Operational tests, 5-1—5-11

Operation and Maintenance, Army (OMA), 2-4

Operations and support phase testing for materiel systems, 4-6

Operations and support phase testing for information systems, 4-7

Other Army commands and agency heads, 2-25

Outline test plan (OTP), 7-8

Personnel strategy plans, 2-2

Pilot reconditioning tests, 4-6

Postdeployment software support (PDSS), 3-3, 4-4, 4-5, 4-6, 4-7

Premilestone III testing for information systems, 4-3, 5-4
C3I interoperability certification test, 4-3
Software development test (SDT), 4-3
Software qualification test, 4-3

Premilestone III testing for materiel systems
C3I interoperability certification test, 4-2
Engineering development test, 4-2
Live-fire test, 4-2
Logistic demonstration, 4-2
Production qualification test (PQT), 1-4, 4-2
Production prove-out test, 4-2
Research effort or test, 4-2
Technical feasibility test, 4-2

Production qualification test (PQT), 4-2

Production and deployment phase testing for information systems, 4-5, 5-6
User Acceptance Test, 5-6

Production and deployment phase testing for materiel systems, 4-4, 5-5
C3I interoperability recertification test, 4-4
Comparison test, 4-4
First-article test, 4-4
Tests in support of PDSS, 4-4
PVT test, 4-4

Production prove-out test, 4-2

Production qualification test (PQT), 4-4

Program executive officer, 1-4

Program managers, 2-10, 2-13, 2-18, 2-21
Delay, suspension, or termination, 3-13
Operational test readiness review (OTRR), 7-15
Operational test readiness statement (OTRS), 7-14
Responsibilities, 1-4
Test Integration Working Groups (TIWG), 6-1
Waivers of testing, 3-12

Quality conformance (acceptance) inspection, 4-4

Reconditioning tests
Acceptance tests, 4-6
Baseline evaluation tests, 4-6
Control tests, 4-6
Initial reconditioning tests, 4-6
Pilot reconditioning tests, 4-6

References, 1-2

Reliability, availability, and maintainability (RAM), 7-18

Reprocurements
Test and evaluation in support of, 3-5

Research, development, test, and evaluation (RDTE), 2-1

Research effort or test, 4-2

Review and documentation requirements, 7-1—7-21

Safety releases, 2-13

Science and Technology
Test and evaluation in support of, 3-6

Software
Policy, 2-1
Postdeployment software support (PDSS), 4-4, 4-5, 5-5, 5-6
Qualification test, 1-4, 4-3

Software development test (SDT), 1-4, 4-3

Supplemental site test (SST), 5-7

The Surgeon General (TSG), 2-9

Sustaining base information systems, 3-2

System acquisition and development, 1-4
Review and documentation requirements, 7-1—7-21
Test and evaluation in support of, 3-1—3-13

System contractors and developers, 4-10, 5-11

System safety, 2-7, 2-11, 7-18

System threat assessments, 2-13, 2-15

Tailored acquisition process
Test and evaluation in support of, 3-8

Technical feasibility test, 4-2

Test and evaluation master plan (TEMP), 1-4, 2-1, 2-2, 2-13, 2-19, 2-23, 3-3,3-10, 3-12, 3-13, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 6-1, 7-4, 7-6, 7-8, 7-10, 7-11, 7-14, 7-16, 7-17, 7-19,7-21

Test and evaluation report, 1-4,
Independent developmental assessment report, 7-18
Independent developmental evaluation report, 7-17
Operational, 7-19

Test design plan (TDP)
Developmental, 7-6

Test incident and related reporting, 7-11

Test Integration Working Group (TIWG), 1-4, 3-12, 3-13, 6-1
Composition, 6-2
Developmental test design plan, 7-6
Independent evaluation plan (IEP), 7-5
Interface with other groups, 6-3
Operational test and evaluation plan, 7-7
Operational tests and experiments, 5-2

Test report (TR), 1-4,
Developmental TR, 7-16
Developmental expanded TR, 7-16

Test Schedule and Review Committee (TSARC), 2-3, 2-13, 2-15, 2-18, 2-19, 2-21,5-2, 5-10, 7-8

Test delay, suspension, or termination, 3-13

Test waivers, 3-12, 6-2

Theater and tactical information systems, 2-4, 2-15, 3-2

Threat, 2-2, 2-8. See also System threat assessments

Threat Test Support Package (TTSP), 2-13

Training developer. See Combat and training developer

Transportability, 2-16

U.S. Army Materiel Command (USAMC), 1-4, 2-13

U.S. Army Materiel Systems Analysis Activity (USAMSAA), 2-13

U.S. Army Safety Center (USASC), 2-11

U.S. Army Test and Evaluation Command (TECOM), 1-4, 2-13

Vulnerability, 4-2

Waivers of testing, 3-12

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