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Test and Evaluation

TEST MANAGEMENT



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This Air Force Materiel Command (AFMC) Instruction (AFMCI) implements AFMC Policy Directive (AFMCPD) 99-1, *Test Management*, and Air Force Instruction (AFI) 99-103, *Capabilities Based Test and Evaluation*. Additionally, it consolidates policies contained within AFMCPD 99-2/AFMCI 99-201, *Test Representatives (TESTREP)* (4 Jun 1996), and AFMCPD 99-1, *Risk Management* (13 May 1998) into one cohesive policy document. This AFMCI outlines developmental test and evaluation (DT&E) policy and organizational responsibilities within AFMC. It provides the procedures for establishing Test Representatives (TESTREP) and Center Test Authorities (CTA) at each AFMC center. It is applicable to all AFMC organizations. This instruction applies to all personnel who conduct or are involved with test and evaluation (T&E) of all types and acquisition category (ACAT) levels, to include subsystems, components; and commercial off-the-shelf (COTS) and non-developmental item (NDI) systems. This instruction must be used in conjunction with AFI 99-103, *Capabilities Based Test and Evaluation*, AFI 63-101, *Operation of the Capabilities Based Acquisition System*, AFI 91-202/AFMC Supplement 1, *The US Air Force Mishap Prevention Program*; AFI 91-204, *Safety Investigations and Reports*; and AFMCPAM 63-101, *Risk Management*. This instruction applies to T&E conducted by/for AFMC's test centers, product centers, air logistics centers (ALC), and the Air Force Research Laboratory (AFRL) whether or not it is conducted with AFMC-owned or controlled test assets.

Chapter 1

INTRODUCTION AND OVERVIEW

1.1. Collaboration and Early Tester Involvement: These two concepts are the cornerstones to achieving “Capabilities Based T&E”. AFI 99-103 defines the integrated test team (ITT) as the mechanism to achieve collaboration. Additionally, even before an ITT is formed, testers must be involved early on in all acquisition and sustainment programs to infuse testability and operational realism into requirements development while ensuring test assets will be available to test the potential capability when required. This includes COTS, NDI, potential form-fit-function-interface changes, modifications, field service evaluations, shelf life evaluations, source qualifications, and acceptance tests. Testers, through the ITT, must determine the level and types of testing required and document these decisions in T&E Strategies, T&E Master Plans (TEMP), and other program documents. Additionally, testers must be knowledgeable of capability gaps/requirements and science and technology initiatives that may require T&E infrastructure investment early on. This is done via AFMC’s involvement with USAF/XOR’s capabilities requirements process as outlined in AFI 10-601, *Capabilities Based Requirements Development*, and involvement on their high performance teams (HPT).

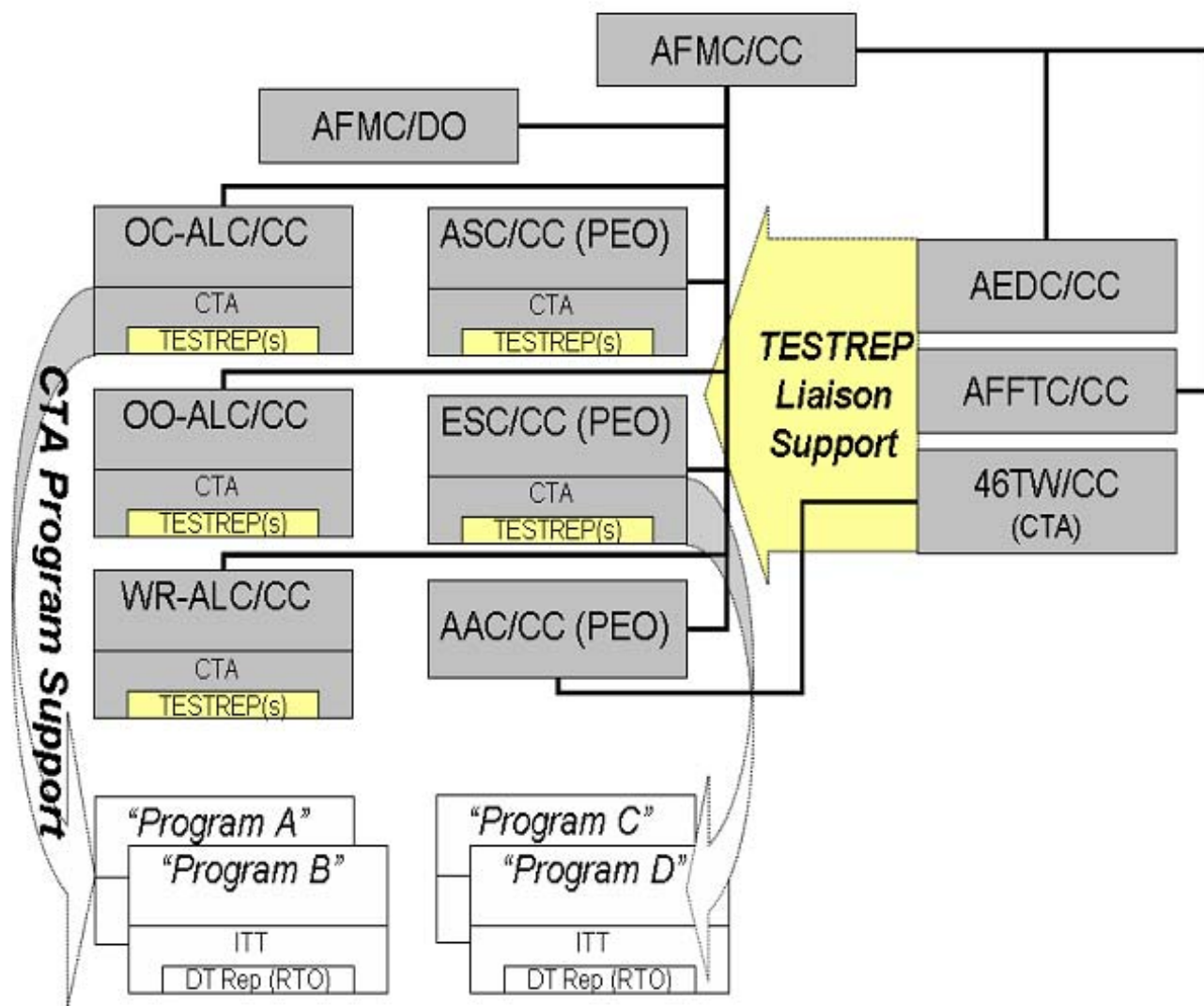
1.2. AFMC T&E Organizations. [Figure 1.1.](#) illustrates the AFMC T&E organizational construct. Each center commander reports directly to AFMC/CC. The 46TW reports to the AAC/CC. Each product center commander is also dual-hatted as the program executive officer (PEO) for their respective portfolio of acquisition programs. ALC commanders are responsible to AFMC/CC for their respective portfolio of sustainment programs. The test center/wing commanders are responsible for providing test resources and services to their customers within the product/logistic centers.

1.2.1. AFMC/DO: AFMC/DO is charged by AFMC/CC to shape the workforce and infrastructure for conducting operations to test, field, and sustain war-winning expeditionary capabilities. Overall, AFMC/DO advocates for funds and provides infrastructure and resource support for the command’s operational and test equipment and facilities. AFMC DO provides for management and oversight of the command’s aircraft, airfields, airspace, ranges, weather systems and air traffic control and landing systems. AFMC/DO manages the HQ AFMC Battle Staff and the AFMC Command Center, which directs and coordinates all AFMC deployment and mobility planning, unit tasking, and movement control. In support of the Defense Acquisition System, AFMC/DO is responsible to oversee the system fielding process; ensuring systems are delivered to the warfighter “on time, on cost.” In particular support of T&E and this instruction, AFMC/DO is responsible for T&E policy development, information management, and program support across the network of test, product and logistics centers. See paragraph [2.1.](#)

1.2.2. Center Test Authorities (CTA): Just as AFMC/DO acts as the command’s overarching T&E authority, each product and ALC commander shall have a CTA to act as advisor on test issues. The CTA maintains oversight of the center’s T&E processes, while assisting program managers (PM)/ITTs in developing their own test programs. CTAs act as the center T&E advocate for T&E policy, training, and resources. See paragraph [2.2.](#)

1.2.3. Test Representatives (TESTREP): TESTREPs provide for an on-site liaison between a test center/wing and their primary ALC or product center customer(s). See [2.3.](#)

Figure 1.1. AFMC Test Support Network



1.3. Information Management. Effective management of information is critical to ensure cohesiveness of policies and procedures, as necessary, across AFMC. As the command's test authority, AFMC/DO will act as a central repository of T&E information, to include lessons learned, best practices, and other information as required. The USAF Test Pilot School will act as AFMC/DO's center of knowledge and expertise for all flight test techniques and flight test methods. Additionally, in light of integrated testing as it applies to Agile Acquisition, AFMC/DO will act as the command's central point of contact (POC) to the Air Force Operational Test and Evaluation Center (AFOTEC), USAF/TE, and other external agencies, to ensure consistency and proper dissemination of information throughout the command.

1.4. Test Risk Management. Prior to test conduct, each test plan will be subjected to technical and safety reviews IAW AFI 99-103, AFI 91-202, and AFI 91-202/AFMC Sup 1. Each center will develop local procedures for conducting these reviews. All T&E will be conducted in accordance with an approved plan. Test plans will be prepared to meet the objectives defined and agreed to by the PM and the organization conducting the test. The PM and the organization conducting the test will evaluate test objectives with respect to risks and costs prior to test plan development to identify potential areas of unjustified risk. The test approval authority (see [Attachment 1](#)) assumes the risk associated with test conduct and shall lead each of the following reviews.

1.4.1. **Technical Review:** The technical review process will ensure a thorough assessment of the test plan for technical soundness and adequacy. The technical review will verify that the overall method of test and test data acquisition is adequate to evaluate the requirements and to verify objectives can be met with acceptable technical risk.

1.4.2. **Safety Review:** The safety review process will ensure a thorough assessment of the adequacy of test safety planning. Hazards unique to the test conduct will be identified. Pre-existing hazards associated with the weapon system shall be considered in the test hazard analysis. Test mishap accountability will be clearly documented. The safety review will evaluate the extent to which the severity and the probability of occurrence of known hazards have been minimized and assess the residual safety risk. The test approval authority must accept the residual level of safety risk.

1.4.3. **Test Readiness Review (TRR):** The readiness review process is conducted before the commencement of testing for new-starts and system upgrades, test milestones (e.g. first flight/launch, etc.), or after an extended break in test activity (e.g. transition in acquisition program phase, mishap investigation, etc.). The TRR will ensure all preparations for initiating a test have been completed and known anomalies have not compromised the execution of the test. All reasonable efforts to minimize risk must be made and verified to the test approval authority.

1.4.4. **Tailored Reviews:** Center/wing commanders, PMs, and their designees may implement additional reviews and assessments to ensure high confidence in a system's readiness for test with an acceptable level of risk. Center/unit commanders and PMs may combine reviews or otherwise streamline the review processes. A test program may require different approval authorities for safety, technical, and program risk. Review processes may be streamlined as appropriate to the level of risk. Any streamlined approach must still confirm a level of safety risk, technical risk and test readiness consistent with the test risk assessment.

1.4.5. **Additional Test Safety Risk Management Requirements:**

1.4.5.1. Use of Non-Test Pilot School (TPS) Pilots. Piloting of medium and high-risk events by other than graduates of a TPS will be specifically documented in the test plan for consideration by the test approval authority.

1.4.5.2. Radio Frequency (RF) Dependent Systems Tests: Test and Evaluation of any RF dependent device, to include COTS and NDI, shall be conducted in accordance with DoD Directive (DoDD) 4650.1. Specifically, tests will be conducted only when appropriate equipment allocation (spectrum certification) guidance as prescribed under AFI 33-118 is in place.

1.5. Test Infrastructure and Resource Planning. Having adequate test assets and qualified test personnel when needed is the responsibility of each test center/wing. As an example, test plans that include loading weapons on aircraft must include sufficient load crew certification time for the specific weapon to be loaded IAW AFI 21-101, *Aerospace Equipment Maintenance Management*. ITTs will plan for the procurement and disposition of any munitions items as early in the planning process as possible IAW AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions* (contact HQ AFMC/LGMW for assistance). Test centers shall identify, as early as possible, test requirement gaps based on expected capability development initiatives and other means. Resources required to fill these gaps shall be planned and secured for IAW AFI 99-109, *Test & Evaluation Resource Planning*.

1.6. Modeling and Simulation (M&S). PMs shall consider M&S during test planning. Integrated test plans shall address M&S IAW AFI 16-1002, *Modeling and Simulation Support to Acquisition* and AFI 14-206, *Modeling and Simulation*. PMs shall take advantage of M&S capabilities used to develop the system to limit test requirements while preserving risk reduction and sound systems engineering. M&S for capability planning and acquisition development should enhance continuous virtual test range activities and lay the groundwork for sustainment M&S. USAF Test Pilot School shall provide adequate training in M&S.

Chapter 2

ORGANIZATIONAL ROLES AND RESPONSIBILITIES

2.1. AFMC/DO.

2.1.1. Position Requirements: All AFMC/DO personnel responsible for T&E policy or resourcing shall possess a minimum Acquisition Professional Development Program (APDP) level 2 certification in T&E (or equivalent). Additionally, it is desired that AFMC/DO T&E personnel:

2.1.1.1. Be a military test pilot school graduate or have at least four years of testing experience.

2.1.1.2. Occupy at least a Major level position or civilian grade equivalent.

2.1.1.3. Have System Program Office experience (acquisition or sustainment related).

2.1.2. Responsibilities: In addition to those responsibilities listed in AFI 99-103, AFMC/DO will:

2.1.2.1. Ensure that all AFMC test centers/wings and the USAF Test Pilot School are resourced IAW AFI 99-109, *Test & Evaluation Resource Planning*.

2.1.2.2. Develop T&E training courses as required. Manage the APDP certification program for all AFMC T&E personnel.

2.1.2.3. Manage T&E information networks and data repositories.

2.1.2.4. Inspect AFMC units for compliance and certification; through the AFMC Inspector General (IG) for formal inspections, and unilaterally through the use of Staff Assistance Visits.

2.1.2.5. Act as the command T&E POC to HQ USAF/XOR for HPT participation by providing early tester involvement in the requirements process.

2.1.2.6. Act as AFMC POC to AFOTEC, MAJCOMs, and other external test agencies for overarching integrated testing issues.

2.1.2.7. Support the USAF Test Pilot School IAW AFI 99-107, *Test Pilot School (PA)*.

2.2. Center Test Authority: Commanders of product centers and ALCs will establish a CTA for T&E and establish local procedures for implementing the center's T&E process consistent with the DoD 5000-series regulations, AFI 99-103, and this instruction. The goal of each CTA is to provide a single face to the PM for test program assistance and to the center leadership for issues concerning T&E policy and procedures as they relate to acquisition decision making.

2.2.1. Position Requirements: Center Test Authorities shall be staffed with sufficient personnel proficient in the performance of T&E (APDP T&E Level 1 certified or equivalent) and who possess basic knowledge of:

2.2.1.1. Pre- and post-award T&E strategy development.

2.2.1.2. T&E documentation development and review.

2.2.1.3. T&E regulations, standards, and techniques for management of all phases of development including modeling and simulation, component-level, and system-level testing.

2.2.1.4. Modification management and configuration control.

2.2.1.5. Technical Review Board (TRB), Safety Review Board (SRB) and TRR conduct.

2.2.1.6. Available DoD, AF, AFMC T&E resources, facilities, and related capabilities of each.

2.2.1.7. ITT, Combined Test Force (CTF) or other test team operations.

2.2.2. Responsibilities. CTAs will:

2.2.2.1. Advise center command staff on T&E policy and related issues, to include, but not limited to the certification of system readiness for operational testing according to AFI 63-119, *Certification of System Readiness for Dedicated Operational Test and Evaluation*.

2.2.2.2. Participate in program decision meetings (e.g. Acquisition Strategy Panels (ASP)), Configuration Control Boards (CCB), product improvement working groups, and test management councils as required.

2.2.2.3. Advocate for T&E training and human resource development.

2.2.2.4. Represent the center on T&E issues to HQ AFMC, USAF/TE, MAJCOMs, and other external agencies.

2.2.2.5. Assist/advise PMs and ITTs in the development and review of T&E and related program documentation, to include integrated test strategies, concepts and plans.

2.2.2.6. Participate in TRB, SRB, and TRRs as required. Provide independent technical and test safety risk assessments, and ensure appropriate participation and level of coordination/approval of TRBs and SRBs for all testing that does not use an approved RTO.

2.2.2.7. Oversee the center's Responsible Test Organization (RTO) approval process, coordinate on ITT RTO recommendations to the PEO or designated representative, and inform AFMC/DO of all center RTO decisions on a periodic basis.

2.2.2.8. Support PMs in establishing ITTs and developing ITT charters.

2.2.2.9. Maintain insight into all T&E programs being conducted at, on or for the center.

2.2.2.10. Provide center-level oversight of the center's T&E resource management procedures (use, re-use, and disposal), test capability development activities, and T&E support agreement establishment.

2.2.2.11. Provide oversight of center compliance with test policies and procedures.

2.2.2.12. (ALC CTAs) Establish processes and maintain and manage requisite capabilities to conduct low risk, low cost, short duration developmental T&E (DT&E), qualification T&E (QT&E), and sustainment testing on legacy systems the ALC supports. These tests should be of the type and scope normally not conducted by AFMC test centers due to their limited cost/risk or accelerated schedule considerations.

2.3. Test Representatives (TESTREP): A TESTREP is an owning test center/wing's liaison provided to a host product or logistics center, usually working within their respective CTA. TESTREPs facilitate networking between testers and PMs at each center, while bringing test center resources to bear to assist PMs in executing their programs. Commanders of test centers/wings will assign a TESTREP to work with each of their primary customer's product or logistics centers. Co-located TESTREP manpower authorizations will be sourced from the appropriate test center/wing's existing manpower resources. The assignment of TESTREPs will be contingent on specific host center needs, test center desires, and the

corresponding agreement between the host center and the owning test center/wing. The number of TESTREP positions at each center is at the host center commander's discretion, by mutual agreement with the appropriate owning test center/wing commander. Procedures for documenting TESTREP performance (to include writing appraisals, awards, and recommendations; and providing performance feedback) shall be defined by mutual agreement between the host center and owning test center/wing. Specific TESTREP responsibilities, in addition to those listed in this instruction, should be established via a memorandum of agreement (see [Attachment 2](#)). AFMC/DO shall be informed of all TESTREP assignment decisions.

2.3.1. Position Requirements. As a core set of qualifications, TESTREPs should:

2.3.1.1. Possess a minimum APDP T&E level 2 certification (or equivalent).

2.3.1.2. Be a military test pilot school graduate or have at least four years of testing experience at an AFMC test center/wing.

2.3.1.3. Occupy at least a Major level position or civilian grade equivalent.

2.3.2. Responsibilities: TESTREPs will:

2.3.2.1. Advise the owning test center/wing, host center leadership, and PMs on issues related to test infrastructure requirements and test resource availability.

2.3.2.2. Assist the CTA in the formulation of host center T&E policies and processes.

2.3.2.3. Provide advice and consultation to the CTA, local DT&E organizations, and PMs on the development of T&E strategies, plans, and other related T&E documentation.

2.3.2.4. Participate in meetings where emerging test requirements may be identified (e.g. ASPs) and coordinate future requirements with the owning test center.

2.3.2.5. As required, participate on CCBs, product improvement working groups, and test management councils.

2.3.2.6. Ensure oversight requirements are met with the owning test center/wing through test program introduction sheets, TRBs and SRBs, and/or other means.

2.3.2.7. Provide physical oversight and assistance, to include in-flight participation, when appropriate and authorized, at test execution locations.

2.3.2.8. Provide inputs to affected organizations for AF Test Investment Planning and Programming (TIPP) investments for future test capabilities that are in line with program office test requirements.

2.4. Responsible Test Organizations (RTO): RTOs are developmental test agencies qualified to plan, conduct, and report on government DT&E and oversee contractor DT&E. RTOs can provide PMs with much needed technical insight into contractor testing. In addition, the RTO provides insight to the PM as to how well the system design and performance is likely to meet warfighter needs as it matures during DT&E. AFI 99-103 states that an RTO is "the lead government developmental test organization that is responsible for overseeing and/or conducting DT&E.". AFI 99-103 mandates that the decision to use an RTO is the PEO's or his designated representative's. For sustainment programs not assigned to a PEO, the RTO decision authority shall be the logistics center commander overseeing the program or his designated representative.

2.4.1. Qualifications. RTO selection shall be based on an organization's capabilities, qualifications, and the corresponding requirements of the test program. Because test activities may not necessarily be conducted at the RTO's facilities, RTOs should be familiar with the operation of all such facilities and associated resources involved with any tests they oversee. Information to assist the ITT in its decision to use an RTO or to assist in the selection of the appropriate organization can be found at <https://www.afmc-mil.wpafb.af.mil/HQ-AFMC/DO/dop/rtopage.htm>.

2.4.2. Responsibilities: In addition to those responsibilities listed in AFI 99-103, RTOs will:

2.4.2.1. Coordinate with Participating Test Organizations (PTO) to ensure corporate expertise and required capabilities are brought to bear in support of PMs.

2.4.2.2. Ensure T&E plans are coordinated with the appropriate test agencies, PTOs, and all other stakeholders.

2.4.2.3. Participate on TRBs and SRBs, CCBs, product improvement working groups, and test management councils as required.

2.4.2.4. Ensure that the test is conducted IAW an approved test plan and test safety documentation, regardless of whether the RTO conducts the test or assigns conduct to a PTO.

2.4.2.5. Ensure T-2 modifications on aerospace vehicles are approved IAW AFMCI 21-126, or by the PM (or designated representative) for all other systems.

2.4.2.6. Provide oversight of combined DT&E and OT&E flight testing until the safety of the modification has been verified.

2.4.2.7. Ensure that safety concerns, deficiencies, and watch items are tracked and reported according to TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*.

2.4.2.8. Provide recommendations in support of required certifications, and incremental and major and milestone decisions.

2.4.2.9. Ensure that valid test measurement and data acquisition methods are utilized in the reporting of test results.

2.5. Test Centers/Wings:

2.5.1. Responsibilities. Test centers/wings will:

2.5.1.1. Plan and provision for, execute, analyze and report on assigned testing.

2.5.1.2. Research and plan for upcoming resource requirements to include infrastructure improvements to support future T&E activities IAW AFI 99-109.

2.5.1.3. Attend HPT meetings as required.

2.5.1.4. Plan and budget for early tester involvement activities as required.

2.5.1.5. Assign and man TESTREPs at primary customer centers as appropriate.

2.5.1.6. Develop TESTREP Memorandums of Agreement (MOA) with each host center/wing.

2.5.1.7. Review program introduction documents and provide test expertise and advice as requested, in support of the local TESTREP(s).

2.6. Product Centers and ALCs:

2.6.1. Responsibilities. ALC Commanders, like their PEO counterparts (IAW AFI 99-103), will approve or delegate approval authority for RTO designations on the sustainment programs they oversee. Each ALC Commander must ensure their respective CTA is capable of performing as an RTO or otherwise supporting low cost, short duration testing for the systems they oversee. In addition, Product Centers and ALCs will:

2.6.1.1. Establish a CTA.

2.6.1.2. Develop TESTREP MOAs with each appropriate test center/wing.

2.6.1.3. Establish local procedures specifying processes relating to T&E management, i.e. RTO designation and TRB/SRB/TRR/CCBs.

JEFFREY R. RIEMER, Brigadier General, USAF
Director of Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*
DoDD 3200.11, *Major Range and Test Facility Base*
DoDD 4650.1, *Policy for Management and Use of the Electromagnetic Spectrum*
DoDD 5000.1, *The Defense Acquisition System*
DoDI 5000.2, *Operation of the Defense Acquisition System*
AFDD 1-2, *Air Force Glossary*
AFI 10-601, *Capabilities Based Operational Requirement*
AFI 14-206, *Modeling and Simulation*
AFI 16-1002, *Modeling and Simulation Support to Acquisition*
AFI 21-101, *Aerospace Equipment Maintenance Management*
AFI 33-118, *Radio Frequency (RF) Spectrum Management*
AFPD 62-6, *USAF Aircraft Airworthiness Certification*
AFI 63-101, *Operation of the Capabilities Based Acquisition System*
AFI 63-119, *Certification of System Readiness for Dedicated Operational Test and Evaluation*
AFI 63-1101, *Modification Management*
AFI 63-1201, *Assurance of Operational Safety, Suitability, and Effectiveness*
AFI 91-202/AFMC Sup1, *The US Air Force Mishap Prevention Program*
AFPD 99-1, *Test and Evaluation Process*
AFI 99-103, *Capabilities Based Test and Evaluation*
AFI 99-107, *Test Pilot School (PA)*
AFI 99-109, *Test Resource Planning*
AFMCI 21-126, *Temporary (T-2) Modification of Aerospace Vehicles*
AFMCPD 99-1, *Test Management*
TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*
Test and Evaluation Management Guide, Defense Acquisition University Press, 4th edition

Abbreviations and Acronyms

ACAT—Acquisition Category

AFDD—Air Force Doctrine Document

AFFTC—Air Force Flight Test Center
AFI—Air Force Instruction
AFMAN—Air Force Manual
AFMC—Air Force Materiel Command
AFMCI—Air Force Materiel Command Instruction
AFMCPD—Air Force Materiel Command Policy Directive
AFOTEC—Air Force Operational Test and Evaluation Center
AFPD—Air Force Policy Directive
AFRL—Air Force Research Laboratory
ALC—Air Logistics Center
APDP—Acquisition Professional Development Program
ASP—Acquisition Strategy Panel
COTS—Commercial Off-The-Shelf
COI—Critical Operational Issue
CTA—Center Test Authority
CTF—Combined Test Force
DAU—Defense Acquisition University
DoD—Department of Defense
DoDD—Department of Defense Directive
DoDI—Department of Defense Instruction
DT&E—Developmental Test and Evaluation
e.g.—for example
HPT—High Performance Team
HQ—Headquarters
IAW—In Accordance With
IG—Inspector General
ITT—Integrated Test Team
JP—Joint Publication
M&S—Modeling and Simulation
MAJCOM—Major Command
MDA—Milestone Decision Authority
MOA—Memorandum of Agreement

MRTFB—Major Range and Test Facility Base
NDI—Non-Developmental Item
OPR—Office of Primary Responsibility
OT&E—Operational Test and Evaluation
PEO—Program Executive Officer
PM—Program Manager
POC—Point of Contact
PTO—Participating Test Organization
QT&E—Qualification Test & Evaluation
RF—Radio Frequency
RTO—Responsible Test Organization
SRB—Safety Review Board
T&E—Test and Evaluation
TEMP—Test and Evaluation Master Plan
TESTREP—Test Representative
TIPP—Test Investment Planning and Programming
TO—Technical Order
TPS—Test Pilot School
TRB—Technical Review Board
TRR—Test Readiness Review
USAF—United States Air Force
www—World Wide Web

Terms

NOTE—For additional terms and definitions not listed below, see Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms, and Air Force Doctrine Document (AFDD) 1-2, Air Force Glossary, which contain standardized terms and definitions for DoD and Air Force use. An unofficial source is the Test and Evaluation Management Guide, 4th edition, Defense Acquisition University (DAU) Press.

Acquisition Category (ACAT)—Acquisition categories determine the level of review, decision authority, and applicable T&E policies and procedures. They facilitate decentralized decision making and execution, and compliance with statutorily imposed requirements. See DoDI 5000.2, Enclosure 2 for details.

Capabilities Based Testing—A mission-focused methodology of verifying that a capabilities solution will enable operations at an acceptable level of risk. Capabilities-oriented evaluations are emphasized

throughout system testing in addition to traditional evaluations of system performance measured against specification-like requirements.

Center Test Authority (CTA)—A product or logistics center resident T&E expert(s), providing advise to center leadership on issues of T&E, and assistance to center PMs.

Developmental Test and Evaluation (DT&E)—Test and evaluation conducted to evaluate design approaches, validate analytical models, quantify contract technical performance and manufacturing quality, measure progress in system engineering design and development, minimize design risks, predict integrated system operational performance (effectiveness and suitability) in the intended environment, and identify system problems (or deficiencies) to allow for early and timely resolution. DT&E includes contractor testing and is conducted over the life of the system to support acquisition and sustainment efforts. (Defense Acquisition Guidebook)

Host Center—The product or logistics center at which a co-located TESTREP resides.

Integrated Testing—Any combination of two or more types of testing used to achieve greater test efficiency, reduced cost, and schedule savings without compromising the objectives and needs of the participating test organizations.

Integrated Test Team (ITT)—A cross-functional team of empowered representatives from multiple disciplines and organizations and co-chaired by operational testers and the program manager. The ITT is responsible for developing the T&E strategy and TEMP, assisting the acquisition community with T&E matters, and guiding the development of integrated test plans. There is one ITT for each acquisition program. AFI 99-103 specifies roles, responsibilities, and membership requirements of an ITT.

Objective—An operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not significant or useful. (AFI 10-601)

Operational Test and Evaluation (OT&E)—1. The field test, under realistic combat conditions, of any item of (or key component of) weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users; and the evaluation of the results of such test. (Title 10 §139(a)(2)) 2. Testing and evaluation conducted in as realistic an operational environment as possible to estimate the prospective system's operational effectiveness and operational suitability. In addition, OT&E provides information on organization, personnel requirements, doctrine, and tactics. It may also provide data to support or verify material in operating instructions, publications, and handbooks.

Operational Testing—A generic term describing the test and evaluation options and levels of effort available to an operational test organization.

Oversight—Senior executive-level monitoring and review of programs to ensure compliance with policy and attainment of broad program goals.

Owning Test Center/Wing—The test center/wing to which a TESTREP position belongs.

Participating Test Organization (PTO)—Any government or contractor supporting test organization that provides specific T&E data or resources for a T&E program or activity.

Program Manager (PM)—1. The designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting to

the milestone decision authority (MDA). (DoDD 5000.1) 2. Applies collectively to system program directors, product group managers, single managers, acquisition program managers, and weapon system managers. Operating as the single manager, the PM has total life cycle system management authority.

Responsible Test Organization (RTO)—The lead government developmental test organization on the ITT that is qualified to conduct and responsible for overseeing DT&E.

Risk—1. A measurable probability of consequence associated with a set of conditions or actions. (Glossary, Defense Acquisition Acronyms and Terms) 2. Probability and severity of loss linked to hazards. (JP 1-02) 3. A subjective assessment made regarding the likelihood or probability of not achieving a specific objective by the time established with the resources provided or requested. It also refers to overall program risk. (Defense Acquisition Guidebook)

Specification—A document intended primarily for use in procurement which clearly and accurately describes the essential technical requirements for items, materials, or services, including the procedures by which it will be determined that the requirements have been met. Specifications may be prepared to cover a group of products, services, or materials, or a single product, service, or material, and are general or detail specifications. (Glossary, Defense Acquisition Acronyms and Terms)

Sustainment—1. The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (JP 1-02) 2. The Service's ability to maintain operations once forces are engaged. (AFDD 1-2)

Test and Evaluation (T&E)—The act of generating empirical data during the research, development or sustainment of systems, and the creation of information through analysis that is useful to technical personnel and decision makers for reducing design and acquisition risks. The process by which systems are measured against requirements and specifications, and the results analyzed so as to gauge progress and provide feedback. It requires a unique planning effort and procedures outside of or in addition to established T.O.s. The failure of or unexpected results from these procedures may result in a costly loss of the data or create a safety or environmental risk.

Test and Evaluation Master Plan (TEMP)—Documents the overall structure and objectives of the T&E program. It provides a framework within which to generate detailed T&E plans and it documents schedule and resource implications associated with the T&E program. The TEMP identifies the necessary developmental, operational, and live-fire test activities. It relates program schedule, test management strategy and structure, and required resources to: Critical Operational Issues (COI); critical technical parameters; objectives and thresholds documented in the requirements document; and milestone decision points. (DAU's Test and Evaluation Management Guide)

Test and Evaluation Strategy—The overarching integrated T&E plan for the entire acquisition program that describes how operational capability requirements will be tested and evaluated in support of the acquisition strategy. Developed prior to Milestone A, the T&E strategy addresses modeling and simulation, risk and risk mitigation, development of support equipment, and identifies how system concepts will be evaluated against mission requirements, among other things. The T&E strategy is a precursor to the test and evaluation master plan.

Test Approval Authority—The individual/organization ultimately responsible for accepting the SRB and TRB results and approving the test to proceed with any residual risk. This test approval authority responsibility will vary based on the scope of the planned testing and the availability of test expertise. It will often reside with the center commander or the program manager, but could also be delegated to the center safety office or Center Test Authority. If an RTO has been designated, the test approval authority

often resides within that organization. Assignment of this responsibility should be part of the T&E strategy development. For tests conducted at a major range and test facility base (MRTFB), the Test Approval Authority shall be the activity commander IAW AFI 91-202, The US Air Force Mishap Prevention Program.

Test Mishap Accountability—The organization that pays for test-related repairs and replacements must be written and approved in the test planning documentation. Testing often requires the preplanned damage/destruction of a unique test asset. Even where damage is not planned, testing involves unknowns that could increase the likelihood of damage/loss. Mishap accountability is part of the cost of conducting the test and in no way implies blame or mishap responsibility.

TESTREP—A test center/wing advisor/liaison to a host logistics or product center.

Threshold—A minimum acceptable operational value below which the utility of the system becomes questionable.

User—Refers to the operating command which is the primary command operating a system, subsystem, or item of equipment. Generally applies to those operational commands or organizations designated by Headquarters, US Air Force to conduct or participate in operations or operational testing, interchangeable with the term "using command" or "user." In other forums the term "warfighter" or "customer" is often used. (AFI 10-601)

Attachment 2**SAMPLE TESTREP MEMORANDUM OF AGREEMENT****MEMORANDUM OF AGREEMENT****BETWEEN****OWNING TEST CENTER/WING****AND****HOST CENTER/SYSTEM PROGRAM OFFICE**

1. PURPOSE: This Memorandum of Agreement (MOA) defines responsibilities and procedures for support of the (owning test center/wing) test representative (TESTREP) position at (host center).

- 1.1. TESTREP Overview
- 1.2. Center Test Authority (CTA) Overview
- 1.3. TESTREP assignment/reporting

2. TESTREP QUALIFICATIONS:

- 2.1. APDP certification level
- 2.2. Test Pilot School experience
- 2.3. Years T&E experience
- 2.4. Rank/grade requirements
- 2.5. Hiring authority/process; filling vacancies

3. TESTREP REPORTING CHAIN: The TESTREP will be assigned to the (*owning test center/wing*) but will reside at/within the (*host center/CTA*).

- 3.1. Rater, additional rater, reviewer
- 3.2. Peer evaluations/peer inputs

4. TESTREP RESPONSIBILITIES: The TESTREP will:

- 4.1. Assist PMs.
- 4.2. Participate in working groups, boards, councils, reviews and any other acquisition/sustainment planning meetings in support of the CTA test process.
- 4.3. Coordinate T&E expertise and capabilities requirements.
- 4.4.. Assess/advise on/monitor technical and safety risk.
- 4.5. Coordinate appropriate level of Test Wing/Center involvement.

4.6. Oversee status of host center test programs and issues relating to resources and/or test process, and potential future programs for the owning center/wing.

4.7. Perform other duties as assigned.

5. OWNING TEST CENTER/WING RESPONSIBILITIES: The Owing Test Center/Wing will:

5.1. Provide test planning technical and safety expertise.

5.2. Provide test resources and personnel.

5.3. Fund salaries, directed TDYs, civilian awards, professional training for the TESTREP.

6. HOST CENTER RESPONSIBILITIES: The Host Center will:

6.1. Provide adequate facilities and support.

6.2. Provide performance assessments and promotion recommendations to the owning test center/wing as appropriate.

6.3. Provide for TDY funding.

6.4. Provide adequate-time/opportunities for the TESTREP to accomplish appropriate professional training.

7. OTHER REQUIREMENTS:

8. EFFECTIVE DATE: This agreement is considered effective upon date of signature. Proposed changes will be coordinated with and approved by all participants prior to changes being made.