BY ORDER OF THE COMMANDER
AIR COMBAT COMMAND

AIR COMBAT COMMAND
INSTRUCTION 99-101

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Test and Evaluation

TEST AND EVALUATION

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This instruction implements policy for Air Combat Command (ACC) management, conduct and support of Test and Evaluation (T&E) subject to Department of the Air Force Policy Directive (DAFPD) 99-1, *Test and Evaluation Process*; DoDI5000.89_DAFI99-103, *Capabilities Based Test and Evaluation*, and DAFPD 10-9, *Lead Command/Lead Agent Designation and Responsibilities for United States Air Force Weapon Systems, Non-Weapon Systems, and Activities*. It establishes responsibilities and procedures for conducting ACC T&E consisting of operational test and evaluation (OT&E), force development evaluations (FDE), tactics development and evaluation (TD&E), joint test and evaluation (JT&E), and other T&E-related activities. ACC is the lead- command for conducting Combat Air Forces (CAF) T&E that require the use of assets under the purview of ACC. This instruction applies to Air Force Reserve Command (AFRC) and Air National Guard (ANG) units and members conducting testing in support of ACC and the CAF. This instruction may be used by other MAJCOMs in the conduct of T&E when it is approved and issued by their publishing authority. Test units involved in ACC T&E may supplement this instruction; however, draft supplements must be submitted to ACC/A5T for review and approval. ACC/A5/8/9 and ACC/A3 are the waiver authorities for ACCI 99-101 unless otherwise noted. In Accordance With (IAW) DAFI 90-160, *Publications and Forms Management*, waiver approval for compliance paragraphs are identified with a tier number. Submit requests for waivers through chain of command to the appropriate tier waiver approval authority, or alternately, to the Publication OPR (ACC/A5T) for non-tiered compliance items. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the DAF Form 847, *Recommendation for Change of Product*; route DAF Forms 847 from the field through the appropriate functional chain of command to ACC/A5T, 204 Dodd Blvd., Suite 308, Joint Base Langley Eustis (JBLE), VA 23665-2777. Ensure that all records created as

a result of processes prescribed in this publication are maintained IAW Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and disposed of IAW Air Force Records Information Management System Records Disposition Schedule. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the DAF.

SUMMARY OF CORRECTIVE ACTIONS

Para 3.10.3 and A4.2 were corrected due to publishing error.

SUMMARY OF CHANGES

This document has been substantially revised to address the new ACC test tasking and prioritization process. The Operational Test Support Request (OTSR) form and process is replaced with the Operational Test Tasking Order (OTTO) process. Expanded information relative to operational test terminology and specialized or unique Operational Test (OT) activities, agile software development and Development/Security/Operations (DEVSECOPS), cyber security and evaluation methodology associated with Middle Tier Acquisition pathway is added.

Chapter 1

TEST AND EVALUATION OVERVIEW

1.1. Purpose of Conducting Test and Evaluation (T&E). The primary functions of T&E are to determine if systems are effective and suitable and to identify and help resolve deficiencies as early as possible. T&E:

1.1.1. Provides information to decision makers so they may assess whether a system or technique is useful and cost effective.

1.1.2. Reduces system acquisition and sustainment program risk.

1.1.3. Gives operational users the information needed to develop doctrines, refine requirements, and develop and refine tactics, techniques, and procedures (TTP).

1.2. Types of T&E. Various types of test and evaluation can occur during the development, production, and fielding of Air Force systems. T&E generally falls into two general categories, developmental test and evaluation (DT&E) and OT&E. OT&E categories or types include initial operational test and evaluation (IOT&E), multi-service operational test and evaluation (MOT&E), qualification operational test and evaluation (QOT&E) and follow-on test and evaluation (FOT&E). These types of OT&E are normally conducted by the Air Force Operational Test and Evaluation Center (AFOTEC) for Acquisition Category (ACAT) I/II programs and programs on Office of the Secretary of War (OSW) oversight. MAJCOM support is often requested by AFOTEC for these test efforts, and frequently, AFOTEC defers (non-involves) testing responsibilities to the MAJCOMs. Other OT&E-related activities include operational assessments (OA), operational utility evaluations (OUE), military utility assessment (MUA), foreign materiel exploitation (FME), foreign comparative test (FCT) and test support for technology transition mechanisms. Technology transition mechanisms may include advanced technology demonstrations (ATD), advanced concept technology demonstrations (ACTD)/ Joint Capability Technology Demonstrations (JCTD), and exercises and operational experiments. The main focus of ACC T&E is FDE, a subset of OT&E. FDE is primarily concerned with post-Milestone C (i.e., production and deployment phase) sustainment and operations, acquisition, system modernization, and associated TTP development. Sustainment operational testing also includes TD&E and the Weapon System Evaluation Program (WSEP). For further guidance and definition, see DoDI 5000.98, *Operational Test and Evaluation and Live Fire Test and Evaluation,* AFI 99-103 and DAFMAN 11-260, *Tactics Development Program*.

1.3. Higher Headquarters (HHQ) Test Policy Precedence. DoDI5000.89_DAFI99-103 outlines overall policy for T&E activities during the development, production, and fielding of Air Force systems and will take precedence. In the event that DoDI5000.89_DAFI99-103 is superseded, the superseded publication will take precedence and interim policy guidance will be issued as required. Interim policy guidance and clarification memorandums will be made available on the ACC/A5TT SharePoint.

1.4. HQ ACC Oversight. Approved test support taskings are prioritized by the identified HQ ACC, HQ Air Force Global Strike Command (AFGSC), or associated requirements owner and can be found on the A5TT SharePoint site. The conduct of T&E often involves unique risks. A disciplined test prioritization and approval process, the ACC Test Prioritization List (TPL), Operational Test Tasking Order (OTTO), and Tactics Improvement Proposal (TIP) processes were

established to ensure efficient use of ACC resources and manage operational risk by ensuring T&E is accomplished by the most appropriate organization. All T&E related taskings will be coordinated and accomplished via an OTTO or TIP tasking. For the purposes of this instruction, "Requirements Owner" (RO) is defined as the organizational entity responsible for development and management of capability requirements for a specific system, project, or program of record (POR). The staff Program Element Monitor or Manager (PEM) is defined as the person assigned the responsibility by the requirements owner for the day-to-day management of activities associated with SPO acquisition and resource execution in support of approved requirements. The government PEM may also act as the Requirements Owner Representative (ROR) when submitting test support requests. In certain instances, ACC requirements owners may sponsor requests by organizations external to ACC. Memorandums of Agreement (MOA) or Memorandums of Understanding (MOU) between ACC and other MAJCOMs may also be considered during the test request and prioritization process.

1.5. ACC Test Policy Precedence. ACCI 99-101 will take precedence over all local T&E policy issued by ACC Operational Test Organizations (OTO) and subordinate units. ACC A5/8/9 is the tasking authority for all ACC operational test activities.

1.6. ACC T&E Policy. As the lead MAJCOM for the CAF T&E, ACC will:

1.6.1. Ensure that CAF units do not accept or schedule an "experiment", test (DT or OT), Technology Demonstration (Tech Demo) or similar activities, or offer to participate in any T&E activities (to include but not limited to testing conducted on behalf of another organization) without ACC/A5T approval via the processes described in this instruction. Organizations requiring support of this type from CAF operational units must coordinate their requests with ACC/A5T. **(T-2)**

1.6.2. Use dedicated test resources, to conduct applicable testing IAW DAFPD 10-9.

1.6.3. Conduct T&E over the life of a system to ensure the system continues to meet user requirements and to explore means of satisfying deficiencies.

1.6.4. Conduct T&E in a joint and/or integrated environment, to the maximum extent possible.

1.6.5. Designate Operational Test Organizations (OTO). ACC OTOs are responsible for planning, coordinating, and accomplishing T&E and are listed below as follows:

1.6.5.1. The United States Air Force Warfare Center (USAFWC) 53 Wing (53 WG) is the principal organization responsible for planning, coordinating, and accomplishing aircraft and weapon system T&E.

1.6.5.2. The ANG AFRC Test Center (AATC) is the principal organization responsible for planning, coordinating, accomplishing, and augmenting Aircraft and Weapon system T&E for systems operated by Guard and Reserve. AATC will also support testing of capabilities common to Guard, Reserve, and Active Duty. AATC does not require an ACC/A5T tasked OTTO to conduct ANG/AFRC tests that do not require ACC support or resources. AATC will inform ACC/A5T of tests that impact shared systems or capabilities.

1.6.5.3. The 557 Weather Wing (WW) is the principal organization responsible for planning, coordinating, and accomplishing Weather Weapon System OT&E to include meteorological software, instrumentation and forecasting capabilities.

1.6.5.4. The 67 Cyber Wing (CW) is the principal organization responsible for planning, coordinating, and accomplishing CAF Cyber system-related OT&E.

1.7. Test Resource Management. ACC/A5T is the office of primary responsibility (OPR) for USAFWC test unit baseline resources. (Note: ACC/A3A provides oversight to ACC ranges.) In addition to all programming and budgeting issues, ACC/A5T is the ACC OPR lead for:

1.7.1. Collaboration between applicable A5/8/9 divisions on issues dealing with ACC A5/8/9 test fleet (primary development/test aircraft inventory [PDAI] coded) and support aircraft assigned to the USAFWC

1.7.2. Aerial target program management to include all programming and support requirements for both full scale and subscale aerial targets.

1.7.3. Coordination with AF/TE for all annual missile/aerial target allocations, support, and kill authorizations.

1.7.4. Aerial target recovery ships for the Eglin Test and Training Range (EGTTR) operating out of Tyndall Air Force Base (AFB).

1.7.5. The AF SEEK EAGLE program.

1.7.6. Coordination through AATC/DTM and approval by AATC/CC for any AATC resources required in support of CAF testing.

1.8. T&E Funding Sources and Responsibilities. The funding sources for T&E depend upon the nature and purpose of the work and type of testing. Test agencies are referred to current DoW/DoD Financial Management Regulations and Major Range and Test Facility Base (MRTFB) resource planning policy for explicit guidance.

1.8.1. ACC Requirements Owners are responsible for advocacy and programming of funding for test requirements through the Program Objective Memorandum (POM) process for acquisition related testing (FDE, OUE, etc.) in support of their respective weapon systems. Advocacy responsibility includes collaboration with A5/8/9 leadership and the ACC and HAF offices involved in conducting the strategic planning and budgeting processes. Tactics development and WSEP are centrally funded using O&M resources from Program Element (PE) 28015. Activities such as Early Involvement or DT support must be funded by the requesting organization.

1.8.2. ACC testing is provisioned only to meet test unit baseline operating requirements and limited CAF TD&E. Accordingly, other MAJCOMs, services or agencies requesting ACC test support or expenditure of test assets are required to provide resources commensurate with test support requested. Funding source, specific fund cite(s) and organizational financial point of contact information, must be included with OTTO submitted to ACC/A5/8/9 Test and Evaluation Branch (A5TT).

1.8.3. The Requirements Owner will advocate for, program, and provide funding/resources required above the test unit baseline to execute the tasked test activity for the entire time period of the test tasking. AFOTEC will utilize the Test Resource Plan (TRP) process and will not be required to provide test specific budgets if a TRP is coordinated and comments adjudicated for concurrence by HQ ACC and the OTO. All testing is contingent on the availability of resources.

Chapter 2

COMMAND HQ TEST AND EVALUATION RESPONSIBILITIES

2.1. Director of Plans, Programs and Requirements (ACC/A5/8/9). As OPR for ACC Test and Evaluation, ACC/A5/8/9 serves as the final release and approval authority for all production/fielding decisions (except where delegated) and is the final approval authority for all related ACC test activity. Accordingly, ACC/A5/8/9 delegates the following responsibilities to ACC/A5T:

2.1.1. Manage all aspects of the A5/8/9 Master Test Priority List (TPL) that incorporates all approved T&E activity into Test Project Order (TPO) categories to effectively integrate all test projects. The TPL is intended to aid in developing a test center‘s annual financial execution plan as well as managing the FY workload.

2.1.2. Serve as the management and approval authority for each OTTO and associated TPL processes, and as the central point of contact within ACC for all matters concerning T&E.

2.1.3. Ensure the dissemination within ACC of higher headquarters T&E policy, guidance, and procedures.

2.1.4. Participate in advanced planning and resource programming for the USAFWC.

2.1.5. Coordinate with the applicable ACC/A5/8/9 office to ensure representation as early as possible at Integrated Test Team (ITT) meetings as required by DAFI 99-103.

2.1.6. Coordinate test resource requests, requirements and authorizations to share test data among all program stakeholders (i.e., MAJCOMs) or HQ USAF agencies and the test centers).

2.1.7. Coordinate with ACC/A3 if ACC aviation or non-aviation (refer to **paragraph 3.6**) operational assets are required. CAF aviation operational units are tasked for support of test and evaluation IAW the AFI 10-420, *Combat Air Forces Aviation Scheduling*, process. All requests for operational assets to support T&E must be approved by ACC/A3. When an operational unit is involved in a test, the operational wing commander will have final approval authority over unit assets, for test participation.

2.1.8. Provide consolidated HQ ACC inputs for AFOTEC TRP.

2.1.9. Ensure formal coordination is obtained with other MAJCOMs, Services or Agencies when their participation is required in a test.

2.1.10. Ensure ACC/PA is kept informed of any developments that have potential public affairs impact.

2.1.11. Review requests received for a new test or project to determine if another command or service has conducted a similar effort that would fulfill the requirement and determine if a test is required.

2.1.12. Monitor test report recommendations and coordinate with other agencies when required to ensure follow-up action is taken on these recommendations.

2.1.13. When requested by HAF/TE, work with A5/8/9 offices as required to prepare Congressional Data Sheets and descriptive summaries for ACC-conducted tests.

2.1.14. Provide to the test centers a CAF TPL that integrates all T&E into TPO categories effectively providing integrated priority lists. The TPL will be updated quarterly for use as a test center aid in test planning and workload management.

2.1.15. Act as OPR for the nomination and approval process of OSW-directed FCT. Once the test is chartered, the OPR is transferred to an appropriate HQ ACC directorate and division.

2.1.16. Act as OPR for the nomination and approval process of OSW-directed JT&E requirements within the purview of DAFI 99-106, *Joint Test and Evaluation Program*. Once the joint test force is chartered, the OPR is transferred to an appropriate HQ ACC directorate and division.

2.2. Test and Training Division (ACC/A5T). ACC/A5T will serve as the office of Primary Responsibility (OPR) for all ACC MAJCOM T&E. ACC/A5T will:

2.2.1. ACC/A5T is designated the integrator and oversight authority for OTTOs and the TPL process. ACC/A5T will establish and publish standard timelines for document review and approval.

2.2.2. Function as the ACC Program Element Monitor/Manager for PE 28015, Combat Development, PE 35116 Aerial Targets, and PE 27590 AF SEEK EAGLE (aircraft stores and certification)

2.2.3. Act as the ACC/A5/8/9 single point for receipt of test plans, support plans, TRPs, interim and final reports and release/fielding recommendations for staff coordination and ACC/A5/8/9 approval as required. ACC offices with program management responsibility serve as the OPR for ACC coordination of associated test and evaluation master plan (TEMP). ACC/A5T will be OCR for coordination of all TEMPs.

2.2.4. Act as the HQ ACC focal point for FCT policy, procedures, nominations, and final staff coordination.

2.2.5. Act as the HQ ACC focal point for any OSW sponsored resource enhancement policy, procedures, nominations, and final staff coordination.

2.2.6. Act as the HQ AF OPR for the AF SEEK EAGLE Program and requirements associated with AF stores certification process for configuration compatibility for loading, safe carriage, safe separation, and safe escape. For specific guidance reference AFPAM 63- 129, The SEEK EAGLE Program.

2.2.7. Act as HQ ACC focal point for JT&E policy, procedures, nominations and final staff coordination.

2.2.8. Serve as HQ ACC POC for aerial targets program requirements and expenditures management. For specific guidance on kill authorizations (KA), reference AFMAN 99-108, *Programming and Reporting Aerial Target and Missile Expenditures in Test and Evaluation*.

2.2.9. Serve as A5/8/9 POC for Aviation Change Request (ACR) where operational assets are required for test support.

2.3. Advanced Programs Division (ACC/A5/8Z). ACC/A5/8Z will serve as POC for all classified tests where details preclude participation by ACC/A5T.

2.3.1. ACC/A5/8Z will ensure all test taskings are issued by an O-6/GS-15 equivalent or higher as deemed appropriate.

2.3.2. Test units will not accept test taskings issued directly from any MAJCOM other than ACC, or any other higher headquarters organizational entity outside ACC (e.g., OSW, SAF, and HAF, etc.).

2.4. Directorate of Operations (ACC/A3). ACC/A3 monitors ongoing weapon system tests to determine if tactics development objectives are addressed during test and evaluation. As the OPR for ACC TD&E, ACC/A3 will:

2.4.1. Appoint a POC to coordinate with ACC/A5/8/9 project officers on test and evaluation matters.

2.4.2. Coordinate on ACC/A5/8/9 requests for operational unit support of T&E and task appropriate wing as required.

2.4.3. Validate and approve all TIPs and resulting revisions of AFTTP 3-1.

2.4.4. Provide ACC/A5/8/9 test units the tactics, techniques and procedures objectives for test and evaluation projects that are not defined in the associated TIP forms or on the A3T Weapons and Tactics (WEPTAC) SharePoint site.

2.4.5. Post annual WEPTAC results and track status of the annual prioritized list of validated, active TIPs via the WEPTAC SharePoint site for reference by A5T and ACC test units.

2.5. Airspace Ranges and Airfield Operations Division (ACC/A3A). ACC/A3A serves as the designated focal point for all ACC range and airspace issues. ACC/A3A will:

2.5.1. Represent ACC range and airspace interests to the test and evaluation community and acts as the MAJCOM focal point for ACC MRTFB policy, procedures and staff.

2.5.2. Review and approve requests for conducting test, demonstrations or experimentation on ACC primary training ranges.

2.5.3. Process AFMAN 13-212, Range Planning and Operations, waiver/exemption requests for ACC ranges from the test community.

2.5.4. Oversee ACC range planning to capture future test and training needs and to determine adequacy of ACC range resources to support the test and evaluation.

2.6. Operations Division (ACC/A3O). ACC/A3O will serve as the designated focal point for scheduling CAF aviation operational assets for test IAW the AFI 10-420 process.

2.7. Flight Operations Division (ACC/A3T). ACC/A3T will serve as the designated focal point for CAF tactics development and evaluation. ACC/A3T is charged with reviewing all TIPS and ensuring test activities are supported by validated operational needs. As the ACC/A3 focal point ACC/A3T will:

2.7.1. Act as HQ ACC focal point for coordination of tactics issues associated with JT&E.

2.7.2. Identify ACC OPRs for applicable recommendations in interim and final reports.

2.7.3. Obtain formal coordination on project plans from numbered Air Forces (NAF), ANG, AFRC, and other MAJCOMs, Services, or Allied Forces, when necessary.

2.7.4. Coordinate all TIP, TD&E and Tactics Investigation (TI) efforts with ACC/A5T.

2.7.5. Serve as OPR for all manned Full Scale Aerial Targets training issues and associated flying operations.

2.7.6. Act as OPR for CSAF Plan 53, *Weapon System Evaluation Program (WSEP)*.

2.7.7. Evaluate and approve requests made by ACC test centers for waivers to current training rules necessary to support ACC operational test and evaluation.

2.8. Command and Control (C2) ISR Operations Division (ACC/A3C). ACC/A3C serves as the designated focal point for CAF C2ISR Operations.

2.8.1. Act as HQ ACC focal point for C2ISR JT&E policy, procedures, nominations and final staff coordination.

2.8.2. Identify ACC OPRs for applicable recommendations in interim and final reports.

2.8.3. Obtain formal coordination on project plans from NAFs, ANG, AFRC, and other MAJCOMs, Services, or Allied Forces, when necessary.

2.8.4. Coordinate all TD&E efforts with ACC/A3T, ACC/A5I and ACC/A5T.

2.8.5. Support ACC/A3T in tactics development and provide expertise as necessary to support ACC/A3T during the yearly Tactics Review Board (TRB).

2.9. Strategic Deterrence, Nuclear Integration and Conventional Testing of B-2 and B-52 (AFGSC/A3/6, A5/8 and ACC/A10). AFGSC/A5B will serve as the focal point for B-1/B-2/B-52 conventional testing. AFGSC/A3T is the focal point for all nuclear testing. ACC/A10 will serve as the focal point for all Dual Capable Aircraft (DCA) CAF nuclear FDE testing.

2.9.1. ACC will provide test support to AFGSC per ACC-AFGSC MOA.

2.9.2. AFGSC/A5B/A3T and ACC/A10 will appoint a POC to coordinate with ACC/A5/8/9 project officers on test and evaluation matters.

2.9.3. AFGSC/A5B will function as the PEM for both PE 11120 and 11122.

2.9.4. ACC/A10 will act as OPR for COMACC Plan 001, *Dual Capable Aircraft Nuclear Weapon System Evaluation Program (COMBAT SLEDGEHAMMER)*. AFGSC/A3T will act as OPR for AFGSC/CC Plan 001, *Nuclear Weapon Systems Evaluation Program (COMBAT SLEDGEHAMMER)*.

2.9.5. ACC/A10 and AFGSC/A3T/A5B will coordinate all FDE efforts with applicable HQ ACC directorates, units, and other MAJCOMs/ agencies as required.

2.10. Director of Logistics, Engineering and Force Protection (ACC/A4). ACC/A4 monitors ongoing weapon system tests to determine if suitability issues are being addressed during test and evaluation. ACC/A4 will:

2.10.1. When requested by ACC/A5/8/9, appoint a POC to coordinate with ACC/A5/8/9 project officers on matters concerning test and evaluation and operational suitability and supportability for designated tests.

2.10.2. Provide all logistics test requirements to ACC/A5/8/9 and ACC/A3 for inclusion in T&E prioritization.

2.10.3. When established, participate in Joint Reliability and Maintainability Evaluation Team (JRMET) to assist in collection, analysis, verification and categorization of reliability, maintainability and availability (RM&A) data.

2.10.4. When established, participate in a Test Data Scoring Board (TDSB) (government- only group) to compile, review and score RM&A data.

2.10.5. Participate in T.O. verification and when required, test T.O. validation. Approve verified maintenance T.O.s for use.

2.10.6. When required, support munitions and supply requirements for execution-year test projects and out-year planning and programming activities.

2.10.7. When requested by ACC/A5/8/9, provide a maintenance concept for projects to support operational testing.

2.10.8. Coordinate on ACC/A5/8/9 or ACC/A3 taskings to operational units for support of T&E.

2.11. Director of Communications (ACC A6). ACC A6 monitors ongoing weapon system tests to determine if cyberspace issues to include communications and information issues are being addressed during T&E. ACC/A6 will:

2.11.1. When requested by ACC/A5/8/9, appoint a project officer to coordinate on matters concerning cyberspace/communications-information systems operational suitability and supportability for designated test and evaluations.

2.11.2. Provide a technical focal point for data processing, communications-electronics, computer programming, operations, systems analysis, and software evaluation support.

2.11.3. When appropriate to the test project, participate in the preparation of the OTTO/TIP that directs evaluation of software performance, operator-computer interface, or software maintainability and supportability.

2.11.4. Monitor efforts and results of cyberspace/communications-information systems personnel located at test centers that participate in designated T&E.

2.11.5. When appropriate to the test project, perform a detailed technical and management review of test plans and procedures for software test requirements.

2.11.6. Coordinate with HQ ACC staff on OTTO/TIPs and test procedures.

2.11.7. Provide technical support to the HQ ACC staff for studies and analyses, documentation reviews, and evaluation of test results, as required.

2.11.8. Provide cyberspace/communications-information systems technical assistance to the USAFWC, AATC, 67 CW, and other technical centers, as required.

2.11.9. Participate in T.O. validation and recommend approval of verified software for use.

2.12. Command Capability Program Action Officer (AO) or Project Officer (PO) or Program Element Monitor/Manager (PEM). Each capability program will assign a designated Military or Civilian AO, PO, or PEM, appointed by the associated capability requirements owner's O6 or equivalate (ACC Division). This ACCI will refer to the AO, PO only as the "PEM." The PEM will:

2.12.1. Plan, develop, and submit ACC operational and funding requirements for projected systems undergoing test and evaluation in support of a production or fielding decision via the ACC corporate Program Objective Memorandum (POM) process. It is the responsibility of ACC PEM or PO to understand the milestone decisions and funding requirements for the system for which they are OPR.

2.12.2. Prepare and submit the OTTO IAW **Chapter 3** of this ACCI and assist ACC/A5TT, as required with OTTO coordination across ACC, other commands, or Services when their participation in a test is required.

2.12.3. Assist A5TT and the ACC test unit project manager in preparing the test plan and final report for HQ ACC- managed tests on the OSW/Director of Operational Test & Evaluation (DOT&E) Oversight List.

2.12.4. Coordinate the TRP resource requirements of ACC-supported AFOTEC programs with ACC staff and the OTO, when applicable.

2.12.5. Provide liaison between the ACC test units, HQ ACC and other commands or agencies, as required.

2.12.6. Assist A5TT and coordinate any test plan, support plan, or final report requiring ACC/A5/8/9 approval.

2.12.7. Coordinate all appropriate TEMPs with ACC/A5T and ensure ACC/A5T receives a copy of each.

2.12.8. Identify HQ ACC staff and non-ACC agencies responsible for taking appropriate action on approved recommendations in the final report. Accomplish follow-up actions on final report recommendations until all are resolved.

2.12.9. Ensure weapon SPO has directed appropriate Munitions Safety Board(s) to review and approve new munitions and munitions handling equipment before being introduced for Air Force use.

2.12.10. Ensure SPO has made T.O.s available at the beginning of testing as required by AFPD 63-1/20-1, *Integrated Life Cycle Management,* T.O. 00-5-1, *AF Technical Order System*, and T.O. 00-5-3, *Air Force Technical Order Life Cycle Management*. Test Centers do not have the authority to use locally created/approved procedures beyond the scope of T.O. 00-5-1.

2.12.11. Ensure SPO has contracted with appropriate agencies for Type I and other required training.

2.12.12. Assist ACC/A5TT as required in coordinating tasking messages for operational support of test projects with the appropriate ACC/A3 and ACC/A4 offices.

2.12.13. Coordinate with ACC/A3, or other MAJCOMs for non-ACC assets, as required to support ACC-conducted T&E.

2.12.14. Act as OCR for FCT support IAW DoD guidance.

2.12.15. Act as OPR for JT&E support IAW AFI 99-106.

2.12.16. Ensure SEEK EAGLE Certification was completed or a SPO flight clearance was issued. If neither of these were accomplished, the PEM is responsible for the submission and coordination of both the Military Flight Release and/or SEEK EAGLE Request (SER).

Additionally, the PEM ensures that all appropriate Validated/Verified (VAL/VER) technical data is obtained from the SPO for all new equipment to be employed on ACC aircraft, prior to testing.

2.12.17. Ensure open Deficiency Reports (DR) are tracked until they are funded or corrected, or ACC concurs with closing them. Consult DoDI5000.89_DAFI99-103 for further guidance)

2.12.18. Assist SPO as appropriate with certification of system readiness for dedicated operational testing. (Refer to DAFMAN 63-119, *Mission-Oriented Test Readiness Certification,* para 1.3.6.)

2.12.19. Assist program offices and other DoD agencies in the development of OTTO/TIP.

2.12.20. Coordinate fielding decision packages within ACC as required for Director approval.

2.12.21. The PEM will also review all approved OTTOs at least annually, after the initial tasking/review date regardless of the projected completion date (indicated in the OTTO).

Chapter 3

GENERAL TEST POLICY GUIDANCE AND PROCEDURES

3.1. Authorization to conduct OT. T&E will be conducted by ACC OTOs after a coordinated OTTO is approved and placed on the appropriate Test Priority List/Test Project Order and/or an A3T TIP is approved.

3.2. ACC Test Priority List (TPL) Management. ACC/A5T is designated as the lead integrator and oversight authority for OTTOs and the TPL process, except for some classified test efforts which are approved and tasked by ACC/A5/8Z. ACC/A5T will establish and publish standard timelines for document review and approval. Approved OTTOs are prioritized by the identified HQ ACC, HQ AFGSC, or requirements owner and can be found on the A5TT SharePoint site. WEPTAC TIPS may be found on the associated classified A3T website.

3.3. OSW T&E Oversight List. The OSW/DOT&E maintains a list of major programs that have Congressional interest. Additionally, OSW may become involved in the test process, test plan development, and test execution and may require special briefings, in addition to those typical of testing. These programs, and their special requirements, will be identified by the OTO in the OTTO. A current listing of programs on the OSW oversight list is found online and is subject to change.

3.3.1. All test briefings going to HQ USAF and OSW will be coordinated through AF/TE.

3.3.2. All reports and briefings for those programs for which AFOTEC is not involved are the responsibility of ACC test agencies and will be coordinated through HQ ACC.

3.3.3. For those oversight programs where ACC OTOs are responsible for OT, direct communication with OSW Action Officers (AO) and the Integrated Test Team (ITT) is authorized, without an A5T tasked OTTO, provided the communication is necessary to determine OSW, DOT&E, and/or OT involvement and reporting requirements.

3.3.4. Where OSW action officers decline participation in test planning or the T&E forum is unable to decide the extent of OSW involvement, or requirements, ACC OTOs must elevate their concerns through ACC/A5T, for adjudication and resolution with AF/TEP.

3.4. AFOTEC Test support. If AFOTEC is the responsible test agency, any ACC OTO support associated with those capability programs requires an OTTO signed by an AFOTEC O-6 (or civilian equivalent), preferably the associated Detachment (DET) Commander or assigned detachment deputy as agreed to by MOA.

3.4.1. All OTTOs will reference the ACC validated TRP. The TRP(s) coordinated in association with those projected test efforts are not considered authority to execute test activity. A TRP is an AFOTEC document that identifies the resources and timelines required to support an AFOTEC conducted IOT&E, FOT&E, MOT&E, QOT&E, OUE, or OA. All projects that support AFOTEC managed tests require a TRP. ACC/A5T is the focal point for the ACC TRP coordination process. ACC/A5TT will task the appropriate staff agency to coordinate the TRP as required with other staff agencies and test centers. Coordinated inputs will be consolidated into a formal concur or non-concur memorandum directed back to AFOTEC by ACC/A5T, as directed. Procedures may vary and will be provided by ACC/A5TT during the coordination.

3.5. Non-ACC MAJCOM (Ext -MAJCOM), Agency or Service OTO Support. Requests for T&E support from another MAJCOM, agency or Service will be referred to ACC/A5T and approved before ACC OTO resources are expended. Ext -MAJCOM (non-ACC) support requires an OTTO signed by an O-7 or civilian equivalent. Coordination at the action officer level between A5T and the requesting organization representative will occur prior to O-7 signature. Requests must be submitted on the most current OTTO form available from ACC/A5TT. O-7 signature is required after initial coordination between A5TT, the requesting organization, and the operational test unit is complete.

3.5.1. In certain cases, an ACC Division Chief (O-6) may sponsor the requesting agency's test effort. If the appropriate ACC division chief validates the request, they will assign an AO to liaise with the Non-ACC entity, to prepare and submit an OTTO to ACC/A5T for review and approval.

3.5.2. Test cost differences/savings is not a valid reason for requesting ACC OTO Developmental Test (DT) support. Note: Test support for AFGSC or other commands will be IAW established MOA and coordinated by ACC/A5T through the appropriate HQ MAJCOM office.

3.5.3. ACC Test Support for Research and Product Development Organizations. Requests by research or product development organizations (e.g., SPOs, Defense Advanced Research Projects Agency [DARPA], Air Force Research Lab (AFRL), etc.) for test support from operational or operational test units must be vetted and approved by ACC and, depending on the specific request, by implementing MAJCOM (i.e., the USAF organization responsible for product development DT&E). Experimentation campaigns or similar events requiring support from ACC OT units must follow the OTTO process as outlined in this instruction. Operational test unit support requested by non-USAF research or product development organizations (e.g., DARPA, National Aeronautics and Space Administration (NASA), etc.) may be accepted only after obtaining concurrence from ACC/A5T and must follow the OTTO process as outlined in this instruction.

3.5.4. Operational test units support requested by USAF developmental program offices (i.e., acquisition programs, sustainment programs, AFRL, etc.) may be accepted only after obtaining concurrence from ACC/A5T as an External MAJCOM Support (A5T) request; and must follow the OTTO process as outlined in this instruction. In cases of an OTO (e.g., operational test organizations test coded aircraft) flying in support of projects where no Lead Developmental Test Organization (LDTO) is assigned, or formal DT&E activity is planned, prior to any test support execution; the requesting USAF research or product development office must ensure that all applicable test safety reviews, risk assessments, etc. (e.g., test hazard analysis worksheets, safety review board, test approval brief, etc.) are accomplished and documented by the implementing MAJCOM (normally Air Force Material Command (AFMC)). If the implementing MAJCOM assesses the test safety risk as elevated (i.e., Medium or High Risk), OTO test support will be conducted under the direct supervision of an LDTO, with the appropriately credentialed DT personnel/aircrew, for risk mitigation. Agile or Integrated Test Strategies do not remove or reduce the requirement for the credentialed "DT" personnel/aircrew mentioned above.

3.6. Operational Unit Support. Operational units will not provide test support (i.e. aircrew and/or weapons systems to include Cyber) to either a developmental test or an operational test

unless this support is declined by all traditional Air Force Test Center (AFTC), AATC and ACC test organizations, and tasked by HQ ACC. In the event operational unit support is required for a test, the ACC OTO will submit an email request to ACC/A5T for the type of CAF operational unit best suited for support requested. ACC/A5T will coordinate with the appropriate A3 division to request operational unit support. A5T cannot task operational units for support. ACC/A3 is the tasking authority for operational units. A3 may prefer units volunteer to support rather than generate specific taskings to do so. Units volunteering may be redirected to higher priorities and is not a guarantee of support. Operational support will be documented in the supported OTTO/TIP, if applicable. ACC/A3 concurrence is required for support requiring ACC operational units. **(T-2)**

3.6.1. Requests for test support from operational flying units (e.g., those flying non-test coded aircraft) may be accepted only after obtaining concurrence from ACC/A5T. Flying support will be restricted to Low Risk (as assessed by an AFMC test hazard authority), under the direct supervision of a LDTO. These activities will be called "DT Assist" to indicate they are not being conducted by an operational test unit. DT and OT Flight Testing may be combined with approved SPO Military Flight Release (MFR), manuals & 53 WG Concurrence; but, only under the presence/supervision of properly credentialed LDTO aircrew members and IAW ACCI 99-101.

3.6.2. If CAF operational unit aviation support is required, ACC/A5T will forward a request to ACC/A3O IAW the DAFI 10-420, CAF Aviation Scheduling process as required. If other than flight support is being requested (e.g. Mission Planning Equipment, Aircrew Training Devices), ACC/A5T will accomplish the appropriate coordination and arrange for the associated tasking.

3.6.3. If operational crew member(s) support only is required, the assigned test agency will seek specific authorization from ACC/A3 in the form of a waiver to this ACCI. Waiver requests will be forwarded to A5T for staff coordination and ACC/A3T approval. If aircrew support or operational support for other than flying (e.g. mission planning, aircrew training devices) is requested, ACC/A5T will accomplish the appropriate coordination with ACC/A3 and arrange for the associated tasking.

3.6.4. If AOC WS, CRC or ARC support is required, ACC/A5T will forward a request to ACC/A3C for facility and/or supplemental manning requirement to arrange the associated tasking.

3.6.5. 57 WG Subordinate Organizations (e.g. Weapons School, Aggressors, etc.) are not considered CAF operational units for the purposes of **paragraph 3.6** but require MAJCOM coordination to provide aircrew and/or weapons systems – to include modifying aircraft to un-fielded configurations – in support of specific developmental or operational testing. Note: This amplification should not be construed as prohibiting existing operational test and WIC inter-fly agreements between 53 Test and Evaluation Group (TEG) and Weapons School for conducting routine day-to-day flight operations, which may include weapons instructor exposure to non-fielded, but mature, system improvements. Additionally, this amplification permits the 53 WG to coordinate with ACC for use of 57 WG operational support for Nellis-based operational testing without having to first solicit support from other traditional test organizations (e.g., AATC, AFTC, etc.).

3.6.6. Cyberspace Operators and Mission Support**.** If cyberspace operators and/or mission support is required to conduct an operational test, the assigned test agency will submit an email to A5T to request support from the appropriate cyber operation organization(s). ACC/A5T will accomplish the appropriate coordination with ACC/A3 and other ACC divisions to de- conflict competing cyber task orders and arrange for the associated tasking.

3.7. Weapons System Modifications (e.g. Aircraft, Munitions, Cyber, etc.). ACC approval to use operational weapons systems in support of test does not constitute approval to modify the supporting weapons system to an un-fielded configuration. Standard airworthiness and weapons system modification approval processes will be adhered to for test-necessary operational fleet modifications. Refer to **paragraph 4.3.6** for additional guidance.

3.8. General Operational Test Principles and Methodologies. Only the test methodologies/activities listed and defined below will be utilized by OTOs. If listed items do not meet the current needs ACC/A5T will adjudicate.

3.9. Test Support Activities (Activities where the OTO is not the lead).

3.9.1. Early Involvement (EI). The intent of this principle is for the OT teams to be engaged with a capability acquisition program at the earliest practical point from its inception. The earlier an OT team's active involvement, the greater its influence on requirements definition, budgeting, contracting, and engineering to ensure the entire test community is part of a system's development. By applying an operational perspective early in a program, changes are reduced later in the acquisition lifecycle and, in turn, may reduce overall program cost. EI by an OT unit is normally initiated at the formation of the associated acquisition program Integrated Test Team (ITT). EI means the opportunity to shape an influence overall test program objectives and events to simultaneously meet Contractor Test (CT), Developmental Test (DT), and OT goals. If active EI involvement requires any resources above the OT unit operating baseline, then an OTTO is required.

3.9.2. Monitor. Monitoring occurs at OT unit commander's discretion and is not tasked or tracked via the OTTO process. Monitoring status applies when an OTO is not actively involved in the CT/DT effort or activities occur prior to the ITT formation. The OTO does not use baseline resources to support the CT/DT during the monitoring activity, but rather is observing DT and/or maturation of the SUT.

3.9.3. Data Collection. When the OTO provides test support to an effort with no deliverable provided other than the test results. Essentially, the OTO provides only data to the requestor.

3.10. Test Methodologies.

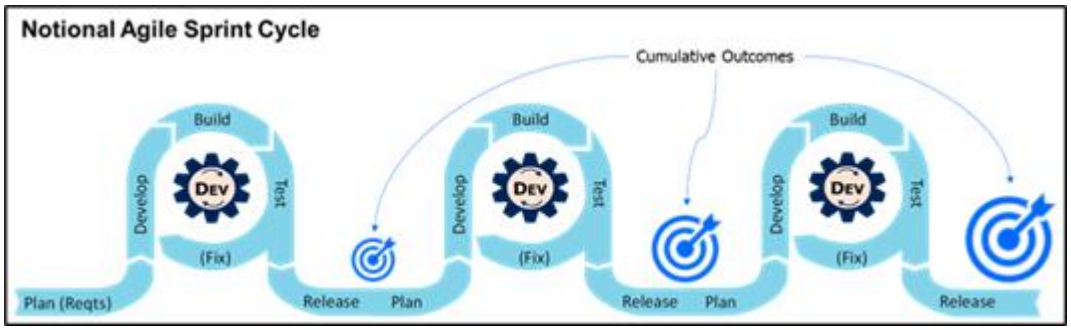
3.10.1. Integrated Testing and the Integrated Test Team (ITT). In accordance with DAFI 99-103, the program office (PO) or program manager will establish an ITT to create and manage the T&E strategy for the life of each program. A formal, signed ITT charter is required for all ITTs that describes the required ITT membership, member responsibilities, resources, and the products for which the ITT is responsible. The PO/program manager selects the chief developmental tester (CDT) or test manager (TM) to chair the ITT with the lead OTO test lead as the cochair. If the program is on OSW oversight, the ITT will include representatives from DOT&E. The ITT charter should direct the formation of subgroups (e.g., TIPT and test data scoring boards, study groups, and review boards) to write test plans and handle specific test issues as needed. Coupled with "Early OT Involvement," the goal of this test principle is to

merge the primary test stakeholders (the contractor/developer testers CT, DT, and OT) into one unified test team. As the program progresses through its acquisition lifecycle, programs will no longer conduct sequential testing but pursue synchronized collection and data sharing among all three test communities. Integrated Testing removes the artificial CT, DT, and OT barriers and thinks in terms of utilizing all test events at any point in the program to achieve CT, DT, and OT objectives in a collaborative fashion to the maximum extent possible. An ITT may produce an integrated test plan detailing the collection of data under three focus areas: DT led and executed specific objectives, OT objectives that are executed under DT leadership but may include participation of OT units in a DT support role, and OT led and executed OT objectives. An ITT may also create separate test plans addressing the areas

3.10.2. "Agile" and Test Support for Software Intensive Systems. Per DAFMAN 63-119, for agile software development programs with planned frequent releases, the AFLCMC program manager should use applicable certification templates to assess OT readiness in general. Table A15.1 in DAFMAN 63-119 provides overview guidance for assessing OT readiness. The certification process should be implemented for periodic end-to-end (especially high-volume capacity) tests of agile software development programs. Agile software development techniques release smaller capability batches that eventually build to meet a minimum viable product threshold as determined by the system requirements owner. These release cycles occur in a highly collaborative environment involving testers, users and developers that may blur the lines between DT and OT. Leveraging an agile development paradigm requires highly tailored OT executed through embedded and iterative OT, and just in time mission thread capstone (MTC) evaluations. These mission (vs. capability) tailored OT variants allow iterative risk reduction throughout the acquisition process and timely information flow to decision makers.

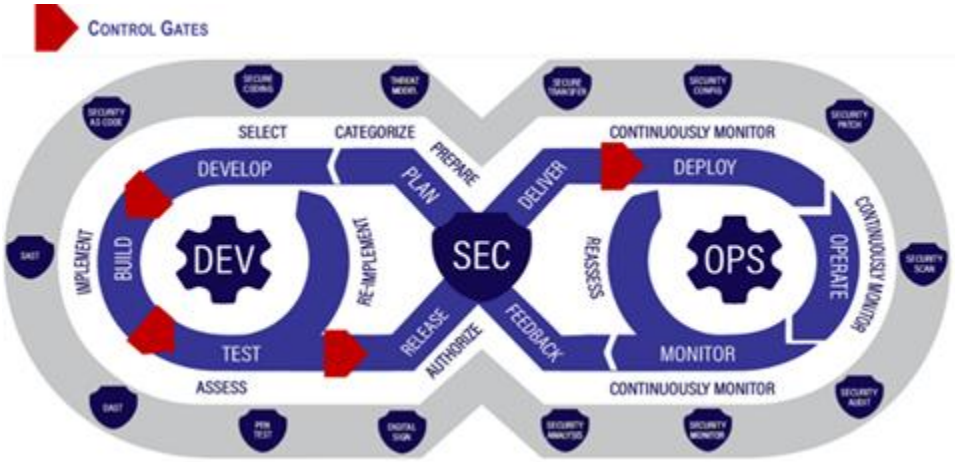
3.10.3. Agile Software Development. Each iteration or sprint is preceded by planning activities in which the product owner, in conjunction with the operational users (referred to in this issuance as "users"), prioritizes, allocates, and decomposes the requirements for upcoming iterations to support rapid development while also defining "done" for the iteration as shown in **Figure 3.1**. During each iteration, a small team will develop, build, and test the software and address any identified defects and vulnerabilities. Once sufficient quality criteria and metrics have been satisfied and informed by test results, the designated decision authority will "release" the software. In some circumstances, the software may be released to an external production environment. In most cases the software will be released to an internal environment for integration or test purposes.

Figure 3.1. Example Agile Sprint Cycle.



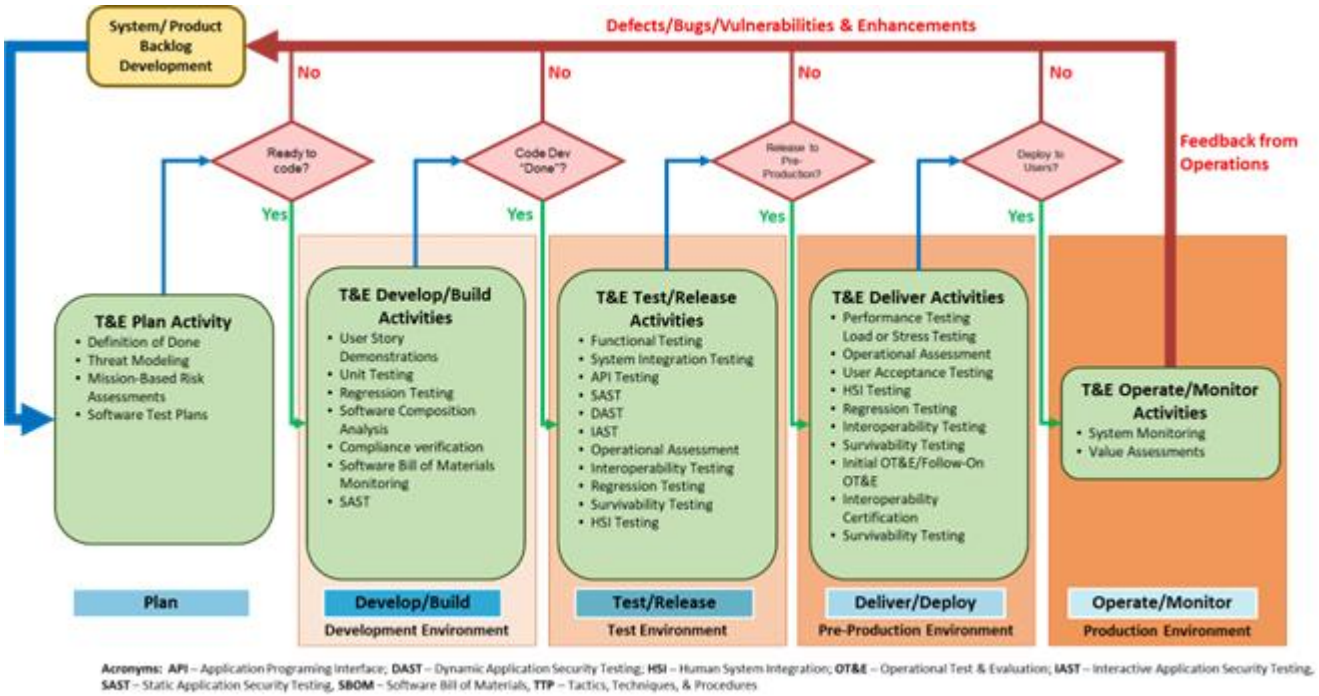
3.10.4. Software Development/Security/Operations (DevSecOps). Software DevSecOps has ten phases, from build to deployment within which security is constantly integrated as a key component throughout engineering, development, and testing. Each control gate (displayed by the red polygons in **Figure 3.2**) represents a feedback mechanism and decision point to move forward to the next phase. Feedback generated from operations (e.g., escaped defects, help desk trouble reports) will inform integrated T&E, OT&E and LFT&E to better identify defects before they reach operations.

Figure 3.2. DevSec Ops Process.



3.10.5. Software development and operations may take place in an end-to-end architecture with separate development, test, pre-production (staging), and production environments. **Figure 3.3** shows a notional software pipeline, noting various test activities that occur in support of software development control gate decisions. Blue arrows in the figure indicate only the test input to the decision. Decision criteria and decision ownership will be specified in the TEMP/T&E strategy.

Figure 3.3. Notional Software Pipeline.



3.11. OT Related Activities. OT related activity can span a very broad number of methodology and approaches. Changing acquisition pathways can greatly influence the type and methodology of OT efforts. Each of these are linked to a specific level of analytical rigor that will ultimately dictate the results and associated reporting product. The activities described below are compiled from DODI 5000 and AF instructions and are included here for ease of reference.

3.11.1. Capabilities and Limitations Assessment: C&L assessment is an approach that supplies data to support observations or conclusions relative to effectiveness and suitability from current operational test perspectives on system capabilities and limitations based on testing done to date, which may be prior to completion of operational testing. It may also be implemented as a stand-alone activity to provide the same type of observations or conclusions for systems under Middle Tier Authority acquisition or systems under demonstration or rapid prototyping. This assessment is not considered dedicated OT in terms of test design and does not possess the analytical rigor required to make recommendations on effectiveness and suitability.

3.11.2. Force Development Evaluation (FDE). An FDE is a type of dedicated OT&E performed by OTOs in support of acquisition program hardware and software fielding decisions and milestones, to include sustainment or upgrade fielding activities. An FDE may be used in-lieu-of an IOT&E or FOT&E to support production decisions in those instances where AFOTEC non-involves in the operational testing of an acquisition program on T&E oversight. FDE may be applied to other operational test purposes including verifying resolution of previously identified system deficiencies (pre-or post-production/fielding). FDEs will be conducted IAW DAFI 99-103.

3.11.3. Military Utility Assessment (MUA): An MUA is a determination of how well a capability or system in question responds to a stated military need, to include a determination

of its potential effectiveness and suitability in performing the mission. It is a "characterization" of the capability or system as determined by measures of effectiveness, measures of suitability, measures of performance, and other operational considerations as indicators of military utility, as appropriate, and answers the questions, "What can it do?" and "Can it be operated and maintained by the user?" MUA guidance is outlined in DAFI 99-103. MUAs are not considered dedicated OT and do not possess the analytical rigor required for a recommendation on effectiveness and suitability.

3.11.4. Mission Thread Evaluation (MTE): A Mission Thread Evaluation characterizes the overall effectiveness of a designated system of systems (SOS) operating in an integrated, collaborative manner in an operationally relevant environment to accomplish a specific mission objective. An MTE transcends individual system or SOS elements to focus on the overall end to end performance of the SOS in the execution of the assigned mission.

3.11.5. Mission Thread Assessment (MTA): A Mission Thread Assessment is a less rigorous evaluation of the overall SOS mission performance. An MTA is limited in scope and may not include all the elements of the mission thread SOS but can be useful in informing future mission thread requirements or in characterizing progress of individual system performance within the context of the associated mission thread.

3.11.6. Operational Assessments (OA): An Operational Assessment (OA) is an evaluation of operational effectiveness and operational suitability made by an independent Operational Test Agency (OTA), i.e. AFOTEC, or with user support as required, on other than production systems. The focus of an OA is on significant trends noted in development efforts, programmatic voids, risk areas, adequacy of requirements, and the ability of the program to support adequate operational testing. An OA may be conducted at any time using technology demonstrators, prototypes, mock-ups, Engineering Development Models (EDM) or simulations, but will not substitute for an IOT&E required for the Full-Rate Production Decision Review (FRPDR). OAs are applicable to programs pursuing a major capability acquisition (MCA) pathway. These assessments attempt to project the systems potential to meet the user’s requirements. Assessments conducted early in the program development process may be called **EOAs.** The lead OTA/OTO will also conduct an OA in accordance with a test plan approved by DOT&E for programs that are under T&E oversight. All OAs will be conducted IAW DODI 5000.89_DAFI 99-103. For an acquisition program using an incrementally deployed software program model, a risk-appropriate OA is usually required in support of every limited deployment.

3.11.7. Operational Experiments and Technology Demonstrations (Tech Demos). Operational Experiments and Tech Demos are primarily intended to show a system’s use and value in specific military environments or to inform future requirements. Demonstrations and experiments present and confirm what is known by giving proof or evidence. Operational experiments may involve interaction of prototype technology that is in a lower state of technology readiness. This technology may be used in conjunction with existing fielded capability to gain a better understanding of impacts and potential improvements. These activities are normally led by AFRL or similar research and development organizations, and OT involvement should be limited to a DT support role. While test scope may be reduced, OTOs involved with demonstrations and experiment efforts will apply the same principles, standards, and rigor employed in the conduct of traditional T&E activities and assign clear operational control, administrative control, and risk management responsibilities as applicable.

The program management personnel and test team members will: (1) Set clear objectives and success criteria. (2) Develop test plans using a scientific methodology. (3) Accomplish sufficient technical and safety risk mitigation. (4) Hold all experiment/demonstration participants to the same established test discipline standards (technical and safety). (5) Collect data to meet objectives. (6) Analyze, report, and archive results if tasked to do so.

3.11.8. Operational Demonstrations (Ops Demos). Ops Demos are normally executed in support of Middle Tier Acquisition (MTA) rapid prototyping and production efforts. The scope and focus of Ops Demos will depend on whether the MTA outcome determination will support a transition to either another acquisition pathway or to operations and sustainment. Ops Demonstrations are conducted in accordance with OSW or Higher Headquarters (HHQ) guidance and DAFI 99-103.

3.11.9. Operational Utility Evaluation (OUE) is an operational test which may be conducted by OTA or OTO whenever a *focused* OT&E event is required, but the full scope of formal IOT&E, Qualification Operational T&E, Follow-on Operational T&E, or FDE is not appropriate or required in accordance with DAFI 99-103. OUE is applicable for systems categorized as non-complex.

3.11.10. Risk Assessment Level of Test (RALOT) is a continuous risk analysis process used as a planning tool by the OTA/OTO to document the degree of risk and the appropriate level of OT&E required to assess operational effectiveness, suitability, TTPs, cybersecurity, and cyber resiliency of the SUT. These assessments are usually done by the OTO prior to determining the final operational test strategy/approach.

3.11.11. Simulator Certification/Evaluation (SIMCERT), Simulator Validation (SIMVAL), and Synthetic Environment Certification are test and evaluation activities associated with ensuring an operational training system and its components provide accurate and credible performance for training. Consult AFI 10-217, Management of Air Force Operational Training and Undergraduate Aircrew Training Systems and its applicable supplements for further direction and guidance for aircrew training device (ATD) certifications and evaluations. SIMCERTs conducted by the 53WG are generally resourced with the Combat Development PE 28015F.

3.11.12. Verification Flight Test (VFT) or Verification Ground Test (VGT)**.** To smartly use limited resources and streamline tasking processes, routine integration verification flight(s) using ACC and/or AFGSC aircraft may be requested to support the fielding decision of an aircraft subsystem or store. Similarly, VGT may also be employed post-DT&E integration for systems such as support equipment. The purpose of both VFT and VGT is to provide post-DT&E integration verification information without having to conduct formal operational test. In some cases, this may require several integration flights beyond DT to conclude that sufficient testing has been accomplished on the test item in question. In other cases, one or more aircraft system program offices (SPO) may require several integration flights beyond DT prior to certifying the developmental product in question on their specific platform(s). VFT emphasis is on platform subsystem/store integration and should contain the absolute minimum number of store free-flight events necessary to achieve that aim. VFTs will not normally be used in situations where DT testing has not previously been accomplished and/or a SEEK EAGLE Certification/Flight Release has not been granted. The VFT may also provide

verification based on operational test recommendations or incomplete actions from a finalized operational test.

3.12. Specialized Types of Evaluation Activity. Certain types of T&E require test organizations to use specialized processes, techniques, requirements, and formats in addition to those prescribed in this instruction. These specialized types of T&E must be integrated with other T&E activities as early as possible. These tests should be conducted in operationally relevant environments which include end-to-end scenarios. These activities fall outside the traditional acquisition process; however, DAF testers may be required to support the activity by providing T&E expertise in assessing the military utility of new technologies. Several types of specialized T&E are defined below derived from DoDI 5000.89_DAFI99-103. A complete list is found in DoDI 5000.98_DAFI99-103.

3.12.1. Unified Capabilities Certification (UCAP) Certifies interoperability and information assurance for Unified Capabilities (defined as integration of voice, video, and/or data services delivered ubiquitously across a secure and highly available network infrastructure, independent of technology). ACC appoints the Air Force Unified Capabilities test organization responsible for testing technologies meeting the definition.

3.12.2. TEMPEST Assessment**.** Assesses against the requirement to control the compromise of classified electronic emissions. The only USAF organization approved to accomplish TEMPEST Assessments is the 346 CTES.

3.12.3. Joint Test and Evaluation (JT&E). This activity develops, tests and validates non-material solutions of fielded and soon to be fielded systems. Joint T&E provides feedback to the acquisition community; however, it does not directly support system acquisition. AFJO is designated the Operational Test Agency to administer and execute tests within the AF Joint T&E Program, including Joint Tests, Joint Feasibility Studies, Quick Reaction Tests, and Collaborative Joint Tests.

3.12.4. Cyber Test. IAW DoDI 5000.98 Para 1.2.f.(2), all OT&E must include Cyber Test. The 346 CTES is ACC's OTO responsible for supporting Cyber Test activities. The 346 CTES will support other ACC test units in the accomplishment of this directive or guide them to AFMC units that can fulfill this requirement. All cyber test activity requires funding be provided.

3.13. Test Plans. The appropriate test organization using the OTTO will prepare a detailed test plan with fidelity, commensurate with the scope and complexity of the request. A signed test plan, with an approved OTTO, serves as authority for a test unit to begin test execution. The distribution for test plans and final reports will be determined by the test manager in conjunction with the HQ ACC and HQ AFGSC POCs in the OTTO and will follow guidance in DAFI 99-103, if applicable. Include ACC/A5T on test report distribution lists for all unclassified programs (or for classified/STINFO information).

3.13.1. General Test Plan Guidance:

3.13.1.1. Test plan titles will be consistent with the title of the governing OTTO.

3.13.1.2. Test objectives and TTP development may be accomplished in conjunction with other formal tests and evaluations or exercise venues that replicate the operational

environment. Exercise venues will ultimately determine if the test objectives can be accomplished within exercise objectives (to include WSEP missions).

3.13.1.3. Test teams will develop and identify the appropriate test objectives and assessment criteria IAW program source documents (i.e., Capability Area Planning, Initial Capability Document [ICD], Capability Development Documents [CDD], TEMP, or analysis of alternatives [AOA]). Note: Source documents for WSEP are CSAF Plan 53, and AFGSC Plan 001.

3.13.1.4. If sufficient test criteria are not contained in program source documents, OTOs will coordinate with the appropriate ACC program staff functional office to establish acceptable criteria.

3.13.1.5. Flight clearance, manuals and approved Technical Orders (TO) are required for all OT requiring aircraft. In all cases of OTO flying support, the Military Flight Release (MFR)/military certificate of airworthiness must be provided to the OTO before test execution commences.

3.13.1.6. Test center and test wing commanders are authorized discretionary authority to waive the test hazard analysis documentation prior to commencing test execution. If this process is waived, ACC/A5T will be notified. Notification will include a rationale/justification for waiving the test hazard analysis. **(T-3)**

3.13.1.7. All systems will undergo some form of a review and certification for readiness to operationally test prior to testing. ACC test agencies responsible for conducting operational testing will comply with MAJCOM OTO responsibilities as outlined in DAFI 99-103 and DAFMAN 63-119.

3.14. Office of Secretary of War (OSW) Oversight. ACC/A5/8/9 will coordinate on all test plans for programs subject to OSW oversight and approval if AFOTEC is not involved. Approval of all other test plans is delegated to the applicable test center (USAFWC or AATC) or test unit parent wing. Test unit parent wings may delegate approval to the associated test unit at the discretion of the wing commander. A test plan for a program subject to DoW oversight requires ACC/A5/8/9 coordination prior to submission to HAF/TE and DoW if AFOTEC is not involved. OSW oversight program test plans will be forwarded to ACC/A5T for staff coordination through ACC/A5/8/9 prior to DoW approval. OTOs must ensure sufficient time is allowed for HQ ACC staffing and will forward test plans to ACC/A5T a minimum of 20 days prior to suspense to HAF/TE. See DAFI 99-103 for DoW oversight requirements and specific guidance.

3.14.1. A test report for a program subject to OSW oversight and where AFOTEC is not involved requires HQ ACC coordination prior to submission to AF/TE and OSW. OTOs will forward OSW oversight program test reports to ACC/A5T for staff coordination through ACC/A5/8/9. OTOs must ensure sufficient time is allowed for HQ ACC staffing and will forward to ACC/A5T a minimum of 20 days prior to suspense to HAF/TE. See DAFI 99-103 for OSW oversight requirements and specific guidance.

3.15. External Customers. OTOs will coordinate test plans with the other Services and participating OTAs/OTOs to the extent needed to maintain an efficient continuum of testing and avoid duplication of effort.

3.16. Support Plans. The supporting operational test wing/organization will determine whether a formal test support plan is required. If required, the test support plan describes how the other MAJCOM or agency test organizations will be supported, and normally includes information on the scope of participation, schedule, resources and funding.

3.17. Test Conduct. A test will be conducted and executed IAW the specific approved OTTO and project test plan. Test sorties will be flown IAW MAJCOM instructions and directives, unless the appropriate MAJCOM/A3 or A5/8/9 approves specific waivers in the test plan. **(T-2)**

3.18. Test Deliverables & Reports. Test units will prepare and provide the reports and deliverables specified in the OTTO unless a subsequent OTTO revision is approved by ACC/A5T via separate correspondence. Non-test support requests may not require a deliverable unless specified in the OTTO. Final deliverable approval authority will be delegated to the test center commander unless otherwise specified in the OTTO and IAW governing test policy

3.18.1. Test Deliverables in Support of Fielding Decisions**.** Reporting of operational test activity directly impacts how the requirements owner and fielding decision authorities are informed of the confidence (or uncertainty) in capability performance with respect to the anticipated operational environment. As such, any findings, conclusions, or recommendations derived from collected test data must map or directly synch with the level of test design rigor producing the analysis upon which the deliverable is based. “Effectiveness and suitability” are the pillars of operational test. Data supporting a definitive, analytically defendable determination of “effectiveness and suitability” requires the planning rigor associated with dedicated OT test design. A judgement, conclusion, or finding in a reporting deliverable specifying a capability is or is not “effective and suitable” must trace back to a dedicated OT planning and execution framework. Test results and analysis derived from dedicated OT planning and execution represent the highest confidence and least uncertainty (thus the associated risk) in system performance. Deliverables based on results derived from test planning and execution that do not rise to the level required for dedicated OT inherently impart a higher level of risk or uncertainty in system performance. A definitive conclusion or finding of “effectiveness and suitability” therefore can only be derived from analysis of sufficient data derived from results of a dedicated operational test designed to produce the required data. Results based on test design of less rigor can support only observations or indicators of or impacts to “effectiveness and suitability” but lack the credibility or statistical confidence for a formal determination and must clearly communicate the level of risk associated with known performance of the system under test. Activities conducted as “assessments” will not yield the necessary level of confidence to make definitive conclusions on capability effectiveness and suitability. The Test Sufficiency Levels defined in appendix 5 serve as a guide to communicate the risk associated with test results.

3.18.2. Current HQ ACC policy allows requirements owners to base fielding decisions on various inputs and reporting products. Dedicated OT results usually yield the most confident evaluation of system capability with the lowest statistical risk. However, circumstances may dictate (i.e., urgency, programmatic delays, budget) the need for a fielding decision based on supporting products based on less rigorous test methodology. For this reason, it is the responsibility of the reporting test unit to clearly acknowledge the increased uncertainty and associated risk of system performance ascertained using these less rigorous methodologies.

3.19. Types of Test Deliverables & Reports. Types of deliverables include but are not limited to:

3.19.1. Operational Briefings. Briefings on test results and conclusions are provided to COCOMs and combatant crews when required to expedite the dissemination of time sensitive information. These briefings or road shows will be planned and funded as part of a T&E effort.

3.19.2. Interim Reports/Quick Looks. Test centers may be tasked to provide status, interim summary, or Quick Look reports. These reports may be published anytime information becomes available which will have an immediate impact on the CAF, when a program has an extended test phase or to support a sensitive fielding decision. An Interim Summary Report may be published when the final report cannot be ready in time to support a key or production decision. The interim reports may include observations, conclusions and recommendations and will be sent to the same addressees as the final report.

3.19.3. Capabilities and Limitations Report (C&LR). An optional, quick-look report of limited scope operational testers provide to operational commands and operational units to support rapid/early fielding of developing capabilities before any dedicated operational testing is complete and formal production (if applicable) begins. Capabilities and Limitations reports do not drive new testing requirements for a system. C&LRs will not include any fielding recommendations and will be completed IAW DAFI 99-103.

3.19.4. Sufficiency of Test Review (SOTR) An examination by the "test" organization of all available test data to: (1) determine if adequate testing has been accomplished for programs of limited scope and complexity; and (2) to assess the risk of fielding or production without a dedicated Operational Test and Evaluation. A SOTR is an examination of existing test data, not an "operational test." Data collection will not occur during a SOTR, it is strictly a review of existing test data. The decision to accomplish a SOTR (rather than dedicated OT) must be approved by the OTA/OTO. The SOTR may be used as the source of test information for supporting fielding, acquisition milestones, or production decisions. The Sufficiency of Test Review may not be used for milestone decisions associated with T&E oversight programs unless approved by DOT&E. SOTRs will not include or provide a fielding recommendation as defined in 3.19.5. A SOTR will document if further testing is warranted.

3.19.5. Fielding Recommendation (FREC). One of the primary functions of FDE (and OUE in the case of some less complex programs) is to provide a production or fielding recommendation. In general, a release/fielding recommendation product is the basis for fielding decisions for non-software-based weapon system modernization and improvement initiatives or updates. This includes revisions or updates to any ACC or AFGSC aircraft, weapon or integrated store (i.e., targeting pods), space or C4ISR system. The level of operational testing required to produce a recommendation will be determined by the tasked test agency. However, if the System Under Test (SUT) is not a formalized "rapid" item/requirement, then a FREC submitted as a deliverable must be derived from and supported by a final report for all FDEs and OUEs. FRECs may be submitted separately before the final report is published. Test Centers may delegate approval of FRECs to the Wing or Group level as desired. Clarification or questions regarding level or scope of testing will be addressed with ACC/A5TT and the sponsoring ACC or AFGSC program office.

3.19.6. Release Recommendation (RREC). A distinct, tested, deployable software element of a militarily useful capability to the government is referred to as a "release." For consistency,

"release" will be the only accepted term used to describe the smallest fieldable/deployable software element in all future TEMPs or test strategies, test plans, and test reports as well as updates to earlier documents. In general, a release recommendation is required for all software-based weapon system modernization and improvement initiatives and updates not captured in associated MDS or weapon system integrated software/hardware capability fielding recommendations (i.e., individual store OFP updates). The level of operational testing required to produce a release recommendation will be determined by the tasked test agency. However, if the Software based System Under Test (SUT) is not a formalized "rapid" requirement, then a RREC submitted as a deliverable also requires a Final Report for all FDEs and OUEs. RRECs may be submitted separately before the final report is published. Test Centers may delegate approval of RRECs to the Wing or Group level as desired. Clarification or questions regarding level or scope of testing will be addressed with ACC/A5TT and the sponsoring ACC or AFGSC program office.

3.19.7. Test unit bulletins are intended to quickly support and disseminate relevant capability performance and tactics information to the field.

3.19.7.1. Flash Bulletins (FB). Reporting product produced as the result of a TD&E effort when the information is time perishable and requires immediate dissemination. OT&E squadron commanders can submit those TTPs to USAFWC/A9 in the form of an FB (see AFTTP 3-1GP Attachment 4). USAFWC/A9 will assign the FB to the appropriate MDS model manager and facilitate domain-wide dissemination (as well as track for potential inclusion into future AFTTP 3-1 rewrites).

3.19.7.2. Operational Test Bulletins are carefully crafted and test team-vetted information documents addressing a variety of TTPS, hardware/software capabilities and limitations, and/or operational employment considerations with respect to the SUT/MUT.

3.19.7.3. Tactics Bulletin (TB). A reporting product produced as the result of a TD&E effort. This information is validated by ACC A3 and serves as the main source of updates to existing 3-1 publications. They are also used to disseminate information to operational units between 3-1 updates.

3.19.8. Mission Reports (MR). Occasionally, there will be value in documenting system under- test performance and maturity information on a mission-by-mission basis. Additionally, MR layout and content should be tailored to what works best for the specific system-under-test. Documenting test mission/sortie findings via mission reports is also optional, unless specifically directed by the unit commander, by the unit's OT managing group commander or by higher wing authority.

Chapter 4

TEST ORGANIZATION RESPONSIBILITIES AND GUIDANCE

4.1. ACC Operational Test Organization Responsibilities-General.

4.1.1. USAFWC IAW its mission directive will establish and maintain collaborative relationships with joint, inter-agency, ally, and partner organizations tasked to develop, test, field, and prepare forces to employ advanced warfighting capabilities. USAFWC also has "Coordinating Authority" – the authority to require consultation between applicable organizations, but not the authority to compel agreement.

4.1.2. Air National Guard Air Force Reserve Test Center (AATC) is an independent test organization that plans, executes, and reports on ARC-related, MAJCOM and DoD (as assigned) T&E. AATC will follow this instruction as it applies to operational test activities in support of ACC or the CAF where applicable. For additional internal AATC process details, contact AATC's Director of Test Management (AATC/DTM, DSN 844-6968).

4.2. ACC Operational Test Organization Responsibilities-Tasking. As directed by ACC and this instruction, operational test organizations will:

4.2.1. Ensure appropriate authorization (tasking) to conduct or participate in any test activity is received before expending resources. Valid tasking includes an approved ACC OTTO or a validated, active, resourced Tactics Improvement Proposal (TIP).

4.3. ACC Operational Test Organization Responsibilities-Planning. As directed by ACC and this instruction, operational test organizations will:

4.3.1. Ensure procedures are established for the planning, conducting, and reporting of test programs according to this instruction and DAFI 99-103.

4.3.2. To the greatest extent practical, integrate testing across the test continuum from system inception through post-Milestone C sustainment and future upgrades. The focus on integrated testing should always include collaborative planning and execution of test phases and events to provide shared data in support of independent analysis, evaluation and reporting by all stakeholders Developmental Test (DT) and Operational Test (OT). Where possible Combined Test Force (CTF) constructs and MOAs should be used to maximize integrated testing and minimize required dedicated DT and OT events

4.3.3. Coordinate the test and support plan with all participating ACC, AFRC, ANG and other agencies providing support. Ensure operational test objectives for operational effectiveness and suitability adequately reflect system requirements. Also, evaluate tactical employment to the maximum extent practical in the operational environment.

4.3.4. Provide test aircrews, technical support (analysts and engineers) and maintenance experts for planning tests, reviewing test planning documents, and the development and evaluation of test results.

4.3.5. Obtain field level coordination of test plans with other commands, Services, or agencies for facilities, aircraft, personnel, logistics, engineering, funding, or information support.

4.3.6. Obtain T-2 modification engineering approval (AF Form 1067, Modification Proposal) from Air Force Materiel Command (AFMC), when required. T-2 Modifications should be

approved and arrive at the OTO no later than 30 days prior to the modification start. The time frame ensures accurate and timely maintenance scheduling of the aircraft and conclusion or adjustment of existing test obligations. A5T will adjudicate any modification that may place approved OTTOs on hold as a result of a different OTTOs T-2 modification

4.3.7. Submit OTO munitions requirements to include telemetry instrumentation kits in support test and evaluations, WSEP, and aircrew training to ACC/A3TW, per AFMAN 11-212, *Requirements for Aircrew Munitions*, and AFMAN 99-120, *Forecasting and Programming Munitions Telemetry and Flight Termination Systems*, direction.

4.3.8. Ensure an environmental impact analysis is completed before any decision to start testing, as required. Where needed, submit AF Form 813 Request for Environmental Impact Analysis to appropriate environmental office for analysis.

4.3.9. Co-chair Integrated Test Teams (ITT) when AFOTEC is not involved with the program or project.

4.3.10. Support the SPO as appropriate IAW DAFMAN 63-119 with determining Sufficiency of Developmental Test and/or Adequacy of Operational Test requests, as applicable.

4.3.11. Review and coordinate on test plans, test reports and test-related correspondence as required for programs on OSW T&E oversight.

4.3.12. Appoint a Test Project Manager (TPM), as appropriate. The test project manager will be responsible for the following:

4.3.12.1. Keep abreast of the activities of other commands or agencies involved in a particular acquisition effort.

4.3.12.2. Review and coordinate OTTO/TIP using the applicable A3T WEPTAC or A5TT Test and Evaluation SharePoint site as directed in this instruction.

4.3.12.3. Ensure the adequacy and completeness of test planning, including technical feasibility and compliance with test objectives. Conduct a readiness review, chaired by the appropriate commander, with representation by all units tasked to support the test before beginning flying activity. The readiness review should address any safety concerns and ensure risk mitigation to the lowest possible level. Documentation of the review will be made part of the permanent case file and will address any aircraft restrictions or waivers required for the test.

4.3.12.4. Identify and coordinate resources required for the test project and bill above the unit baseline costs to the appropriate program element IAW the approved OTTO.

4.3.12.5. Ensure the required test or test support plan documentation is coordinated, approved and published according to ACC and test unit instruction.

4.4. ACC Operational Test Organization Responsibilities-Test Execution and Management. As directed by ACC and this instruction, operational test organizations will:

4.4.1. Conduct OT&E, FDE, and TD&Es in an operationally representative environment according to the test plan and ensure the test objectives and/or COIs are addressed.

4.4.2. Manage and conduct OT&E, and other OT&E-related activities (e.g., LFT&E, FDEs, MUAs, OAs, MOT&E); manage and conduct Air-to-Air , Air-to-Ground, and Nuclear Weapon

Standardization Evaluation Programs (WSEP) (e.g., COMBAT ARCHER, COMBAT HAMMER, etc.); and support AFOTEC, Air Force MAJCOMs, Department of War (DoW) and other government agencies testing when tasked by ACC/A5T.

4.4.3. Conduct OT to support acquisition and fielding decisions as tasked. OT also includes the reevaluation of fielded systems, to ensure they continue to meet operational needs.

4.4.4. Assist with the development of TTPs during supported testing, as applicable.

4.4.5. Ensure the efficient use of ACC test resources, manage operational risk and ensure test personnel training and safety, within all subordinate units IAW approved Mission Directives (MD).

4.4.6. Ensure or incorporate appropriate levels of cyber security and cyber resiliency testing (i.e., mission assurance testing) for all IS (information system) and PIT (Platform Information Technology) systems that possess connections (including, but not limited to, hardwired, EO/RF/IR, data transfer modules, etc.) to IT networks, personal data assistants, or databases; or systems that possess air-gapped apertures/interfaces that potentially allow for open-air transmit and/or receive of data packages. This testing will be targeted to credible, real-world threats (i.e., realistic system attack surfaces with rationally exploitable system-under-test vulnerabilities) in the system's intended operating environment. The focus of mission assurance OT will be on system and mission level capabilities not component-level vulnerabilities; and will specifically address whether technical, operational, and managerial controls for the system provide the necessary ability to mitigate potential adverse functionality. It is highly likely that weapon system vulnerabilities uncovered in cyber testing are classified; operational testers should comply will all applicable security guidance when collecting data for and/or reporting results of cyber assessments. **(T-2)**

4.4.7. Monitor defense acquisition programs when directed, manage HQ ACC directed T&E and support testing conducted by other agencies as directed by HQ ACC OTTOs/TIPs.

4.4.8. Support but will not lead DT&E. DT&E support should be limited to pursuit of operational test objectives as tasked by ACC.

4.4.9. Support interoperability certification and Military Standard (MIL-STD) testing

4.4.10. To the greatest extent practical, conduct or support testing during exercises and/or training events. All test objectives will be transparent and subordinate to the exercise and training activity. Any participation must be synchronized with and approved by the lead coordinating authority. Testing in exercise and training events is an effective/efficient process for evaluating hardware/software in operationally representative environments. Extensive planning with all participating units to properly align test objectives with exercise/training objectives is critical to obtain relevant data collection and analysis that facilitates an informed recommendation.

4.5. ACC Operational Test Organization Responsibilities-Training. As directed by ACC and this instruction, operational test organizations will:

4.5.1. Develop programs to train and educate newly assigned or unqualified personnel in T&E procedures, policy and organization. Unit personnel identified for training should possess qualifications commensurate with those who will use, maintain, and/or support the items being evaluated. **(T-2)**

4.5.2. Determine training and certifications are required for all personnel to be considered "qualified," prior to each test execution. Only personnel who are "qualified" may participate in testing. Personnel not considered to be qualified may "observe" testing, IAW applicable guidance. Personnel who observe testing shall not have any official role during the test execution or evaluation **(T-2)**

4.6. ACC Operational Test Organization Responsibilities-Reporting and Documentation. As directed by ACC and this instruction, operational test organizations will:

4.6.1. Prepare and submit (through the respective test unit chain of command) quarterly test activity summary reports to ACC/A5T.

4.6.2. Prepare, coordinate, publish, and distribute test plans, support plans, reporting products and recommendations as required by this instruction, OSW guidance and DAFI 99-103 and as indicated by approved via OTTOs. Documentation will be maintained IAW the unit's Records Disposition Schedule.

4.6.3. When required, ensure all published technical documents (i.e., final reports, capabilities and limitations reports, etc.) are published by STINFO procedures according to the guidance in DAFI 61-104, *Management of Scientific and Technical Information (STINFO)*.

4.6.4. Submit appropriate system deficiencies as prescribed in T.O. 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution (DRI&R)*. Technical data discrepancies will follow T.O. 00-5-1 and T.O. 00-5-3 direction.

4.6.5. Designate a central custodian to maintain and forward case files to the Defense Technical Information Center (DTIC) IAW the RDS to include test plans, interim/final reports, and any other applicable documents that have significant record value for permanent retention.

4.6.6. Prepare the final report/deliverable and fielding recommendation when required and initiate the applicable coordination process.

4.6.7. Ensure the produced deliverables are supported by the appropriate level of rigor commensurate with the deliverable. The ability to determine effectiveness and suitability is directly tied to the technical and analytical rigor associated with the evaluation activity. *Some form of dedicated OT (defined as the test activity designed to produce the data necessary to support the planned evaluation) is required (i.e., OUE, FDE) to accurately determine effectiveness and suitability of a system under test.*

4.6.8. Assist the ACC project officer in updating test information, as required.

4.6.9. As required, participate in Document Writing Team (DWT) when new requirements documents are being developed.

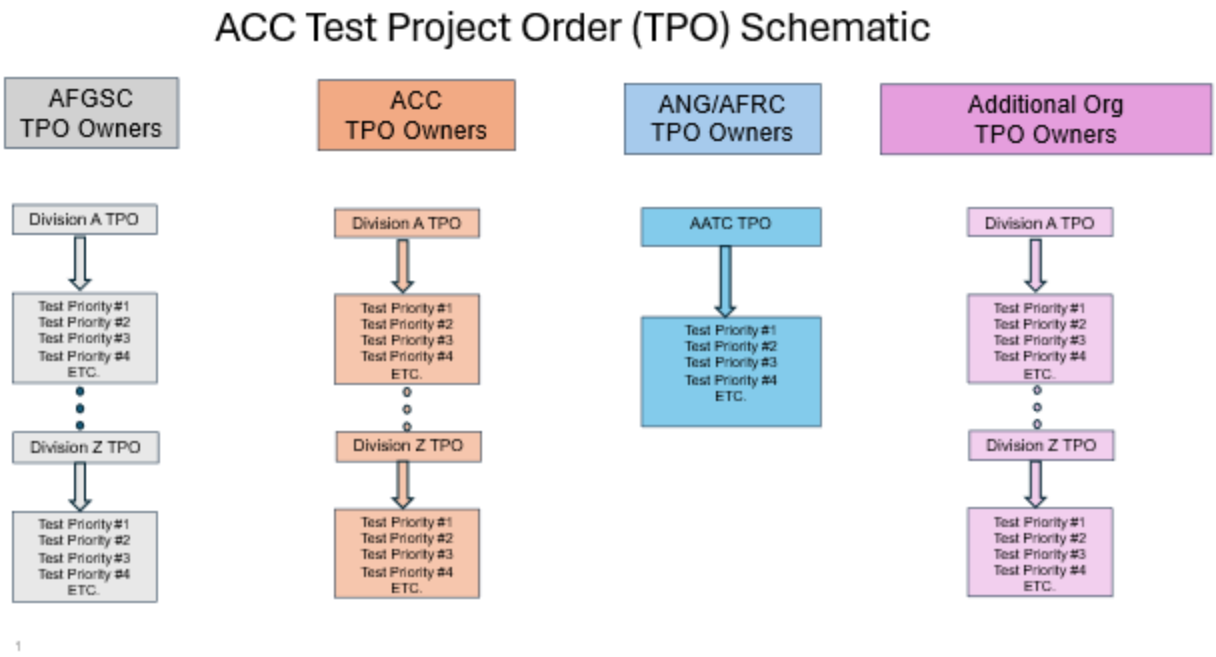
4.6.10. When established, participate in the (JRMET) to assist in collection, analysis, verification and categorization of reliability, maintainability and availability data.

Chapter 5

ACC TEST PRIORITY LIST (TPL) MANAGEMENT AND OPERATIONAL TEST TASKING ORDER (OTTO) PROCESS

5.1. TPL Management Overview. HQ ACC prioritizes CAF T&E requests for USAFWC (53WG and 505CCW), AATC, 67 CW, and 557 WW execution as well as test support to other MAJCOMs, Services and Agencies via the ACC Test Priority List (TPL). The TPL is made up of a series of TPO categories, each aligned with organization requirements owners (typically HQ divisions). Each TPO contains approved OTTOs associated with the capability portfolio of the respective organizational requirements owner prioritized in the respective TPO list. Together, these TPOs set the relative priority of projects for ACC operational test agencies and serve as a guide for allocating resources (i.e., funding, scheduling, aircraft, and personnel).

Figure 5.1. ACC Test Project Order Schematic.



5.1.1. The TPL is a guide for HQ ACC and ACC and ANG-AFR OT unit and resource allocation. It is not a guarantee that a project will be executed or executed in a specific order or sequence. TPOs align with the requirements owners/programs of record at the organization division (O-6) level (or equivalent) in accordance with other MAJCOM and any applicable Operational Test MOAs. The requirements owner determines the "test priority" within their designated TPO. If a priority conflict arises between TPOs that cannot be resolved between test units or programs, ACC/A5T is the sole adjudication authority and will coordinate with the appropriate TPO owner for resolution.

5.1.2. Test Priorities, organized and decided by TPO, are intended as a guide for test units and is not intended for execution in sequential order. The fluid nature of test programs requires

flexibility in execution management, to ensure the most efficient use of limited resources. Test programs within a TPO may compete for the same resources and create a potential conflict in priority. The TPO requirements owner has the authority to resolve these conflicts by reprioritization and will notify A5T of the new priority. Tests in an "execution status" will not normally be impacted because of reprioritization, except for Urgent Operational Needs (UONs) or those directed by ACC A5/8/9.

5.1.3. Unless otherwise sponsored or assigned by MOA, external ACC customer requests are placed in the ACC/A5T-external MAJCOM Test Project Order (TPO) list. This TPL is a first come-first served priority order and is a catch all for tests that are viewed as necessary but do not have ACC requirement owner support or sponsorship and are thus executed on an "as able" basis. However, since no two requests are the same and some external requests may come from HHQ and be of a higher priority than ACC tests, A5T is the final priority decision authority.

5.2. Operational Test Tasking Order (OTTO) Process Overview. An approved OTTO is required for each test project. An OTTO will be completed IAW the A5TT OTTO Template and supplemental instructions, located on the A5TT SharePoint Site. Changes to the template will occur as necessary, and notification of form revisions will be coordinated, as required and determined by A5TT. OT and/or operational unit commanders will not accept, execute, or support non-tactics-oriented testing, with assigned CAF test personnel or resources, without a digitally signed and approved OTTO. TD&E are authorized and tasked via the processes outlined in **Chapter 6**, CAF Tactics Development of this instruction. Other documents such as TEMPs, Test Plans, and TRPs may be required prior to test execution but are not an authorization for test execution. Additionally, these documents do not eliminate the requirement for an approved OTTO.

5.2.1. Classified tests require the coordination of an "UNCLASSIFIED" placeholder with ACC/A5TT so that tasked work is accurately reflected on the TPL. These are tracking documents and are only utilized to document and reflect the tasked test workload.

5.2.2. Priority Tests. Urgent Operational Need (UON) and Quick Reaction Capability (QRC) tests are in direct support of Combatant Commanders (COCOMs). ACC will prioritize tests supporting validated UONs and QRCs and will expect all necessary test center support and resources be made available to the assigned task as appropriate to prioritization.

5.2.3. Multi-Event OTTO Activities. A multi-event is the descriptor given to those test related activities that: 1) capture individual secondary test related events as part of an overall project effort or 2) are individual test or evaluation related events or venues of a similar scope or objective that are repeated or take place during the course of a given time frame or fiscal year (FY). For example, if software is incrementally developed, tested, and released to the field as part of a major capability package, the total number of expected incremental fielding releases can be captured on one OTTO, i.e., Versions 1.1 through 1.6 released to the field as part of the overall testing of Version 1.X. The number of releases to the field defines the scope of the OT effort. In the case of similar events or venues, the number of events anticipated during the FY define the scope of the effort, i.e., 10 separate WSEP events or 4 separate Black Flag events. Identifying these types of activities accurately in a multi-event OTTO shows the anticipated workload without generating unnecessary OTTO taskings for each software release or test evaluation event.

5.2.4. The Requirements Owner Representative (ROR) is a government individual who represents the HQ division level or other ACC organization O-6 or GS-15 requesting OT

support for specific system capabilities and requirements. RORs may also represent O-7 level external MAJCOM leadership when making initial test support requests. RORs (i.e. ACC PEMs, SPOs…, will provide the OTTO (page 1) to ACC/A5TT no later than 90 days prior to the anticipated involvement of ACC OT units.

5.2.5. Verification of resource availability is required for OTTO approval. Previously approved OTTOs with current or projected resourcing shortfalls, must be reconciled and updated or risk of termination from ACC/A5T. Test resources are finite and continued test unit involvement, even in a reduced capacity limits execution of those test projects with dedicated resources. OT units will correctly identify and bill test project costs above the unit baseline during the course of test execution.

5.3. OTTO Tracking Numbers. Tracking numbers are assigned by A5TT and include the fiscal year (e.g., —24), a three-digit identification number (e.g., —001), and an OTO identification letter (e.g., —A). Test center identifiers are USAFWC-(53 WG) —A, USAFWC-505 CCW (505 TTG) —C, AATC —R, 557 WW (557WW (2 CWSS)– W, and 67 CW (346 CTES) - I. Multiple suffix identifiers indicate more than one OTO is involved in the effort. The first letter in the suffix indicates the lead OTO. A5TT will validate the submitted OTTO and transmit it to the associated OTO for coordination. Once test unit workflow coordination is complete, the OTTO will be submitted for A5T approval and transmission as a tasking to the test unit, via email. While the OTTO template is intended to be self-explanatory, additional details and examples are available on the A5TT SharePoint site.

5.4. OTTO Processing.

5.4.1. A5TT and Requirements owner coordination**:** In concert with the applicable acquisition SPO or technology lead office , the ROR will complete the applicable portion (page 1) of the most current OTTO form, then electronically sign and send the request to ACC/A5TT. Any additional supplemental information to aid in clarifying the OTTO content and the intent of the requested support should also be included. A5TT will coordinate with the submitter to verify and ensure accuracy of the information submitted prior to coordination with the applicable test unit.

5.4.2. A5TT and Test Unit Coordination: After ACC and ROR coordination is completed, A5TT will route the OTTO to the designated test unit for review and input to A5TT for final processing and tasking via the A5TT SharePoint workflow. Communications between the ROR and OT unit are not discouraged, but page two of the OTTO form will normally not be pre-coordinated with the test unit prior to submission for initial processing. Information verified and developed during the coordination phase between A5TT, and the ROR may ultimately impact or change any predetermined OT unit inputs to a draft OTTO. A5TT will review inputs made by OT units and coordinate with them and the ROR as necessary prior to signature for final processing.

5.4.3. Signature for final processing: After coordination with the respective test unit is complete, A5TT will return the draft OTTO to the ROR for review and respective division-level or external MAJCOM O-7 signature. After O-6/O-7 signature, the requesting organization assigns a TPO priority as applicable and forwards the OTTO to A5TT for final approval and tasking. Normally a request originating externally from ACC will require a military or civilian equivalent O-7 or above digital signature. This is to ensure that the requesting organization leadership is aware of the request and to provide justification for the

use of ACC resources towards non-ACC efforts. During coordination, an ACC organization may have the opportunity to "sponsor" the effort on behalf of the external agency if the sponsor deems the effort as beneficial to ACC. Sponsorship does not signify an agreement to provide resources towards the project support, but rather interest in project results that obviate the need for O-7 level signature on the OTTO.

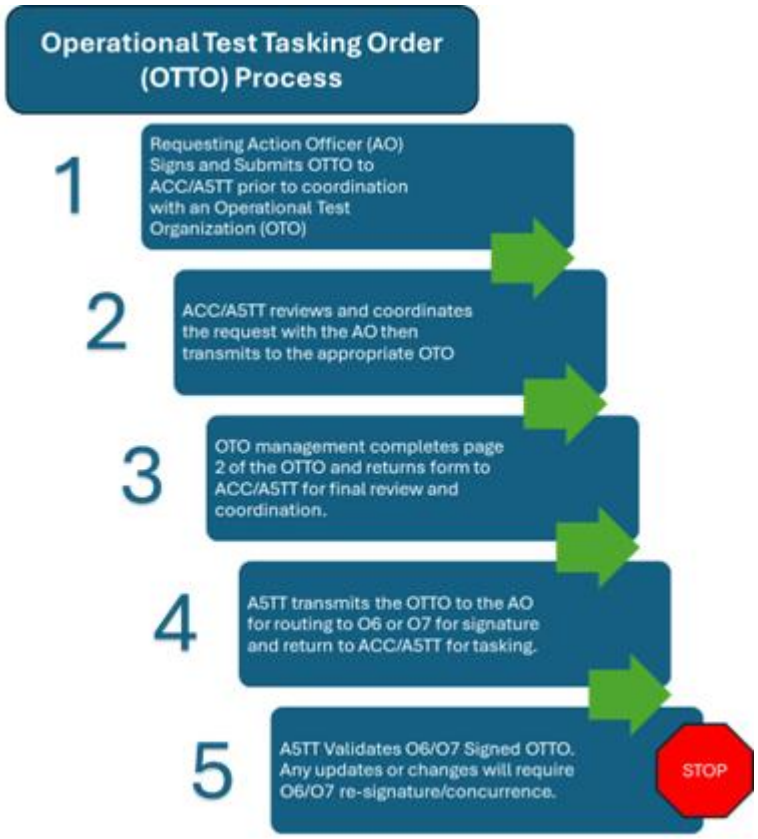
5.4.4. Final Processing and Tasking: The O6/O7 signed OTTO is reviewed and reviewed by ACC/A5T for final approval and OT unit tasking via email. A courtesy copy is sent to the appropriate POCs and associated coordinating organizations. After tasking the OTTO may be updated by A5TT as required. Any changes to the tasked OTTO will be coordinated with the appropriate ROR to approve. Tasked OTTOs are available on the A5TT SharePoint site.

5.4.4.1. ACC/A5T OTTO Approval and tasking constitute the authority for the OT unit to conduct test activities as indicated, within the scope of the specific OTTO. Authority to execute only extends to what is expressed or implied within the OTTO.

5.4.4.2. OTTOs may be submitted at any time but failure to submit without adequate OTTO processing time may result in disapproval or delayed testing. OTTO approval is contingent on two requirements: 1) the System Under Test (SUT) is sufficiently mature, stable, and prepared to enter Operational Testing (OT) and 2) Full and dedicated resources are allocated.

5.5. OTTO Update, Expiration and Extensions. A5TT will assign an OTTO expiration date. The expiration will be based on the overall test schedule and when the deliverables are required to support the indicated requirements owner decision points. This initial expiration date will not exceed 3 years from the initial approval/tasking date. Expiration dates may be extended at the discretion of ACC/A5TT on a case-by-case basis. OTTOs requiring an extension must be coordinated prior to expiration. Tests not in active planning or execution status after the initial approval date are reviewed and subject to removal from the TPL. A5TT will coordinate with requirement owners of OTTOs prior to removal. OTTOs removed for inactivity must be resubmitted/ revalidated for inclusion into the current FY TPL. RORs and test units should review all tasked OTTOs resident in their respective TPOs or tasked workload as a minimum annually for currency and notify A5TT with any updates.

Figure 5.2. OTTO Process Schematic.



Chapter 6

CAF TACTICS DEVELOPMENT & EVALUATION PROGRAM

6.1. ACC Tasking. ACC is tasked to serve as lead MAJCOM in developing, documenting, and disseminating tactics for the CAF. The CAF Tactics Development Program described in this instruction is designed to meet that responsibility. Specific program guidance may be found in DAFMAN 11-260.

6.2. Tactics Development. Tactics development starts as early in the acquisition cycle as possible. Incorporate TTP objectives in IOT&E, QOT&E, FOT&E, and FDE to the maximum extent practical. For aircraft modifications such as OFP upgrades, the FDE may be the only opportunity to evaluate impact on tactics. During AFOTEC-led test programs, ACC OT units should work with the AFOTEC test team to ensure the planned operationally representative scenarios and data collected will provide adequate information for MAJCOM and develop and assess Training, Tactics, and Procedures (TTPs).

6.3. Tactic Improvement Proposal (TIP). Each level of command will evaluate tactics for areas within its expertise and submit a TIP when appropriate IAW DAFMAN 11-260. Subordinate units should review the appropriate mission area plan(s) (MAP) or flight plan(s) during their preparation for and conduct of the annual Tactics Development Program. Responsibilities include:

6.3.1. MAJCOM and Numbered Air Force (NAF) – deployment, combat planning, combat operations, tasking of combat forces, command and control of forces, DoD information network, offensive and defensive Cyber operations.

6.3.2. Test Centers – weapons and tactics issues that result from the centers' activities.

6.3.3. Wing, Group, and Air Defense Sectors – weapons and tactics issues related to the designed operational capability (DOC) statement, local tasking, or Air Expeditionary Force (AEF) tasking.

6.3.4. Squadrons – weapons and tactics issues related to any aspect of mission planning and execution to include network, offensive and defensive Cyber operations.

6.4. Authority and Approval Responsibilities. ACC/A3 is the tasking and approval level authority for the CAF Tactics Development Program. ACC/A3T is the OPR and project office. All TD&E activity must be based on a A3 validated, approved, and prioritized TIP. ACC/A3 will:

6.4.1. Coordinate with appropriate MAJCOM/A3s, National Guard Bureau (NGB/A3) and AFRC/A3 on programs that affect their respective activities; or appropriate MAJCOM/A6, NGB/AFRC/A6 for network, offensive and defensive Cyber operations.

6.4.2. When requested by ACC/A5/8/9, provide a concept of employment for the applicable OT&E or FDE to ensure tactics development starts as early as possible in the acquisition cycle.

6.4.3. Participate in technical order (T.O.) approval, as required.

6.4.4. Ensure formal tasking and approval for conduct of TD&Es will be IAW the process outlined in this instruction. Test Centers are authorized to conduct TD&E once TIP validation, approval, prioritization, and funding are determined, and a control number is assigned. Priority conflicts between TD&E related and acquisition/capability-based OT activity will be resolved between A5T and A3T as required. An OTTO is not required under this process as long as the

TIP documentation and content is sufficient to adequately describe the planned TD&E activities and the processes outlined in this instruction are followed.

6.5. Test Organizations. USAFWC, AATC, 557 WW, and 67 CW are the primary TD&E organizations. Selected units may also be tasked to assist the TD&E effort, as appropriate. Test centers are selected to conduct specific TD&E projects based on unique capabilities, resource availability, and projected workload.

6.6. Air Force Training Tactics and Procedures (AFTTP) Authorities and Responsibilities. AFTTP are the primary source of tactics information for the CAF. They contain information that is validated and has CAF-wide concurrence.

6.6.1. ACC/A3 is the designated primary review authority for AFTTP and is responsible for the content and approval of AFTTP volumes. ACC/A3 delegates AFTTP program oversight to ACC/A3TW, who in turn works with the USAFWC/A9 WPS for updating AFTTP volumes to include volume management, production and dissemination.

6.6.2. Test Centers will review applicable information sources on weapon systems for which they have tactics responsibilities and identify information for inclusion in AFTTP 3-1 or TD&E final and interim reports. Any TTPs identified for inclusion in AFTTP 3-1 volumes should be forwarded to USAFWC/A9. USAFWC/A9 will assign the inputs to the appropriate Mission Design Series (MDS) model manager for potential inclusion in the next AFTTP 3-1 rewrite. If through operational testing, OT&E develops TTPs that are time perishable and which need immediate dissemination, OT&E squadron commanders can submit those TTPs to USAFWC/A9 in the form of an OT Flash Bulletin (FB) (See AFTTP 3-1GP Attachment 4). USAFWC/A9 will assign the FB to the appropriate MDS model manager and facilitate domain-wide dissemination (as well as track for potential inclusion into future AFTTP 3-1 rewrites).

6.6.3. Specific procedures and responsibilities for the management of AFTTP are contained in AFTTP 3-1, Volume 1, General Planning, Attachment 4.

6.6.4. Changes to AFTTP are published on an as-needed basis. These changes contain executive summaries of interim and final reports and any other information releasable to the CAF as valid tactics.

6.7. Identification of Tactics Deficiencies. Identified deficiencies are documented on a TIP and forwarded through the appropriate chain of command to ACC/A3T. Units can submit a TIP anytime new tactics require validation, or a tactical deficiency is recognized. HQ ACC assigns the TIP to the appropriate OPR for action if immediate testing is required. A proposed change to operations or training procedures, as contained in the 11-series manuals, should be submitted by message to ACC/A3T who will forward to the appropriate authority for action as they deem appropriate. The TIP process will not be used to request modification or acquisition of hardware or software.

6.7.1. If a TIP is of immediate concern and affects current operations and testing, forward the TIP immediately to the respective MAJCOM weapons and tactics office. HQ ACC will assign the TIP to the appropriate OPR for action if immediate testing is required.

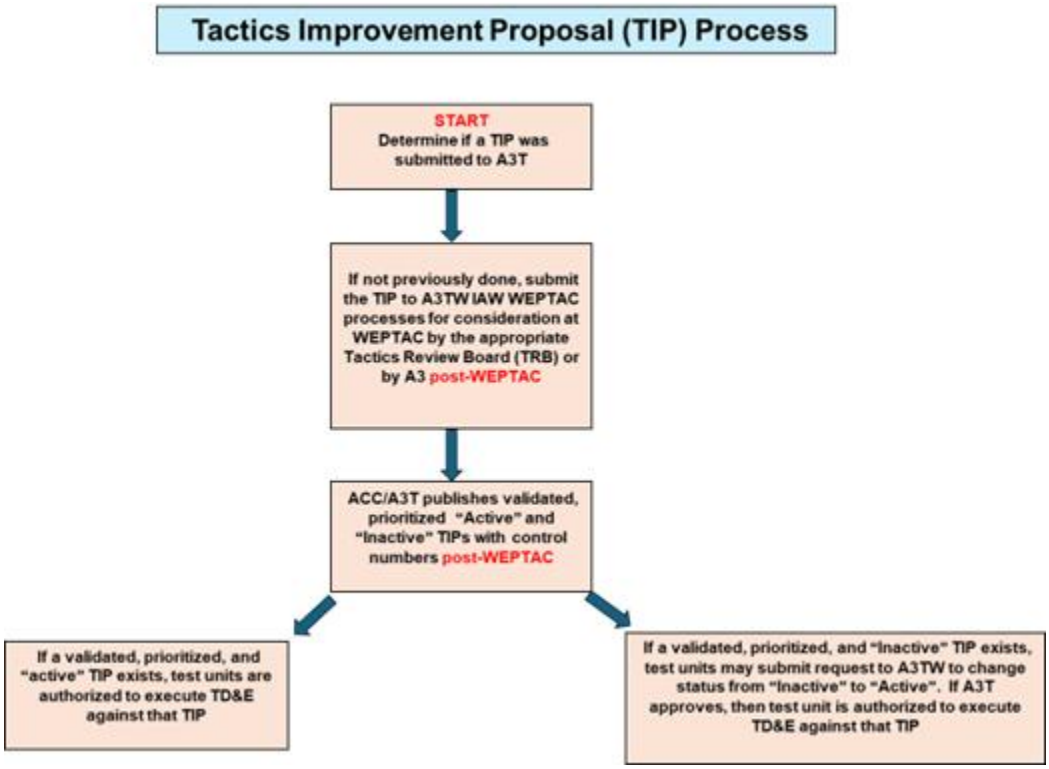
6.7.2. The annual TRB is chaired by ACC/A3 in conjunction with WEPTAC no later than the second week in January each year. Detailed procedures for the TRB are in DAFMAN 11-260.

Validated TIPs approved for formal evaluation are tracked on the A3T WEPTAC SharePoint site in priority order. Validated TIPs are categorized as either active or inactive status. To execute a TD&E against a validated TIP, the TIP must show "active" and must be either funded or executed at no cost. **Note:** A3T website may not be accessible from non-ACC bases. Contact ACC/A3TW for access.

6.7.3. TD&E Resourcing. ACC/A5T and ACC/A3T will coordinate to submit annual Program Objective Memorandum (POM) inputs to address CAF TD&E requirements through PE 28015 Combat Development. Available ACC resources may limit the scope and number of TD&E events executed each CY. Partner MAJCOMs with ACC test MOAs should also program for funding to help address weapon system specific TD&Es as well as cost sharing for Large Force Test Environment events that benefit MAJCOM objectives.

6.8. Tactics Improvement Process. Figure 6.1 below outlines the steps for submitting TIPs.

Figure 6.1. Tactics Improvement Process Schematic.



6.9. Tactics Investigations (TI). TIs are a test sub-category of the CAF Tactics Development Program designed to serve two purposes currently not accommodated by TD&Es: 1) support initial stage and/or subsequent stages of a TPL-tasked TD&E in a resource-streamlined manner; or 2) provide a means to address fleeting, targets of opportunity that do not require normal range test expenses, or would be of needless scope or complexity. TIs are not intended to supplant TPL-tasked TD&Es/TIPs simply to avoid either legitimate range "test" expenses; or the technical rigor, oversight, administrative, and approval processes inherent in conducting a TD&E.

6.9.1. The following guidelines apply to TIs:1) ranges will not be asked to incur/absorb any costs (i.e., specialized threat systems) outside the scope of assets normally included in a training sortie; 2) use of training sorties will not normally be authorized in cases where a

supporting range concludes that the scope of a proposed TI requires initiation of a formal agreement (i.e., project identification document (PID)/statement of capability (SOC) process); and 3) ACC field units will incur no costs for TIs above those ordinarily required to fund flying hours, organic manpower, and routine training range usage. A TI that requires limited additional expenses (i.e. TDY) may be authorized by exception, however funding will not likely be prioritized or available from PE 28015 or ACC/A3. Additionally, funding a TI will not be at the expense of activated TIPs with a higher priority on the CAF WEPTAC Tactics SharePoint site or from money that is dedicated to executing specific ACC/A3T prioritized TD&Es.

6.9.2. TI events may piggyback on test sorties tasked against any appropriate TPO approved TIP. Tis may also be executed in simulators, when feasible, as an economic alternative to live-fly testing.

6.9.3. In cases where it makes sense to execute an existing, approved TIP as a TI, ACC/A3TW and ACC/A5TT will be notified of this intent by email.

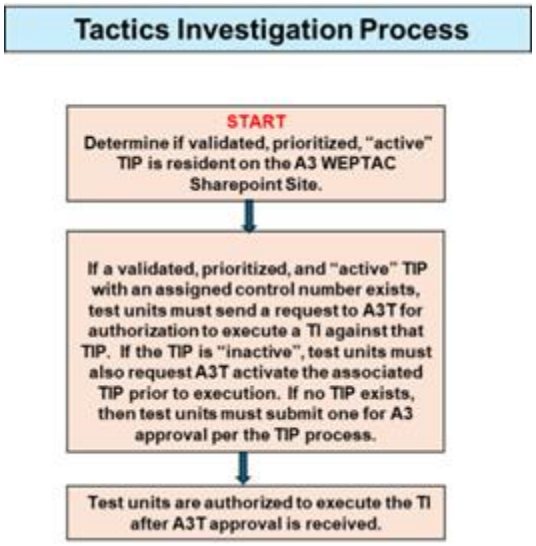
6.9.4. For TI proposals not already authorized by an existing approved TIP on the A3T SharePoint site:

6.9.4.1. Test centers will submit TI requests to ACC/A3TW via the SIPR WEPTAC SharePoint site. All requests will include justification for accomplishing as a TI, and ROM with funding source if applicable. ACC/A3TW will coordinate for ACC/A3T or AFGSC/A3T approval and notify ACC/A5T the TI is included in the WEPTAC prioritized listing.

6.9.4.2. All Tis require a validated, active TIP with an ACC/A3TW assigned control number prior to execution.

6.10. Tactics Investigation Process. Figure 6.2 below outlines the steps for Tis

Figure 6.2. Tactics Investigation Process Schematic.



William D. Betts, Major General, USAF
Director of Plans, Programs and Requirements

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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Prescribed Forms

None

Adopted Forms

DAF Form 847, *Recommendation for Change of Product*

Abbreviations and Acronyms

AATC—Air National Guard Air Force Reserve Command Test Center

ACAT—Acquisition Category

ACC—Air Combat Command

ACCI—Air Combat Command Instruction

ACTD—Advanced Concept Technology Demonstration

AF—Air Force

AFB—Air Force Base

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOTEC—Air Force Operational Test and Evaluation Center

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFTTP—Air Force Tactics, Techniques and Procedures

ANG—Air National Guard

AOA—Analysis of Alternatives

ATD—Advanced Technology Demonstration

CAF—Combat Air Forces

CDD—Capability Development Document

C&LR—Capabilities and Limitations Report

COCOM—Combatant Commander

COI—Critical Operational Issue

COMACC—Commander, Air Combat Command

CRA—Capabilities Readiness Assessment

CSAF—Chief of Staff, United States Air Force

DoW—Department of War

DOT&E—Director Operational Test and Evaluation

DT&E—Developmental Test and Evaluation

FCT—Foreign Comparative Test

FDE—Force Development Evaluation

FME—Foreign Materiel Exploitation

FOT&E—Follow-on Operational Test and Evaluation

FY—Fiscal Year

HQ—Headquarters

IAW—In Accordance With

ICD—Initial Capability Document

IOT&E—Initial Operational Test and Evaluation

ITT—Integrated Test Team

JRMET—Joint Reliability and Maintainability Evaluation Team

JT&E—Joint Test and Evaluation

MAJCOM—Major Command

MAP—Mission Area Plan

MDS—Mission Design Series

MRTFB—Major Range Test Facility Base

MOT&E—Multi-service Operational Test and Evaluation

MTA—Middle Tier Acquisition

NAF—Numbered Air Force

NGB—National Guard Bureau

NLT—No Later Than

OA—Operational Assessment

OFP—Operational Flight Program

O&M—Operations and Maintenance

OPR—Office of Primary Responsibility

OSW—Office of the Secretary of War

OTA—Operational Test Agency

OT&E—Operational Test and Evaluation

OTO—Operational Test Organization

OTTO—Operational Test Tasking Order

OUE—Operational Utility Evaluation

PE—Program Element

PEM—Program Element Monitor/Manager

PDAI—Primary Development/Test Aircraft Inventory

PMD—Program Management Directive

POC—Point of Contact

POM—Program Objective Memorandum

QOT&E—Qualification Operational Test and Evaluation

QRC—Quick Reaction Capability

RALOT—Risk Assessment Level of Test

RM&A—Reliability, Maintainability and Availability

ROR—Requirements Owner Representative

SOTR—Sufficiency of Test Review

SPO—System Program Office

STINFO—Scientific and Technical Information

TD&E—Tactics Development and Evaluation

T&E—Test and Evaluation

TEMP—Test and Evaluation Master Plan

TI—Tactics Investigation

TIP—Tactic Improvement Proposal

T.O.—Technical Order

TPL—Test Priority List

TPO—Test Project Order

TRB—Tactics Review Board

TRP—Test Resource Plan

TSL—Test Sufficiency Levels

TTP—Tactics, Techniques and Procedures

UON—Urgent Operational Need

USAFWC—United States Air Force Warfare Center

WG—Wing

WSEP—Weapon System Evaluation Program

Office Symbols

ACC/A3A—Airspace Ranges and Airfield Operations Division

ACC/A3C—Command and Control (C2) ISR Operations Division

ACC/A3—Director of Air and Space Operations

ACC/A3O—Operations Division

ACC/A3T—Flight Operations Division

ACC/A4—Director of Logistics, Engineering and Force Protection

ACC/A5/8/9—Director of Plans, Program and Requirements

ACC/A5/8Z—Advanced Programs Division

ACC/A5T—Test and Training Division

ACC/A5TT—Test and Training Branch

ACC/A6—Director of Communications

ACC/A10—Director of Strategic Deterrence and Nuclear Integration

Terms

ACC Project Officer—A government individual assigned to the headquarters, responsible for staffing the operational test tasking order, accomplishing HQ duties, and providing guidance through the life of the project.

ANG and AFRC Project Officer—A government individual assigned to the ANG and AFRC Staffs, in the case of activities associated with AATC, serving as a POC for coordination with the ACC project officer, who monitors the test and provides command coordination and support as required.

Dedicated OT—A test strategy encompassing OT focused and OT-led test events conducted by qualified OT personnel intended to produce statistically significant results to support findings relative to capability effectiveness and suitability.

DT Support—Defined as the lending of resources, to include manpower, for a DT effort, with active involvement in the execution of the DT with the DT organization assuming the lead role. OT units providing DT support may execute only those activities for which they are trained and qualified to perform normally assessed as low risk.

Force Development Evaluation (FDE)—The operational test and evaluation of fielded, operational systems during the sustainment portion of the system life cycle after acceptance for operational use. The focus is on maintaining or upgrading operational systems after the initial acquisition process is complete. An FDE also supports acquisition on MAJCOM-managed systems.

Integrated Test—Integrated testing is the coordinated planning, execution, and reporting of test events by an ITT to produce sufficient data to support evaluation and analysis of both DT-led and OT-led test objectives. An integrated test plan may include and coordinate three phases of testing: dedicated DT, integrated test, and dedicated OT. Dedicated DT encompasses DT focused and DT-led test events conducted by qualified DT personnel. Integrated test incorporates OT test objectives into the test plan to produce data needed for the operational evaluation of the system under test. OT units performing DT support activities may collect data for integrated test objectives, but integrated test in and of itself does not preclude the possibility of additional dedicated operational testing. Dedicated OT encompasses OT focused and OT-led test events conducted by qualified OT personnel.

Operational Effectiveness—measure of the overall ability to accomplish a mission when used by representative personnel in the environment planned or expected for operational employment of the system considering organization, doctrine, tactics, supportability, survivability, vulnerability and threat.

Operational Suitability—the degree to which a system can be placed and sustained satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, habitability, manpower, logistics, supportability, logistics supportability, natural environmental effects and impacts, documentation, and training requirements.

OT&E Project—An OT&E project supports a defense acquisition decision by evaluating the operational effectiveness and suitability of a system, subsystem, or system modification; identifying operational deficiencies; or identifying the need for modifications. An OT&E project order is usually for MAJCOM-conducted operational testing and/or FDE.

Operational Test Tasking Order (OTTO)—The form serving as the documented tasking for operational test support.

Operational Utility Evaluation (OUE)—OUEs are evaluations of military capabilities conducted to demonstrate or validate new operational concepts or capabilities, upgrade components, or expand the mission or capabilities of existing or modified systems. An OUE also supports acquisition of MAJCOM managed systems.

Program Element Monitor/Manager (PEM)—The individual assigned the responsibility by the requirements owner for the day-to-day management of activities associated with SPO acquisition and resource execution in support of approved requirements.

Requirements Owner Representative (ROR)—The individual representing the HQ or equivalent division-level O-6 or civilian equivalent (GS-15) requesting OT support for a specific capability requirement. This individual must be government civilian or military member and may also act as the PEM.

Support Project—Support projects are used primarily to support AFOTEC-conducted OT&E, AFMC-conducted DT&E, other Service-conducted T&E projects, JT&E, and FCT.

System Under Test (SUT)—The capability or collection of capabilities (as in a system of systems) under evaluation. A system of systems is defined as individual systems working together in an integrated manner in a relevant environment to accomplish or execute a specific mission or mission thread.

Tactics Development and Evaluation (TD&E)—TD&E is specifically designed to further exploit doctrine, system capabilities, tactics, techniques and procedures during the sustainment portion of the system life cycle. TD&Es normally identify non-material solutions to tactical problems or evaluate better ways to use new or existing systems.

Test Director (TD)—An individual responsible for directing an OT&E or Developmental T&E (DT&E) test team respectively or overseeing execution of the project according to the test plan.

Test Project Manager—An individual assigned to the USAF Warfare Center (USAFWC) or the Air National Guard Air Force Reserve Command Test Center (AATC) who is directly responsible for the management and coordination of all activities associated with the planning, conduct, and reporting for the assigned test project

Technology Readiness Level (TRL)—TRLs reflect a system maturity scale (usually ordered 1 to 9 with 1 being the lowest level) ordered according to the characteristics of the demonstration or testing environment under which a given technology was tested at defined points in time. See **Attachment 2** for more detail.

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. The term "test" is most often associated with planned data collection and analysis of new capability i.e., unfielded articles or systems such as those in procurement. The term "evaluation" is often associated with the planned data collection and analysis of existing or fielded system performance in a operationally representative scenario.

Test Priority List (TPL)—An annual list approved by ACC/A5/8/9 that identifies the relative priority of all active and projected FY T&E projects for a given fiscal year. ACC/A5TT is the OPR for producing the priority list.

Test Project Order (TPO)—Test categories which align with ACC requirement owners/programs of record at the ACC division level as well as AFGSC.

Tactic Improvement Proposal (TIP)—Formal proposal for a non-material solution to a tactical requirement. A TIP may be used as justification for a TD&E.

Tactics Investigation (TI)—TI is a test sub-category of the CAF Tactics Development Program designed to support initial stage and/or subsequent stages of a TPL-tasked TD&E in a resource-streamlined manner and provide a means to address "fleeting, target of opportunity" tactics development.

Unit Baseline—The level of resources that are programmed and provided for the day-to-day operations of the unit. These resources included assigned military and civilian personnel salaries, funding to conduct unit training necessary to conduct the assigned mission, funding for travel associated with maintaining mission capabilities, programmed flying hours, funding for supplies, and contract support that is not associated with a specific test or acquisition program or project. Costs and resources considered above the baseline include test facility or open air range time and data collection and reduction costs, unit travel required to effectively plan or execute approved test plans and taskings, any non-standard, specialized equipment, or contract support required to execute approved test taskings or collect data. Above baseline costs will be funded by the associated acquisition program of record or associated organization requesting the test support (i.e., AFRL, DARPA, etc.)

Weapon System Evaluation Program (WSEP)—Conducted by MAJCOMs to provide an end-to-end tailored evaluation of fielded weapon systems and their support systems using realistic combat scenarios. WSEP also conducts investigative firings to revalidate capabilities or better understand munitions malfunctions. It consists of COMBAT ARCHER, COMBAT HAMMER, COMBAT FORGE, COMBAT SHIELD and is managed and funded by ACC/A3T under CSAF Plan 53.

Attachment 2

TECHNOLOGY READINESS LEVELS (TRL)

A2.1. Technology Readiness Level (TRL). TRLs reflect a system maturity scale ordered according to the characteristics of the demonstration or testing environment under which a given technology was tested at defined points in time. The scale consists of nine levels, each one requiring the technology proven in incrementally higher levels of fidelity in terms of its form, the level of integration with other parts of the system, and its operating environment than the previous, until at the final level the technology is described in terms of actual system performance in an operational environment. The OTTO requires that a TRL be identified at the time of request.

Figure A2.1. Technology Readiness Levels.

Technology readiness level (TRL)	Description
1 Basic principles observed and reported	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Examples include paper studies of a technology's basic properties.
2 Technology concept and/or application formulated	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
3 Analytical and experimental critical function and/or characteristic proof of concept	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4 Component and/or breadboard validation in laboratory environment	Basic technological components are integrated to establish that they will work together. This is relatively low fidelity compared with the eventual system. Examples include integration of ad hoc hardware in the laboratory.
5 Component and/or breadboard validation in relevant environment	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so they can be tested in a simulated environment. Examples include high fidelity laboratory integration of components.
6 System/subsystem model or prototype demonstration in a relevant environment	Representative model or prototype system, which is well beyond that of TRL 5, is tested in its relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
7 System prototype demonstration in an operational environment	Prototype near or at planned operational system. Represents a major step up from TRL 6 by requirement demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, a vehicle, or space).
8 Actual system completed and qualified through test and demonstration	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation of the system in its intended weapon system to determine if it meets design specifications.
9 Actual system proven through successful mission operations	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation. Examples include using the system under operational mission conditions.

Source: GAO simplification of agency documents. | GAO-16-410G

Attachment 3

SAMPLE OTTO

A3.1. Sample OTTO. The most current OTTO format is available at: https://usaf.dps.mil/sites/13414/SitePages/Home.aspx.

Attachment 4

TEST SUFFICIENCY LEVELS (TSLS)

A4.1. TSLs. TSLs can be used to convey the level of test technical adequacy to HQ/ACC decision makers and stakeholders. TSLs indicate the risk of a test reaching an erroneous conclusion given the level of effort incorporated into the test design. For example, a certain level of user risk is assumed when fielding a new system or tactic that does not meet requirements. Conversely, there is also assumed risk as the result of failing to field a system or tactic that were judged to "meet" requirements but actually did not because the test results were falsely influenced due to insufficient test rigor. TSLs should not be confused with safety risk. TSLs provide a standard terminology for describing the level of test rigor.

Table A4.1. Test Sufficiency Levels.

TSL level	Level	Description
1	**Demonstration**	Single or limited event; illustrates the possible, no attempt at scientific rigor.
2	**Multiple Demonstrations**	Repeated events exercising a capability, tactic, technique, or procedure (TTP), and/or subsystem over multiple periods of time/events. Scenario and/or survey-based testing with minimal ability to independently assess critical factor correlations.
3	**Limited Assessment**	Descriptive statistics, confidence, power and/or combinatoric strength calculated and reported, but no specific confidence, power or strength goals are required for test completion. [1]
4	**Assessment**	Designed (either statistical or combinatoric) experiments combined with minimal confidence, power and/or strength requirements for critical areas. Leverages engineering and subject matter expertise for planning and analysis.

5	**Full Characterization**	Full mathematical rigor with predictive capability and robust design. Executed to achieve all planned confidence, power and/or strength goals.

[1] Often the lack of required confidence, power and strength goals may be due to time constraints, limited number of test assets, or limited resources (funding, range availability, or support assets). Other scientifically defensible methods of risk estimation may be used to reach TSL 3 (for example, using learning curve theory to calculate sample size for a TD&E).

A4.2. Reliability Assessment Limitation. TSLs applied to the test are normally reported as the highest TSL level for a critical requirement or Key Performance Parameter. However, decision makers should be aware that certain specific objectives or measures within a test may be well below the overall TSL. For example, three missions were used to collect adequate data points to complete a full characterization of the effectiveness of a new radar warning receiver (RWR). However, the total flight time of 18 hours is not adequate to fully assess the 2,000 hour mean time between failure (MTBF) requirement of the RWR. In the case the overall TSL 5 for effectiveness should be appropriately caveated with the reliability assessment limitation to provide decision makers and stakeholders with a complete picture of the assessment adequacy.