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Test and Evaluation

**FORECASTING AND PROGRAMMING
MUNITIONS TELEMTRY AND FLIGHT
TERMINATION SYSTEMS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air Force Instruction (AFI) implements Air Force Policy Directive (AFPD) 99-1, *Test and Evaluation*, by describing the forecasting, programming, unplanned requesting and reporting of munitions flight termination systems and telemetry kits for test and evaluation. This AFI **must** be used in conjunction with AFI 10-601, *Operational Capability Requirements*; AFI 63-101, *Operations of Capabilities Based Acquisition System*; AFI 99-103, *Capabilities Based Test And Evaluation*; AFI 99-108, *Programming and Reporting Aerial Target and Missile Expenditures in Test and Evaluation*; AFI 21-201, *Conventional Munitions Maintenance Management*; and AFI 36-2217, *Munitions Requirements for Aircrew Training*. Also consult the 16-series, 33-series, and 99-series AFIs for additional T&E direction. This publication does not apply to Air Force Reserve Command (AFRC) or Air National Guard Units. The purpose of this AFI is to establish responsibilities, procedures and processes to forecast, allocate, program, and fund munitions TIK and FTS required to support (live or inert) testing. Proper forecasting, with a corresponding process to vet and validate TIK and FTS requirements, provides the basis for accurate submission of funding requirements in the Program Objective Memorandum (POM). Additionally, this AFI defines a process to prioritize TIK and FTS requirements. Based on actual budget funding received and number and type of TIK and /or FTS procured, prioritization will allow for the most effective use of TIK and FTS available. Since these kits are utilized with test munitions, the TIK and FTS forecasting process will be linked with and complement the forecasting and allocation procedures for munitions as defined in AFI 21-201, AFI 36-2217 and AFI 99-108. Specific annual forecasting instructions will be included in the Peacetime Conventional Ammunition Requirements (PCAR) instructions provided by the USAF Ammunition Control Point (ACP). HQ USAF/TE is the sole waiver authority for policies in this AFI. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 37-123 (will convert to AFMAN 33-363), *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://afrims.amc.af.mil/>. Send comments and suggestions for improvements on AF Form 847, Recommendation for Change of Publication, through channels, to HQ USAF/TEP, 1530 AF Pentagon, Washington D.C. 20330-1530.

1. General.

1.1. The Air Force has experienced a significant growth in the procurement and development of precision guided air-to-ground (A/G) and air-to-air (A/A) weapons. The increased range, complexity and lethality of these weapons routinely require the use of a Telemetry (TM) Instrumentation Kit (TIK) and/or Flight Termination System (FTS) during developmental and operational test and evaluation as well as testing during sustainment. Examples include testing as listed in **paragraphs 2.2.1.** and **2.3.1.**

1.2. Forecasting and prioritization for TIK and FTS as defined in this AFI will begin in the next POM cycle immediately following publication. Availability of TIK and FTS in the short term will be limited to current program funding profiles.

2. Responsibilities.

2.1. All testing must be planned and executed in close coordination with the Requirements and Acquisition Communities. Successful implementation of this instruction is incumbent upon close coordination between test organizations and parent headquarters, aircraft and weapon program managers, and applicable HAF offices in identification of TIK and FTS requirements. The significant costs of TIK and FTS necessitates that requirements are scrutinized and numbers validated at each level of review. The validation of TIK and FTS asset requirements used in developmental test will occur at the program office level.

2.2. Program Managers (PM) (Aircraft and Weapon program offices):

2.2.1. Develop program specific TIK and FTS requirements in consultation with test agencies and using MAJCOM. These requirements include TIK and FTS required for development test and evaluation (DT&E), live fire test and evaluation (LFT&E), lot acceptance test (LAT), qualification test and evaluation (QT&E), first article test (FAT), and regression testing.

2.2.2. Ensure POM submittals include validated requirements. Non-DT&E TIK and FTS requirements, such as described in **paragraph 2.3.1.**, will be identified separately from DT&E requirements to the appropriate agency in supporting documentation. (i.e., one line for DT&E TIK and FTS requirements and one line for non-DT&E TIK and FTS requirements.)

2.2.3. Weapon program managers will provide TIK and FTS cost data, as required.

2.2.4. Provide TIK and FTS based on actual funding allocated for TIK and FTS. This includes support for TIK and FTS installation, checkout, post-mission data reduction, and other required TIK/FTS support.

2.3. Using MAJCOM:

2.3.1. Using MAJCOM will direct subordinate test agencies to develop and submit TIK and FTS requirements for inclusion in the POM. AFOTEC is not a subordinate test agency and will submit their requirements to the appropriate MAJCOM/agency as stated in **paragraph 2.4.** MAJCOM requirements include TIK and FTS for force development evaluation (FDE), tactics development and evaluation (TD&E), weapon system evaluation program (WSEP), product acceptance test and evaluation (PAT&E) and tests associated with the Rapid Response Process (defined in AFI 63-114) and other rapid acquisition programs.

2.3.2. Validate TIK and FTS requirements by subordinate test organizations, prior to submittal to PM.

2.3.3. Submit TIK and FTS requirements to PM with sufficient lead-time to account for TIK and FTS total production time and incorporation in appropriate POM submittal; advocate support for TIK and FTS requirements in the POM. Non-DT&E TIK and FTS requirements, such as described in **paragraph 2.3.1.**, will be identified separately from DT&E requirements to the appropriate agency in supporting documentation. (i.e., one line for DT&E TIK and FTS requirements and one line for non-DT&E TIK and FTS requirements.)

2.4. **AFOTEC.** Provide TIK and FTS requirements to the supporting PM, MAJCOM or Air Staff for inclusion in the appropriate POM. AFOTEC requirements include, but are not limited to, TIK and FTS for initial operational test and evaluation (IOT&E), qualification operational test and evaluation (QOT&E), follow-on test and evaluation (FOT&E) and multi-service operational test and evaluation (MOT&E).

2.5. **HQ USAF/TEP.** Arbitrate limited TIK and FTS resources across MAJCOMs/AFOTEC in conjunction with HAF/A5R and SAF/AQP.

3. Programming and Funding Responsibilities.

3.1. Use **Table 1., Aircraft – Weapon Integration Programming and Funding Responsibilities Through IOC for TIK and FTS** and **Table 2., Post IOC Programming and Funding Responsibilities for TIK and FTS**, to determine office of primary responsibility for programming and funding of TIK and FTS. **Table 1.** provides a summary of weapon and aircraft program office integration programming and funding responsibilities only through initial operational capability (IOC) of the new or increment weapon or aircraft. Guidance in **Table 1.** does not prevent program offices, MAJCOMs or AFOTEC from making separate temporary, documented funding agreements if required. Any funding agreement(s) should be governed by the principle that whoever is driving the need for the test should program and fund TIK and FTS. However, in the absence of any documented agreement, **Table 1.** will be used. The terms threshold and objective are used as defined in the Combined Joint Chiefs of Staff Instruction (CJCSI) 3170 series capabilities documents (Capabilities Development Document [CDD] or Capabilities Production Document [CPD]). See the **glossary** for definitions.

Table 1. Aircraft - Weapon Integration Programming and Funding Responsibilities Through IOC for TIK and FTS. (See Note 1)

THRESHOLD AIRCRAFT OR THRESHOLD WEAPON	
<u>Aircraft/Weapon Category</u>	<u>Funding Responsibility</u>
New Weapon/ Threshold Aircraft	Weapon
Weapon Increment/ Threshold Aircraft	Weapon
New Aircraft/ Threshold Weapon	Aircraft
Aircraft Increment/ Threshold Weapon	Aircraft
Aircraft Increment/ Weapon Increment	Weapon/Aircraft (See Note 2)
OBJECTIVE AIRCRAFT OR OBJECTIVE WEAPON	
<u>Aircraft/Weapon Category</u>	<u>Funding Responsibility</u>
New Weapon or Weapon Increment/ Objective Aircraft	Aircraft
New Aircraft or Aircraft Increment/ Objective Weapon	Aircraft
Objective Aircraft/ Objective Weapon	Aircraft

NOTES:

1. To read this chart:
 - a. Select the category of weapon or aircraft (either threshold or objective) and go to the respective section of the chart.
 - b. Find the specific circumstance of weapon and aircraft integration in the left column.

- c. The word **aircraft** or **weapon** in the column on the right specifies who has funding responsibility for the TIK and/or FTS.
2. Funding should be governed by the principle that whoever is driving the need for the test should program and fund TIK and FTS.
- 3.2. Upon distribution of annual FY budget, program managers will ascertain the quantity of TIK and FTS that can be procured based on forecasted requirements and actual funding received.
- 3.3. **Programming and Funding Beyond IOC.** See [Table 2., Post IOC Programming and Funding Responsibilities for TIK and FTS.](#)
- 3.3.1. For programs that require aircraft-weapon integration, if the integration test is a result of an aircraft change, the aircraft program is responsible for programming and funding, based on allocated funds. If the integration test is the result of a weapon change, the weapon program is responsible for programming and funding, based on allocated funds.
- 3.3.2. As a life cycle system cost for sustainment weapons testing after weapon IOC, the weapons PM, through supporting MAJCOM, will program and fund TIK and FTS based on allocated funds in support of WSEP and LAT. Per paragraph [3.3.1.](#), this responsibility falls to either the weapon PM or aircraft PM in support of FDE and TD&E dependent upon the program driving the integration test need.

Table 2. Post IOC Programming and Funding Responsibilities for TIK and FTS

POST IOC WEAPON SPECIFIC TESTS	
<u>Type Test</u>	<u>Funding Responsibility</u>
WSEP	Weapon
FDE/TD&E	Weapon/Aircraft (see paragraph 3.3.1.)
LAT	Weapon

4. Unplanned Test Requirement Request

4.1. Any agency requiring TIK and/or FTS not identified or funded in the annual requirements process will submit a request for the assets through their MAJCOM or program office (see [Attachment 2](#)). These requests must be signed out at Group level (O-6 or equivalent), with complete justification and need date. The MAJCOM or program office (as appropriate) will validate the requirement and determine if it is a "must fill" requirement; if so, the MAJCOM or program office will make every effort to source required assets from within the MAJCOM or respective program. If assets cannot be sourced from within, the supporting MAJCOM will forward the request to HQ USAF/A5R with the most current TIK and FTS status. HQ USAF/A5R will coordinate with HQ USAF/TEP and SAF/AQP to assess the impacts and source assets based on priority of all available TIK and FTS. AFOTEC will validate their own unplanned test requirement requests at the O-6 level and forward their requirement through the supporting MAJCOM or to AF/TEP directly as appropriate. If the request is supported,

the support determination will address reimbursement for the replacement cost of the TIK and/or FTS from the appropriate agency or program.

4.2. HQ USAF/TEP will notify SAF/IA (Weapons Division) if reprioritization or allocation from other programs will result in changes or delays to foreign test programs involving USAF munitions.

John T. Manclark
Director, Test and Evaluation

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

AFI 10-601, *Capabilities Based Requirements Development*, 31 Jul 2006

AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*, 6 Jan 2007

AFI 33-360, *Publications and Forms Management*, 18 May 2006

AFI 63-101, *Operations of Capabilities Based Acquisition System*, 29 Jul 2005

AFI 63-114, *Rapid Response Process*, 29 Jul 2005

AFI 99-103, *Capabilities Based Test and Evaluation*, 6 Aug 2004 (Under revision)

AFI 99-108, *Programming and Reporting Aerial Target and Missile Expenditures in Test and Evaluation*, 8 Nov 1993 (Under revision)

AFMAN 37-123 (will become AFMAN 33-363), *Management of Records*, 31 Aug 1994

Defense Acquisition Guidebook,

Abbreviations and Acronyms

A/A—Air-to-Air

A/G—Air-to-Ground

AFDD—Air Force Doctrine Document

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOTEC—Air Force Operational Test and Evaluation Center

DAU—Defense Acquisition University

DT&E—Developmental Test and Evaluation

FAT—First Article Test

FDE—Force Development Evaluation

FOT&E—Follow-on Operational Test and Evaluation

FTS—Flight Termination System

HAF—Headquarters Air Force

HQ—Headquarters

IOC—Initial Operational Capability

IOT&E—Initial Operational Test and Evaluation

JP—Joint Publication

LAT—Lot Acceptance Test
LFT&E—Live Fire Test and Evaluation
MAJCOM—Major Command
MDA—Milestone Decision Authority
MOT&E—Multi-Service Operational Test and Evaluation
OFP—Operational Flight Program
OT&E—Operational Test and Evaluation
PAT&E—Production Acceptance Test and Evaluation
PM—Program Manager
POM—Program Objective Memorandum
QOT&E—Qualification Operational Test and Evaluation
QT&E—Qualification Test and Evaluation
T&E—Test and Evaluation
TD&E—Tactics Development and Evaluation
TIK—Telemetry Instrumentation Kit
TM—Telemetry
USAF—United States Air Force
WSEP—Weapon System Evaluation Program
www—World Wide Web

Terms

NOTES:

See AFI 10-601 and AFI 63-101 for definitions of these terms relating to the requirements and acquisition processes.

See AFI 99-103 for definitions of terms relating to capabilities based test and evaluation.

A common understanding of terms is essential to effectively implement this instruction. In some cases, definitions from multiple sources are offered where they may be of value. Italicized words and notes in brackets are not part of the formal definition and are offered only for clarity.

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

Aircraft Increment or Weapon Increment—An update to an existing weapon or aircraft, such as an OFP change or pre-planned product improvement (P3I).

Objective Aircraft—All aircraft not designated as threshold by the appropriate CJCSI 3170 series capability document on which a weapon will be tested.

Objective Weapon—All weapons not designated as threshold by the appropriate CJCSI 3170 series capability document, which will be integrated onto an aircraft to form a weapon system and will be tested.

Program Manager (PM)—**1.** The designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting to the Milestone Decision Authority (MDA). (DoDD 5000.1) **2.** Applies collectively to system program directors, product group managers, single managers, acquisition program managers, and weapon system managers. Operating as the single manager, the PM has total life cycle system management authority. **NOTE:** This AFI also uses the term "PM" for any designated person in charge of acquisition activities prior to MS A (i.e., before a technology project is officially designated an acquisition program).

Threshold Aircraft—The aircraft, as defined in the CJCSI 3170 series requirements documents, that defines the minimum for aircraft/weapon integration. This is (these are) usually the aircraft on which testing and integration occur first.

Threshold Weapon—The weapon(s), as defined in the CJCSI 3170 series requirements documents, that defines the minimum for aircraft/weapon integration. This is (these are) usually the weapon(s) on which testing and integration occur first.

Using MAJCOM—The MAJCOM that generated and validated the requirement for the system or system change; usually ACC. Example: For the JDAM the Using MAJCOM is ACC.

Weapon System Evaluation Program (WSEP)—Air to Air and Air to Ground programs established by COMACC Plan 85 and COMACC Plan 90 respectively to evaluate assigned forces. The goal of WSEP is to evaluate each weapon system within 12 months after fielding and continuing throughout its operational life cycle, using line of the Air Force crews, aircraft, and weapons.

Attachment 2**UNPLANNED TEST REQUIREMENT REQUEST FORMAT**

A2.1. MAJCOMs will submit a request for TIK and FTS assets in conjunction with **paragraph 4.1.** using the memorandum format below. Refer to AFI 21-201 for an explanation and details of the request process and format for munitions.

A2.2. A report of current expenditures of TIK and FTS should accompany any unplanned test requirement in order for HAF/A5RW and HAF/TEP to make an informed decision. The report of current expenditures should be via an existing report format. In addition to the expenditure report, HAF/A5R or HAF/TEP may request an update to actual TIK and FTS expended to date (to get the most current data) via other means (such as an *Excel* spread sheet, or even phone update).



DEPARTMENT OF THE AIR FORCE

DATE

MEMORANDUM FOR

FROM:

SUBJECT: Un-Programmed Test Requirements TIK/FTS Request

1. Request assistance in obtaining TIK/FTS for: *Program goes here*

- **Munitions type:** GBU-31
- **Item Required:** TIK/TM
- **Quantity Required:**
- **Test Type:** DT, OT, WSEP, FDE, etc
- **MAJCOM:**
- **Test Organization:**
- **Test Program:**
- **Funding PE:**

2. **JUSTIFICATION and TEST REFERENCE:**

*Specifics of justification go here; reason for the request, intended use, etc.
The more specific you are the better understood the request will be.*

3. **IMPACT if not supported:**

Again, be specific, this paragraph should add clarity and understanding to your justification in paragraph 2.

3. POC for this request is XXXXXXXX.

PAUL D. XXX, Lt COL, USAF
Commander,

1st Ind, Group OG

Approve/Disapprove

LIONEL W. XXXXX, Col, USAF