

**BY ORDER OF
THE COMMANDER
AIR MOBILITY COMMAND**

AMC Instruction 99-101

8 OCTOBER 1997

Test and Evaluation



OPERATIONAL TEST AND EVALUATION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction provides guidance and procedures for operational test and evaluation (OT&E) in the Air Mobility Command (AMC). It applies to all AMC agencies and AMC-assigned elements of the Air Force Reserve Command and the Air National Guard (ANG) when published in the ANG Index 2 (ANGIND2). This instruction describes how to plan, conduct, and report on AMC-initiated/conducted OT&E. It implements the OT&E policies outlined in Department of Defense (DoD) Directive 5000.1, *Defense Acquisition*, 15 March 1996; DoD Regulation 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs*, 15 March 1996 ; Air Force Policy Directive (AFPD) 99-1, *Test and Evaluation Process*; AF Instruction (AFI) 99-102, *Operational Test and Evaluation*; and AFI 65-601, Volume 1, *Budget Guidance and Procedures*. In addition, users of this instruction should familiarize themselves with the referenced DoD guidance, AF 63-series publications, other AFI 99-series publications, and AMCI 11-207, *AMC Tactics Program* (to be published). Submit recommended changes to this instruction via AF Form 847, **Recommendation for Change of Publication**, to HQ AMC/TE.

SUMMARY OF REVISIONS

This revision describes responsibilities and processes for AMC OT&E. Chapters 1 and 2 include several minor changes in agency responsibilities and OT&E test documentation. Chapter 3 updates the OT&E process and displays a new flow chart. Chapter 4 has several editorial changes. Finally, **Attachment 1** updates AMC points of contact and internet uniform resource locator (URL).

Chapter 1

GENERAL POLICY AND GUIDANCE

1.1. Test and Evaluation (T&E) Purpose. To ensure weapon systems and systems that support them meet or exceed operational requirements in terms of effectiveness and suitability, AMC conducts realistic, cost-effective, and credible T&E programs throughout the life of the systems.

1.2. OT&E Purpose. The primary purpose of OT&E is to determine the operational effectiveness and suitability of systems. AMC testers conduct OT&E in as realistic an operational environment as possible to determine if a system meets the command's requirements and supports mission accomplishment. Realistic conditions should be representative of combat stress and peacetime operational conditions to include wartime surge and combat support requirements at austere sites. Testers use modeling and simulation as an evaluation tool to augment, extend, or enhance field test results. Testers conduct OT&E to:

- 1.2.1. Determine the ability of a system to support operational task accomplishment.
- 1.2.2. Answer critical operational issues (COIs).
- 1.2.3. Identify and report operational capabilities, limitations, and deficiencies to include:
 - 1.2.3.1. Documenting deficiencies for resolution.
 - 1.2.3.2. Recommending and evaluating changes in system configuration.
 - 1.2.3.3. Providing information for developing, evaluating, and refining training, tactics, techniques, and doctrine throughout the life of the system.
- 1.2.4. Identify, evaluate, and report logistics supportability capabilities, limitations, and deficiencies.
- 1.2.5. Provide information to refine operation and maintenance (O&M) cost estimates and to identify system characteristics or deficiencies affecting O&M costs.
- 1.2.6. Assess the survivability of the system in the operational environment.

1.3. Types of AMC-conducted OT&E.

1.3.1. Follow-on Operational Test and Evaluation (FOT&E). FOT&E is conducted over the life of the system to ensure it continues to meet the command's requirements and explore nonmaterial means of satisfying deficiencies. AMC uses 3400 O&M funds for FOT&E. AMC conducts FOT&E to:

- 1.3.1.1. Refine estimates made during initial OT&E (IOT&E) or qualification OT&E (QOT&E).
- 1.3.1.2. Complete deferred IOT&E or QOT&E.
- 1.3.1.3. Evaluate changes and verify corrections of deficiencies identified in IOT&E or QOT&E.
- 1.3.1.4. Evaluate tactics development.
- 1.3.1.5. Reevaluate the system to ensure it continues to meet operational needs.

1.3.2. Operational Utility Evaluation (OUE). OUEs pertain to those operational tests clearly outside the scope of FOT&E.

1.3.2.1. AMC uses OUEs to:

1.3.2.1.1. Identify deficiencies on fielded systems.

1.3.2.1.2. Determine operational effectiveness/suitability or military utility of commercial-off-the-shelf (COTS) systems.

1.3.2.1.3. Validate a system's concept.

1.3.2.1.4. Evaluate the expanded (modified) role or mission of fielded systems.

1.3.2.1.5. Assess competing concepts, alternatives or systems.

1.3.2.1.6. Evaluate a new application of an existing technology.

1.3.2.1.7. Support source selection.

1.3.2.2. Contractor data may be used when appropriate and properly documented. For example, contractor data may be the only available data for non-fielded COTS systems.

1.3.2.3. When OUEs are used, they should be:

1.3.2.3.1. Conducted with minimal expenditures of time, money, and resources.

1.3.2.3.2. Streamlined and specific in nature.

1.3.2.3.3. Flexible in planning and reporting formats.

1.3.3. Tactics Development and Evaluation (TD&E). TD&E is the formal portion of AMC's tactics development program designed to fully exploit a system's capabilities. It includes research, analysis, development, and T&E of specific employment tactics against anticipated threats. See AMCI 11-207, *AMC Tactics Program* (to be published) for the tactics development process and agency responsibilities.

1.3.4. Air Transportability Test Loading (ATTL). AMC conducts ATTLs to ensure new or modified defense materiel is transportable on mobility aircraft as required. See AFR 80-18, *Department of Defense Engineering for Transportability*, for the ATTL process and agency responsibilities.

1.3.5. Logistics Service Test (LGST). AMC conducts LGSTs to assess the operational effectiveness and suitability of specific systems and subsystems when FOT&E is not practical. LGSTs are smaller in scope than FOT&E and address product improvements, reliability, maintainability, and logistics supportability of proposed systems and subsystems. Form, fit, and function replacement items proposed by Air Logistics Centers are typical LGST candidate tests.

1.4. Waiver Requests. The HQ AMC Director of Test and Evaluation is the sole waiver authority for this instruction. Submit waiver requests in writing to HQ AMC/TE.

1.5. Management of AMC-conducted OT&E.

1.5.1. HQ AMC/TE:

1.5.1.1. Is the AMC single point of contact for T&E issues.

1.5.1.2. Interprets and enforces DoD and AF T&E policy, formulates AMC OT&E policy and procedures, programs test resources, and maintains oversight of all AMC T&E processes and programs.

- 1.5.1.3. Reviews and coordinates on mission need statements, operational requirements documents, and other T&E-related acquisition documentation to ensure testability of requirements.
 - 1.5.1.4. Reviews and coordinates all test resource plans (TRP) and T&E master plans (TEMP) that require AMC resources.
 - 1.5.1.5. Manages all AMC-conducted OT&E.
 - 1.5.1.6. Budgets and funds all AMC-conducted OT&E.
 - 1.5.1.7. Validates test requests and tasks AMC field test agencies, through HQ Air Mobility Warfare Center (AMWC)/CC, to plan, conduct, and report AMC OT&E.
 - 1.5.1.8. Reviews, coordinates, and approves all non-AMC test plans and subsequent revisions that require the use of AMC resources.
 - 1.5.1.9. Coordinates all OT&E involving explosives or munitions with HQ AMC/SEW.
 - 1.5.1.10. Approves the OT&E plan and final report before publishing.
 - 1.5.1.11. Validates all special assignment airlift mission (SAAM) requests for AMC-conducted operational tests.
 - 1.5.1.12. Reviews requests and authorizes release of any AMC-conducted test documentation.
 - 1.5.1.13. Participates in the initial test planning working group (TPWG).
 - 1.5.1.14. Maintains test recommendation database and manages the follow-through process described in paragraph **3.1**.
 - 1.5.1.15. Coordinates all OT&E with the appropriate environmental authority and HQ AMC/CEV.
- 1.5.2. HQ AMWC/CC maintains operational oversight of AMC field test agencies.
- 1.5.3. Field Test Agencies are the 33d Flight Test Squadron (FLTS) and the USAF Combat Aerial Delivery School (CADS), Test and Evaluation Division. Field test agency responsibilities are to:
- 1.5.3.1. Report directly to HQ AMWC/CC.
 - 1.5.3.2. Plan, conduct, and report all AMC OT&E to HQ AMC/TE.
 - 1.5.3.3. Develop internal processes to execute the guidance in this instruction.
- 1.5.4. AMC Program Manager. The program manager is the functional manager or requirements action officer who manages all aspects of a specific AMC acquisition program. Program manager responsibilities relating to OT&E are:
- 1.5.4.1. Coordinate with HQ AMC/TE at the beginning of all AMC acquisition programs as early as possible.
 - 1.5.4.2. Coordinate with HQ AMC/TE on all unsolicited proposals from contractors.
 - 1.5.4.3. Provide the required number of appropriate test articles.

Chapter 2

AMC TEST DOCUMENTATION

2.1. Introduction. The operational tester must be familiar with key AMC test documents and their relevance to one another in order to plan, conduct, and report effective OT&E.

2.2. Key Documents and Their Relevance to the AMC OT&E Process. The reporting requirement in this chapter is exempt from licensing IAW paragraph 2.11.10 of AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

2.2.1. Test Request. Users (AMC Program Managers, functional managers, Air Logistics Center personnel, field personnel) prepare a test request and submit it to HQ AMC/TE any time they determine a need for a test. Upon receipt, HQ AMC/TE identifies a test manager and validates the request with the AMC staff. As a minimum, the test request must contain:

2.2.1.1. Purpose, background, and description of candidate test article, system, or tactic.

2.2.1.2. Date test results are needed and why.

2.2.1.3. Points of contact.

2.2.2. Unsolicited Proposals. HQ AMC/TE will direct all unsolicited proposals from contractors to the AMC Contracting Division as a part of the validation process. **Attachment 2** is the AMC policy agreement to be completed prior to any AMC OT&E effort for an unsolicited proposal.

2.2.3. Test Order. After HQ AMC/TE validates the test request and conducts the initial TPWG, the test manager prepares the test order tasking the field test agency to plan the test program. It contains test-specific programmatic data, expands the requirements of the test request, and identifies resources to conduct and report the test program. The following information will be included in the test order:

2.2.3.1. Test type, title, and project number.

2.2.3.2. Purpose, background, and description of candidate test article, system, or tactic.

2.2.3.3. Test requester, and when and why the test results are needed.

2.2.3.4. Emergency and Special Program (ESP) code.

2.2.3.5. Identify test resources with OPRs, if known.

2.2.3.6. Contractor information (involvement, proprietary data).

2.2.3.7. COIs and criteria.

2.2.3.8. Scope, location, and dates.

2.2.3.9. Security.

2.2.3.10. Points of contact.

2.2.4. Test Plan. The field test agency prepares a draft test plan and submits it to HQ AMC/TE for headquarters staff approval. The approved test plan provides test program direction and guidance to

AMC staff and designated units for test conduct. The test plan contains detailed test structure, evaluation, and reporting data. AFI 99-102 contains the test plan format which should be tailored for each type of AMC-conducted OT&E.

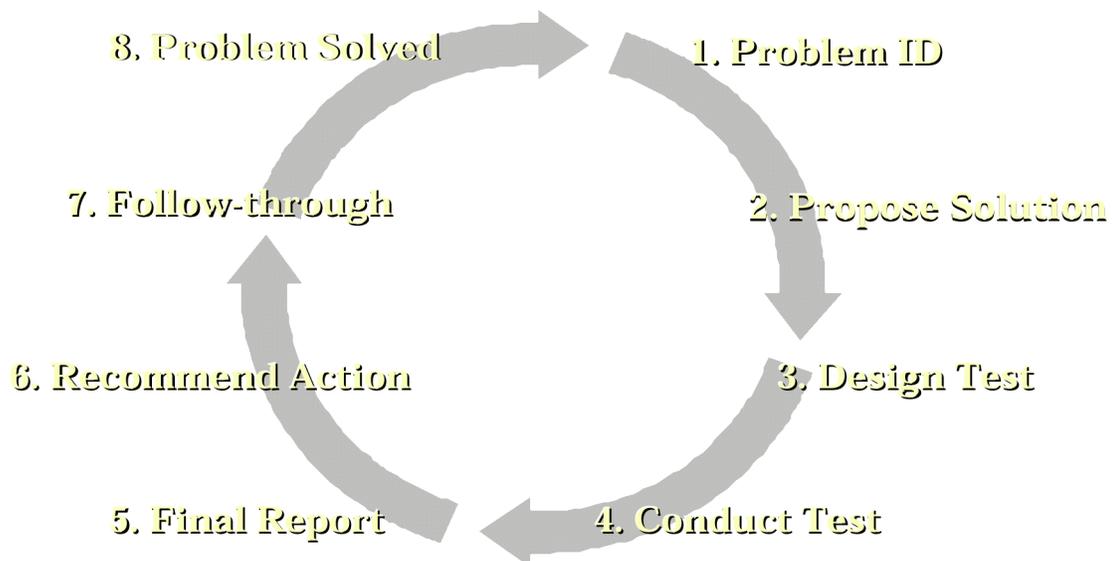
2.2.5. Test Report. The field test agency prepares a draft test report and submits it to HQ AMC/TE for headquarters staff approval. In addition to test findings and recommendations, the test report identifies the HQ AMC office of primary responsibility (OPR) for each recommendation. HQ AMC/TE tracks test recommendation status semiannually until closure with the follow-through process described in paragraph 3.1. The field test agency publishes the approved test report, attaches the test plan, and submits it to the Defense Technical Information Center (DTIC) for inclusion into their database as one entry.

Chapter 3

AMC OT&E PROCESS

3.1. AMC OT&E as a Continuous Process. AMC conducts OT&E to allow senior leaders to make informed decisions throughout the acquisition, logistics support, and tactics development processes. Figure 3.1 shows the AMC OT&E process beginning as a user need outlined in the test request. The test request identifies the problem and its proposed solution. Test design is developed through the test order and test plan. The approved test plan captures the detailed planning that structures the actual test conduct, data collection, and analysis. This data collection, analysis, and evaluation results in recommendations to the decision maker and are published in the test report. To maintain continuity, HQ AMC/TE queries staff OPRs for the status of each reported test recommendation. This semiannual follow-through continues until the test recommendation is closed through staff action. Closure may be either implementation of the recommendation or not, as determined by the OPR, to solve the problem. The AMC OT&E process resets and is ready for future requests.

Figure 3.1. AMC OT&E Continuous Process



3.2. Tailoring OT&E. Since acquisition programs do not always follow a standard process, AMC tailors OT&E to meet specific program needs. LGSTs, ATTLs, OUEs, and certain fast-track programs may not require or allow for full OT&E. HQ AMC/TE, field test agencies, and the user will determine the most cost-effective, safe, and efficient manner to test while ensuring a correct evaluation of system effectiveness and suitability.

3.3. HQ AMC and Field Test Agency Process. Figure 3.2 shows the process to plan, conduct, and report AMC OT&E beginning with receipt of the test request by HQ AMC/TE through publishing the test report by the field test agency.

3.3.1. HQ AMC/TE receipt of the test request (1) begins the validation process. The test manager validates the request through the AMC staff and conducts the initial TPWG (2).

3.3.2. The test manager uses TPWG results to produce the test order (3). HQ AMC/TE simultaneously sends an electronic copy to the applicable field test agency (4a) and a hard copy test order to HQ AMWC/CC (4b).

3.3.3. The field test agency forwards a preliminary project schedule (5) to HQ AMC/TE, based on the needed-by date of the test results; develops the draft test plan (6); and submits it to HQ AMC/TE for staffing (7).

3.3.4. The test manager staffs the draft test plan, harmonizes staff comments, and identifies subsequent changes to produce the final version of the test plan (8).

3.3.5. The field test agency conducts the test (9) and produces periodic status reports (10). At test end, the field test agency submits an interim summary report (11), if needed; develops the draft test report (12); and, submits it to HQ AMC/TE for staffing (13). During this staffing cycle, command OPRs are assigned for each test recommendation.

3.3.6. This final cycle of staffing results in the AMC-approved test report (14).

3.4. AMC OT&E Priority. AMC test priority is based on urgency and timing of test information as determined by the user's program needs. When conflicts occur, HQ AMC/TE will negotiate among affected staff agencies for resolution.

3.5. Field Test Agency Reporting Responsibilities. OT&E reports are structured to provide the field test agency flexibility to provide feedback. This may occur at significant stages of the test, immediately following test completion or as a comprehensive summary of the entire test effort. When accomplishing test planning, the field test agency and test manager will review the test effort and determine which reports are appropriate and when they will be provided. These report requirements are then documented in the test plan.

3.6. Types of OT&E Reports. The reporting requirement in this chapter is exempt from licensing IAW paragraph 2.11.10 of AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

3.6.1. Status Report. Status reports provide periodic updates and important test findings during OT&E. The field test agency will provide quarterly status reports to appropriate agencies. Status reports must contain only factual test data and not draw premature conclusions.

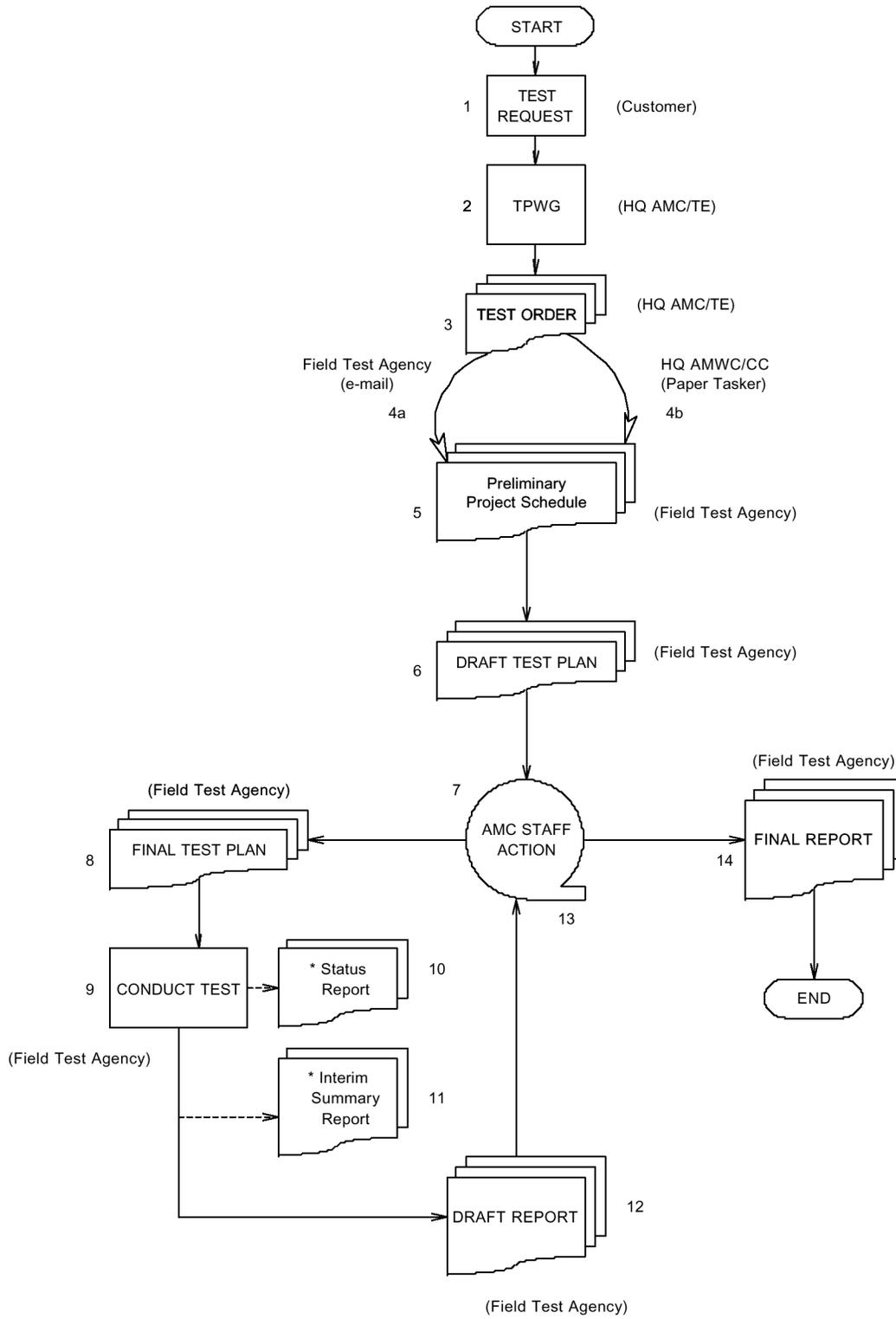
3.6.2. Interim Summary Report (ISR). The field test agency provides an ISR when the final report cannot be completed 45 calendar days prior to a significant program decision. This report, in letter or message format, summarizes OT&E results in sufficient detail to support the decision. ISR distribution is limited to HQ AMC. Other requests for any ISR must be referred to HQ AMC/TE.

3.6.3. Final OT&E Report. The field test agency prepares the final OT&E report. This report is an executive-level document which answers COIs and reports operational effectiveness and suitability. The report includes: test results, conclusions, and recommendations; comments on constraints and limitations; and other operational impacts found. It also includes prioritized deficiency reports and status. The final report must be completed and approved no later than 60 calendar days after the last test event. The report provides test information to decision makers, planners, and operators. It also

provides a formal, permanent record of the results of all previous phases of OT&E, including the test plan. The last phase of OT&E will be reported in the final report with annexes consisting of the executive summaries from any previous phases of OT&E. It is written objectively and relates test results to user criteria. Test reports should provide detailed technical information, as necessary, in separate data documents. Refer to AFI 99-102 for final report format and content.

3.7. Release of OT&E Reports. Submit all requests for release of test reports to HQ AMC/TE.

Figure 3.2. AMC Test Process



* as required

Chapter 4

RESOURCES

4.1. General. HQ AMC/TE will program for resources needed to support the AMC OT&E program. These resources include manpower, flying hours, and funds for SAAM, temporary duty (TDY) travel and per diem, supplies, special equipment, and range support. Test funds may not be used to purchase test articles.

4.2. Test Resource Plan (TRP). Operational testers must plan for all resources necessary to conduct OT&E. The HQ AMC Test Manager prepares the original TRP and semiannually updates it with inputs from the AMC staff and field test agency. TRPs form the basis of the AMC OT&E budget as submitted to HQ AMC/FM. HQ AMC/TE will coordinate all requests for mobility aircraft with the Tanker Airlift Control Center.

4.3. Resource Usage.

4.3.1. Testers must plan and conduct tests to take full advantage of existing or programmed test resources. Testers should reuse test assets when possible.

4.3.2. Funds allocated for specific test programs and transferred to other agencies must be used for that express purpose. Under no circumstance may agencies use such funds for other purposes without written approval from HQ AMC/TE.

4.3.3. Any test participant who uses HQ AMC/TE funds must submit a copy of the paid voucher to HQ AMC/TEP.

JOHN K. REHKOP, Colonel, USAF
Director, Test and Evaluation

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION***Abbreviations and Acronyms*

AF—Air Force
AFI—Air Force Instruction
AMC—Air Mobility Command
AMCI—AMC Instruction
AMWC—Air Mobility Warfare Center
ANG—Air National Guard
ATTL—air transportability test loading
CADS—Combat Aerial Delivery School
COI—critical operational issue
COTS—commercial-off-the-shelf
DoD—Department of Defense
DTIC—Defense Technical Information Center
ESP—emergency and special program
FLTS—flight test squadron
FOT&E—follow-on operational test and evaluation
IAW—in accordance with
IOT&E—initial operational test and evaluation
ISR—interim summary report
LGST—logistics service test
O&M—operations and maintenance
OPR—office of primary responsibility
OT&E—operational test and evaluation
OUE—operational utility evaluation
QOT&E—qualification operational test and evaluation
SAAM—special assignment airlift mission
T&E—test and evaluation
TD&E—tactics development and evaluation

TDY—temporary duty

TEMP—test and evaluation master plan

TPWG—test planning working group

TRP—test resource plan

URL—uniform resource locator

USAF—United States Air Force

Attachment 2**AMC OT&E POINT OF CONTACT**

Director of Test and Evaluation HQ AMC/TE

402 Scott Drive, Unit 1A5

Scott AFB IL 62225-5364

DSN 576-3903

FAX DSN 576-1640

Commercial (618) 256-xxxx

e-mail amc-te@hqamc.safb.af.mil

0745-1630 CST (Zulu minus 6 hrs)

URL http://weblord:81/hqamc/directorates/te/te_hompg.htm

Attachment 3**POLICY AGREEMENT FOR AMC EVALUATION OF UNSOLICITED ARTICLES, DISCLOSURES, INVENTIONS, AND VOLUNTARY PROPOSALS FOR CONTRACTS**

1. Prior to the acceptance of any article of equipment, material, or disclosure of information for evaluation or testing by Air Mobility Command, the following policy must be understood and agreed to by the individual, firm or corporation submitting such article, invention, or disclosure.
2. It should be understood that AMC's acceptance of items for test and evaluation to assess potential usefulness to the Air Force does not imply a promise to pay; recognition of novelty, originality, or uniqueness; or a contractual relationship such as would render the government liable to pay for any use of information to which it would otherwise be entitled. AMC's test and evaluation of voluntary submissions will in no way obligate the government or Air Force to procure experimental, production, or other quantities of the article submitted or the item covered by disclosure.
3. Due care will be exercised in handling and testing voluntary submissions. The government will assume no responsibility or liability to submitters or others for the following matters:
 - a. Damages to, destruction of, or loss of voluntary submissions resulting from testing activities or otherwise.
 - b. Damages or injuries due to negligence or other causes which are incurred or suffered by submitters, authorized agents, or employees whether or not Air Force personnel are participating in the test.
4. The manufacture, transportation, and maintenance of articles submitted to the government for evaluation or testing will be accomplished without cost to the government.
5. Submitters may furnish instructions to the government concerning the disposal of voluntary submissions provided such instructions are furnished prior to the completion of the tests or evaluations. Any disposal, in accordance with (IAW) such instructions, shall be at the expense of the submitter. In the absence of such instructions prior to the completion of the tests or evaluations, the government will dispose of such property IAW established procedures.
6. For 3 years from the date of submission, the voluntary submissions will be handled IAW established government procedures for safeguarding such articles or information against unauthorized disclosure. In addition, for 3 years from the date of submission, data forming a part of or constituting the submission will not be disclosed outside the government (unless required by law or court order) or be duplicated, used, or disclosed in whole or in part by the Air Force for any purpose other than to evaluate the proposal. This restriction does not limit the government's right to use information obtained from another source or in the public domain. Liability by reason of unauthorized disclosure of the submission by the government will under no circumstances extend beyond the actual damage to the submitter caused by acts of the government and cognizable in law. The government accepts no liability for failure to safeguard information unless the information consists of a patentable invention, copyrighted material, or data constituting a trade secret. Proposals, without restrictive markings, received from educational or nonprofit organizations may be evaluated outside the government provided the evaluators agree in writing not to reproduce, use, or disclose the information in whole or part, except for the purpose of evaluation, without written permission from the submitter.

7. Unsolicited articles or disclosures are submitted and received IAW this policy agreement, notwithstanding any contrary or inconsistent conditions imprinted on or submitted together with such articles or disclosures, or orally expressed.

8. Information covering the results of evaluations or tests will be furnished to submitters upon request. Such information shall not be construed as an endorsement by the government of articles or the subject matter of disclosures, nor shall it be used in whole or in part for advertising purposes with industry or other government agencies.

9. The terms of this policy agreement shall apply to all submitted articles and disclosures. The provision of any contract for procurement resulting from these disclosures will supersede this understanding.

10. This information collection is exempt from Office of Management and Budget review IAW Public Law 96-511, The Paperwork Reduction Act of 1980, as amended, Title 44, United States Code, Chapter 35.

CERTIFICATION BY SUBMITTER

I certify that I have read the policy of the Air Mobility Command set forth above, and understand and agree to the terms and conditions thereof.

I further certify that I am (check appropriate statement)

- a. _____ sole owner of all articles, disclosures, and inventions submitted for evaluation or testing.
- b. _____ a member of the partnership or association identified below and have full authority to bind said partnership or association.
- c. _____ an authorized representative of the corporation identified below and have full authority to bind said corporation.

NAME OF ITEM(S):

SUBMITTED BY (Include typed name and title; name of partnership, association, or corporation, if applicable; and address):

(Signature) (Date)

RECEIVED BY (Include typed name, grade, title, and AMC organization identification):

(Signature) (Date)