*BY ORDER OF THE COMMANDER*
*53D WING (ACC)*

*53RD WING INSTRUCTION 99-104*

*17 AUGUST 2015*

*Test and Evaluation*

# *COMPLEX TEST MISSION PREPARATION AND CONTROL*

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This instruction implements some aspects of 53d Wing Instruction (53 WGI) 99-103, *53WG Capabilities-Based Test and Evaluation*. This instruction addresses the preparation for and the control of complex flight and ground tests for which the 53d Air Force Warfare Center, Air Combat Command, is responsible. It specifies applicability, policy guidelines, qualification and training requirements, test card development and review procedures, control room responsibilities, and ground-to-air standard communications terminology. **This instruction applies to all units within the 53d Wing (WG)**. It does not apply to tests where 53 WG members participate in a supporting role, including those of Air Force Material Command and the Air Force Operational Test and Evaluation Center (AFOTEC). Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional chain of command."

## *SUMMARY OF CHANGES*

This document incorporates fact-of-life administrative changes, additions, and clarifications.

## Chapter 1

## INTRODUCTION

**1.1. General.** Test organizations in the 53rd Wing (53 WG) shall conduct complex flight and ground tests within approved test plans and safety plans in accordance with (IAW) 53WG Instruction (53 WGI) 99-101, 53 WG Test and Evaluation, and this publication. Unit commanders and Project Managers (PM) are responsible for implementing the provisions of this instruction for the test projects they plan and execute.

**1.2. Applicability.** This instruction only governs the preparation for and control of complex flight or ground test missions.

1.2.1. For the purposes of this operating instruction, complex test missions are defined as those missions that require the monitoring of on-board aircraft, sensor, or weapons performance data and/or safety of flight/flight termination systems via telemetry to a mission control room.

1.2.2. Complex test missions do not normally include missions whose primary purpose is one of tactics development. They also do not normally involve facilities whose "control" capability only provides for simple monitoring/controlling of the "fight" geographical location of participating aircraft and/or providing shot assessment for kill removal (i.e. ACMI, NACTS, etc).

1.2.3. Although not released from meeting the intent of this instruction, 53 Weapons Evaluation Group units responsible for executing Weapons System Evaluation Program (WSEP) missions; 53 Test and Evaluation Group units responsible for executing Nuclear Weapons System Evaluation Program missions; and the 17th Test Squadron, responsible for executing AFSPC operational testing, are authorized to use locally-developed control room training courseware to fulfill 53 WG mission control room training (MCRT) requirements.

1.2.4. This Applicability paragraph should not be construed as precluding test project managers and/or test unit commanders, at their discretion, from applying the procedures of this wing instruction to tests not strictly meeting the criteria of complex test missions.

1.2.5. This instruction does not apply to tests where 53 WG members participate in a supporting role, including those of Air Force Material Command and the Air Force Operational Test and Evaluation Center (AFOTEC). This instruction does not apply to Air Force Materiel Command (AFMC) units affiliated with the 53 WG as the developmental test part of integrated testing unless directly supporting 53 WG-conducted operational testing. This publication does not apply to Air Force Reserve Command (AFRC) Units or Air National Guard (ANG) Units; it does apply to individual AFRC or ANG personnel who are functionally (test) matrixed to a 53 WG test team performing duties guided by this instruction.

**1.3. Safety.** Complex test missions, as defined by this OI, usually present special planning and execution challenges, particularly if these types of missions are not executed by the responsible unit on a frequent basis. Test personnel should recognize that no guidance on test preparation or control room operation can be sufficient enough that test execution becomes mechanical. Test card content and control room procedures should not be taken as direction or permission to do

something unwise. Crew Resource Management (CRM) considerations dictate that any test aircrew member or control room participant should not hesitate to point out circumstances that will—in his/her judgment—put the aircraft or crew in an unplanned or hazardous situation. In short, each member of the test team must communicate, even beyond normal challenge and response levels, to resolve unforeseen situations that may occur.

**1.4. Security.** Test team personnel must follow good security practices in order to protect sensitive and/or classified telemetry information. Classified data will be properly marked, handled, and shared with appropriately cleared individuals on a "need to know" basis. control room access will only be granted to individuals with the appropriate security credentials.

## Chapter 2

## POLICIES

### 2.1. Qualifications and Training.

2.1.1. Test management and test execution organizations will ensure that personnel are current and qualified in the duties they are required to perform in support of complex test operations.

2.1.2. Test execution units will document aircrew training, qualifications, and currency to perform specialized flight test events. Test execution units will ensure that aircrew members operating on-board data acquisition and telemetry systems receive training in the proper operation of these systems. Test execution units will ensure that maintainers and instrumentation technicians are qualified to perform their required duties through appropriate training prior to working on test articles and conducting ground or logistics tests. Test execution units will ensure that all ground technical personnel operating on-board aircraft data acquisition and telemetry systems have received training in the proper operation of these systems.

2.1.3. Test management and test execution units will establish a training and checkout program for mission control room test directors and test conductors. Unit commanders will approve qualifications and authorize test directors/test conductors to perform their duties. Unit commanders will designate instructor test directors to conduct and document initial checkout of new test directors and test conductors. As a minimum, upgrading test directors/conductors will attend 53 WG Test Team Training (class room academics) and Test Control and Conduct Training (web based academics) and participate in at least two supervised control room test missions as an upgrade test director/test conductor, prior to assuming duties as an unsupervised test director/conductor. In situations where test management and test execution organizations reside at the same geographical location, it is highly encouraged that these units establish a common test director/test conductor checkout program, using a common pool of approved instructor test directors.

2.1.4. Project Managers will verify that test directors and test conductors assigned to their projects have received appropriate academics and on-the-job training prior to performing mission control room duties in these roles.

2.1.5. Test directors will ensure that all other essential mission control room participants have received familiarization training appropriate to their assigned mission control room responsibilities. Essential mission control room participants are defined as those designated subject matter experts whose active participation in the control room are essential to safety of flight and/or mission execution and data collection success.

2.1.6. Depending on the complexity of the test mission, test directors should conduct a "dress rehearsal" with all test mission participants in the actual control room to be utilized, prior to executing the test mission.

### 2.2. Test Results.

2.2.1. Preparation for and execution of complex test missions are costly and time consuming. Therefore, in adhering to all the "operationally representative" test mandates provided by

Public Law and DOD/AFI guidance, 53 WG complex test missions should not be executed with a known test item deficiency that could jeopardize successful test mission accomplishment. However, if the deficiency is locally correctable prior to test (improper configuration, revised mission planning load, modified technical order procedures, etc.), the correction may be made and the mission accomplished, but the original discrepancy should be documented and assessed in the final report as to impact on overall operational effectiveness and/or suitability. This paragraph does not apply to any testing whose purpose is to uncover or characterize suspected deficiencies (captive carries, investigative firings, etc.).

2.2.2. All complex test missions will be sufficiently debriefed to ensure that test results are properly documented. To the maximum extent possible, all essential mission personnel, to include the test aircrew, the test director, test conductor, control room engineering representatives, cognizant contractor representatives, and chase/support aircrew, should attend the debriefing. Significant deficiencies discovered and confirmed during testing will be documented, as a minimum, IAW T.O. 00-35D-54, *USAF Deficiency Reporting and Investigating System*.

2.2.3. Project Managers are responsible for ensuring that lessons learned from the test are captured and incorporated into the test plan, test report, and/or follow-on mission test cards, as applicable.

2.2.4. Any safety-related events (to include any software/integration anomalies preventing a planned munition's release) must be reported to local base and 53 WG safety offices and investigated IAW local, MAJCOM, and AF guidance, as appropriate.

**2.3. Mission Control Room Access.**

2.3.1. The test director is responsible for reconciling 53 WG mission control room operations procedures, including control room access policy, with local range control room guidance.

2.3.2. The test director is the final authority on test team access to the control room for all 53 WG missions.

2.3.2.1. The only personnel normally admitted into a 53 WG test mission control room are those test team members who are both active participants in the test mission and who have attended the test mission mass pre-flight briefing. The test director has discretion to waive this policy on a case-by-case basis for control room participants whose presence at the pre-flight mission briefing would not have been constructive.

2.3.2.2. If a range mission control facility does not have an adequate VIP/observer location to view the mission, the test director may grant a waiver to normal 53 WG control room access policy at his/her discretion for select observers.

2.3.2.3. The test director may waive control room access restrictions for VIPs (O-6s or above and contractor/civilian equivalents), as well as test execution/test management unit commanders, at his/her discretion.

**2.4. OSD Oversight Test Programs.**

2.4.1. Title 10 US Code Section 139 specifies that any observers designated by Director, Operational Test and Evaluation (DOT&E) must be allowed to attend the conduct of an operational test.

2.4.2. Any DOT&E representative attending a 53 WG test of a system that is on the OSD Oversight List should be considered a "designee" of DOT&E for observing the test. It is the responsibility of the Project Manager to know if his/her project is on the OSD Oversight List and to convey that information to the test director.

2.4.3. Although mission control room facility VIP/Observer areas should provide adequate viewing for DOT&E representatives; the test director, at his/her discretion, is encouraged to grant DOT&E individuals access to the main mission control room if it will not compromise successful mission accomplishment.

## Chapter 3

## PROCEDURES AND PERSONNEL

### 3.1. Test Preparation.

3.1.1. For complex test missions, a final test card review will be held by the unit project officer (UPO) and the test director/conductor at least 48 hours prior to test mission execution. Test card runs will be briefed in the planned testing sequence, to include a review of all flight test maneuvers and procedures. Major changes (adding runs, adding additional test aircraft, changing ordnance, etc.) to the card deck are not allowed at the final run card review; if major changes are required, the cards must be re-approved via the initial execution unit test card approval process.

3.1.2. However, "redline" changes may be made at the final review, without undergoing a formal coordination and re-approval process. Redlines are appropriate in the following cases: 1) correcting errors that were not caught during the review cycle, 2) accounting for mission support driven changes, and 3) making clarifications. Correction of errors is a primary reason for the card review and it is the last chance to ensure flight conditions, limits, procedures, etc., are all as desired to meet test objectives. support changes include such things as radio frequencies, aircraft tail numbers, aircrew members, support aircraft call signs, takeoff times, etc. Clarifications include such topics as the specifics of executing a particular test procedure and changing aircraft configurations between test points.

3.1.3. The preferred process for this final test card review is for the test director to brief the test cards directly to all test team members, en masse. Special planning considerations must be taken into account when test team members are geographically separated or when they need to travel to an off-site range prior to test execution. Teleconferencing capabilities may be used to simultaneously brief as many of the test team members as possible, but in all situations, it is incumbent upon the UPO or test director to ensure that all test team members are made aware of any and all run card changes in sufficient time for their review and comment. All test team members must agree to all "redline" changes.

3.1.4. Test runs cannot be added at the final test card review without repeating the entire test card review and approval process, but runs may be deleted or the run card order may be changed. It is imperative, when deleting test runs or changing the run card order, to consider any potential impacts to chronologically connected or otherwise related test points. The test director has final approval authority on any suggestion to delete test runs or change run card order.

**3.2. Mission Control Rooms.** A mission control room is defined as any facility, ground or airborne, that provides two-way communication with the aircrew and real-time telemetry capability to monitor safety of flight and/or test data. The following procedures apply to all ground mission control room operations and to most situations where the test director/conductor and other key personnel are airborne in a test or a test support aircraft.

3.2.1. Every individual in the control room must be trained in his or her responsibilities and should be familiar with the responsibilities of all others in the control room.

3.2.2. There is always a single, highly experienced individual designated as the test director, who acts as supervisor of the mission control room test team and has emergency direct communication with the mission test aircrew.

3.2.3. There may be a single, experienced individual designated as the test conductor who is the primary communicator with the test aircrew. The test conductor will clear the test pilot to proceed from one test point to the next. The test conductor may be the test director for less complex test missions.

3.2.4. All essential control room personnel will be in direct communication with each other and with the test director/conductor. All essential control room personnel will monitor aircrew-to-control room communications. In-flight video of the aircraft and/or its released munition may be required to enhance the situational awareness of control room personnel. Any member of the aircrew or control room team may recommend termination of a test point to the test conductor. Teamwork is paramount.

3.2.5. Unambiguous radio communications with the test aircrew must be used (see Chapter 4).

3.2.6. All safety or mission critical steps (eg. weapons switch positions) in complex test missions must be "challenge and response," (i.e. the test director/conductor challenges and the test aircrew responds) and written/highlighted on the test cards/test procedures sheet that the aircrew uses to execute the mission. The test director/conductor must be familiar with mission specific aircrew workload so challenge and response items will not interfere with critical cockpit activities.

3.2.7. All telemetered safety-of-flight and mission critical test data will be continuously monitored and a procedure shall be in place to immediately notify the test aircrew if safety limits are approached or if critical data reception malfunctions for any reason.

3.2.8. Test run and/or mission termination criteria will be covered in the mission pre-briefing. Test run and/or mission termination decisions will be made by the test director/conductor, as briefed. For remotely operated air vehicle (ROA) tests, the chase aircrew or ROA operator may take control of the vehicle, as applicable, for safety reasons, without concurrence from the control room.

3.2.8. Test run and/or mission termination criteria will be covered in the mission pre-briefing. Test run and/or mission termination decisions will be made by the test director/conductor, as briefed. For remotely operated air vehicles (ROAV) testing, including remotely piloted aircraft (RPA), the chase aircrew or ROAV operator may take control of the vehicle, as applicable, for safety reasons, without concurrence from the control room.

3.2.9. All test directors and test conductors, as well as any essential control room participants directly responsible for monitoring safety-of-flight related information, will observe a 10 hour rest period prior to reporting for duty and participating in a test mission. This rest period requirement may be waived by the test execution unit's group commander or above. In addition, the duty day for all control room personnel will not exceed 12 hours, from the time the individual reports for duty until active mission control room monitoring is no longer required. For long duration test missions, test organizations should consider rotating control room personnel. The test execution unit commander may extend the control room crew duty day up to 18 hours. Any 53 WG test team member performing a role in a

mission control room will not drink alcoholic beverages within a 12 hour period prior to entering the control room for a test mission.

**3.3. Mission Duties.** The following paragraphs discuss the roles of personnel who are typically control room participants in a large test requiring use of a ground mission control room. Depending on the complexity of the test mission, certain positions may not be required and/or individuals may fulfill more than one key mission duty (e.g., PM, UPO, rated project officer (RPO), operations analyst (OA)/operational suitability analyst (OSA), or test engineer (TE) may also act as the test director or test conductor). In tests where a multi-person aircraft is the mission control room, modifications to these key personnel duties may be required. Contractual requirements or test activities involving multiple government agencies may also necessitate some modification of the responsibilities listed. Test teams may modify the key duties below, as necessary, but should ensure that all essential control room responsibilities are assigned to specific individuals. Depending on the nature and complexity of the test, the list of mission control room personnel referred to in this instruction may not be all inclusive and should not be perceived as excluding additional control room participants.

3.3.1. **Test Director.** Responsible for the technical quality, security, safety, and support aspects of the mission as identified in the test plan. The test director:

3.3.1.1. Verifies that the test cards and/or procedures have been properly reviewed and approved.

3.3.1.2. Ensures key personnel attend both pre- and post-test briefings. The test director will ensure that test cards and safety packages are fully briefed and will ensure that test results are properly documented. Briefs any applicable ORM mitigations required by the test plan.

3.3.1.3. Emphasizes applicable Crew Resource Management guidance to the entire test team.

3.3.1.4. Supervises the mission control room and verifies qualifications of all test personnel in the control room.

3.3.1.5. Possesses the authority to terminate the test point or mission if the technical validity of the test is in question or safety is jeopardized.

3.3.1.6. Makes the final decision on the real-time selection of test run options during the test mission.

3.3.1.7. Has emergency direct communication with test mission aircrew.

3.3.2. **Test Aircrew.** Responsible for the safe operation of the test aircraft and successful completion of the test mission. The pilot-in-command will be the final authority on aircraft safety. On multi-place aircraft, a designated aircrew individual will be responsible for the execution of the test points. The pilot-in-command and/or his designated rated aircrew representative**:**

3.3.2.1. Assists the PM, UPO, OA/OSA, and TEs in preparation and review of the test plan.

3.3.2.2. Prepares or assists the PM and/or UPO in the preparation of ORM and safety reviews.

3.3.2.3. Assists the UPO, OA/OSA, and TE in the preparation of test cards and reviews test points and test mission profile for safety and execution practicality.

3.3.2.4. Reviews test cards for compliance with range safety review package.

3.3.2.5. Will be provided written information and be briefed on the entire horizontal and vertical flight profile of any free-flight weapon the mission aircraft is expected to release.

3.3.2.6. Possesses the authority to terminate the test point or mission for any safety of flight reason.

3.3.2.7. Performs test maneuvers as briefed, or in the case of multi-crew aircraft, oversees test maneuvers, as appropriate.

3.3.2.8. Leads the mission execution portion of the briefing and debriefing.

3.3.2.9. Ensures test aircraft crewmembers understand their duties for the mission and reviews aircrew duties in the event of an emergency in the test, chase or other support aircraft.

3.3.2.10. Completes post-mission questionnaires and/or reports, as required.

3.3.2.11. Assists OA and TE in analyzing test data by filling out post-mission questionnaires and providing assessments as to test system effectiveness and mission suitability.

3.3.3. **Chase Pilot.** Responsible for clearing airspace, being in position to take photographs (as applicable), checking over the test aircraft between test points, and assisting the test aircraft in an emergency. The chase pilot-in-command:

3.3.3.1. Attends mission briefings.

3.3.3.2. Reviews all mission maneuvers with test aircrew and ensures that the following items are briefed: chase position, expected test results, photography requirements, minimum anticipated altitudes and terrain clearance, aircraft limits for both test and chase aircraft, fuel management plan, altitude deconfliction and plan for lost sight, and rendezvous/rejoin plan.

3.3.3.3. Will be provided written information and briefed on the entire horizontal and vertical flight profile of any free-flight weapon that chase is expected to observe. Briefing will include minimum altitudes below which the weapon will not be followed.

3.3.3.4. Ensures chase aircraft crewmembers (to include photographers) understand their duties for the mission and reviews aircrew duties in the event of an emergency in the test, chase or other support aircraft.

3.3.3.5. Completes post-mission questionnaires and/or reports, as required.

3.3.4. **Test Conductor.** Responsible for real-time coordination of ground activities with the aircrew, paces progression through the test cards as agreed to in the mission pre-briefing, defers to the test director for decisions, as appropriate, and is the primary communicator with the test aircraft. The test conductor may be airborne in a test or test support aircraft. In less complicated tests, the test conductor may also be the test director. The test conductor:

3.3.4.1. Works with the OA/OSA and UPO to provide approved test cards to the PM, test execution unit approval chain-of-command, test aircrew, test engineers, and others as applicable, prior to test pre-mission briefing.

3.3.4.2. Coordinates control room setup, as required.

3.3.4.3. Briefs technical requirements of the test cards during mission briefing.

3.3.4.4. Briefs applicable test risk mitigation procedures, to include specific ORM requirements, during mission briefing.

3.3.4.5. Makes test-point terminate and go or no-go calls based on real-time analyses of control room data. Terminates test points if the technical validity of the test is in question or safety is jeopardized.

3.3.5. **Test Engineer.** Responsible for the technical adequacy of the test. The TE:

3.3.5.1. Is responsible for assisting the PM, UPO, test aircrew, and OA/OSA in preparing the test plan.

3.3.5.2. Assists the PM and UPO in the preparation of any required safety or risk assessment review packages.

3.3.5.3. Works with the UPO and OA/OSA to prepare test procedures or test cards.

3.3.5.4. Determines what control room data are required. Participates in control room configuration determination.

3.3.5.5. Ensures test item is correctly configured and operationally representative.

3.3.5.6. Monitors critical data from safety and technical standpoints.

3.3.5.7. Determines if executed test point was technically adequate and gives test conductor recommendation to repeat point or proceed.

3.3.5.8. Informs test director/test conductor if telemetry data is unusable.

3.3.5.9. Assists OA/OSA and test aircrew in analyzing test data and provides assessments as to test system effectiveness and mission suitability.

3.3.5.10. Works with the PM and OA/OSA to ensure test item deficiencies are catalogued in a watch item (WIT) list or the Joint Deficiency Reporting System (JDRS), as appropriate.

3.3.6. **Operations Analyst/Operational Suitability Analyst.** Responsible for test preparation, post-flight analysis, and post-test data reporting. The OA/OSA:

3.3.6.1. Works with the PM, UPO, TE, and test aircrew to prepare and review the test plan.

3.3.6.2. Constructs test cards and/or test procedures in coordination with the UPO, TE, and test aircrew. Works with the test conductor and UPO to provide approved test cards to the PM, test execution unit approval chain-of-command, test aircrew, test engineers, and others as applicable, prior to test mission pre-briefing.

3.3.6.3. Works with the PM and UPO to provide coordination between operations, engineering, and maintenance to schedule the test article, support aircraft, and test ranges.

The OA/OSA works with the TE and instrumentation engineer to ensure proper test article configuration and data acquisition system configuration.

3.3.6.4. Gathers post-mission reports, video tapes, and instrumentation information, as applicable, and accomplishes the appropriate data analysis and reporting activities.

3.3.6.5. Assists test aircrew and TE in analyzing test data; provides assessments as to test system effectiveness and mission suitability.

3.3.6.6. Works with the PM and TE to ensure test item deficiencies are catalogued in a watch item (WIT) list or the AF Deficiency Reporting System, as appropriate.

3.3.7. **Instrumentation Engineer.** The instrumentation Engineer and/or technician are responsible for the pre-flight, post-flight, and real-time operation of the data acquisition system.

3.3.8. **Range Control Officer (RCO).** The RCO is responsible to the test director for the mission profile—the real-time placement of the test and test support aircraft. The RCO coordinates all range support both inter- and intra-range. The RCO prepares and coordinates documentation and procedures with range users and other support ranges, where necessary, to satisfy test mission requirements. The RCO is normally provided by the host range and is not formally part of the test director's mission test team.

3.3.9. **Data Production Analyst (DPA).** The DPA is responsible for development of real-time and post-flight data products; pre-mission preparation of mission control rooms and computer systems; and operation of the mission control rooms and associated data processing systems during test mission support (real-time and post-flight). The DPA is the liaison between users of the data support systems, instrumentation engineer, and the data processing staff. The DPA has overall responsibility for ensuring compatibility between the airborne instrumentation and ground data processing systems and interfaces.

3.3.10. **Range Safety Officer (RSO).** The RCO is responsible for protection of the general public. During real-time operations, the RSO provides an independent safety assessment for the flights of unmanned vehicles and weapons. The RSO may cancel or terminate test missions that violate range safety criteria or pose a potential threat to personnel, facilities, or property. In the event of imminent danger or errant flight of these systems, the RSO may directly invoke recovery or destruct actions on these vehicles using the ranges flight termination systems or by direction to project personnel. The RSO is normally provided by the host range and is not formally part of the test director's mission test team.

## Chapter 4

## COMMUNICATIONS

**4.1. General.** The test conductor will brief appropriate communications between the mission control room and the aircrew for conduct of the test. The following terms will apply when standard communications are in effect. Non-standard terminology will be briefed, as required. See 53 WEGI 11-250 for additional specialized terminology used by air-to-air WSEP missions.

**4.2. Terminology.**

4.2.1. **"Abort, Abort, Abort. "** This is an urgent call made when time is critical conveying the information. It usually occurs in safety-of-flight situations or as a result of a late malfunction on a weapons delivery run. This call is normally made in an attempt to preclude an unsafe situation from developing further or to prevent an ineffective weapons release. Upon hearing the call, the test pilot will cease maneuvering, as appropriate, and immediately safe all weapons switches. This is a priority call that may be made by the mission control room, the test aircraft, or the chase aircraft. This call may or may not end the mission, but as a minimum, it will at least necessitate resetting the entire test run.

4.2.2. **"Knock-it-off. "** Normally an AIRCREW ONLY term to cease maneuvering for safety of flight reasons in accordance with applicable Air Force published training rules. This call will necessitate resetting the entire test run. Control room personnel should use the abort or terminate calls lieu of the knock-it-off call unless knock-it-off is specifically warranted by a safety-of-flight concern.

4.2.3. **"Terminate. "** Cease executing the planned maneuver. Actions may include unloading to 1g and decreasing airspeed. A reason usually follows the terminate call; however, the terminate call is not as urgent as an abort or a knock-it-off call and may not require resetting the entire test run. Examples include TM dropout, weather, off planned test parameters, inaccurate switch settings, etc.

4.2.4. **"Cease Fire. "** (drone operations only) If a cease fire is issued, shooters lose any previous clearance to fire. If shooters were armed hot, they may remain so. They may continue to intercept/maneuver against the drone. Shooters will immediately acknowledge the cease-fire call or a knock-it-off will be issued.

4.2.5. **"Arm Safe**." (drone operations only). Shooters lose any previous clearance to fire and arm. Shooters will immediately safe their weapons systems and acknowledge the arm safe call. Failure to do so will result in a knock-it-off. Shooters may continue to intercept/maneuver against the drone. Arm safe will be called if any aircraft is positioned or will fly in front of an armed aircraft's 3/9 line within the missile footprint.

4.2.6. **"Stand-by. "** Hold the current conditions and do not execute additional steps in the test run. Used for data analysis or test set-up reconsideration, unless otherwise stated.

4.2.7. **"Continue. "** Confirms that previously issued directions are still in force. Often used when a "Stand By" (see paragraph 4.2.6) of extended duration is in effect.

4.2.8. **"Point Complete. "** Current test point complete. Stand-by for clearance to proceed to the next test point, air refuel, RTB, etc.

4.2.9. **"Cleared to (the next test condition). "** Cleared to the specified test point or maneuver.

4.2.10. **"On Conditions. "** Stabilized on the test point. Used for good data collection.

4.2.11. **"Skip It. "** Do not release on this pass; go through dry and safe the system. Skip it applies to testing where stores are released from the test aircraft. It is often used when the test aircraft has not achieved the proper weapons delivery parameters, where a chase aircraft is out of position for the release, or where the proper data will not be captured (to include required chase photos). Skip it is not used in any situation where safety is a concern or where time is critical in conveying a directive.

4.2.12. **"Loiter. "** Slow to maximum endurance and wait for further instructions. Frequently used prior to entering a range or when range safety or the mission control room is not ready to proceed with the test.

ALEXUS G. GRYNKEWICH, Col, USAF
Commander, 53 WG

**Attachment 1**

**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION**

***References***

AFPD 99-1, *Test and Evaluation Process,* 22 Jul 1993

AFI 99-103, *Capabilities-Based Test and Evaluation,* 16 Oct 2013

ACCI 99-101, *ACC Test and Evaluation,* 27 Aug 2014

T.O. 00-35D-54, *USAF Deficiency Reporting, Investigation and Resolution,* 1 Oct 2009

***Abbreviations and Acronyms***

**ACMI**—Air Combat Maneuvering Instrumentation

**AFI**—Air Force Instruction

**CRM**—Crew Resource Management

**DPA**—Data Processing Analyst

**DOD**—Department of Defense

**DOT&E**—Director, Operational Test and Evaluation

**IAW**—In Accordance With

**MAJCOM**—Major Command

**NACTS**—Nellis Air Combat Training System

**NUCWSEP**—Nuclear Weapons System Evaluation Program

**OSA**—Operational Suitability Analyst

**OSD**—Office of Secretary of Defense

**OI**—Operating Instruction

**OA**—Operations Analyst

**ORM**—Operations Risk Management

**OSD**—Office of the Secretary of Defense

**PM**—Project Manager

**RCO**—Range Control Officer

**RSO**—Range Safety Officer

**ROA**—Remotely Operated Air Vehicle

**RPO**—Rated Project Officer

**RTB**—Return to Base

**TO**—Technical Order

**TE**—Test Engineer

**UPO**—Unit Project Officer

**USAFWC**—United States Center

**VIP**—Very Important Person

**WIT**—Watch Item

**WEG**—Weapons Evaluation Group

**WEGOI**—Weapons Evaluation Group Operating Instruction

**WSEP**—Weapons System Evaluation Program

**WG**—Wing

**WGI**—Wing Instruction