



U.S. AIR FORCE

AF Life Cycle Systems Center



U.S. AIR FORCE

AFLCMC CENTER TEST AUTHORITY (CTA)

Mike Loosbrock

AFLCMC/AQTB

dsn 785-7529

michael.loosbrock@us.af.mil



U.S. AIR FORCE

WPAFB AFLCMC/AQ Organization



**Front Office Group
AQ/AZ**

**Director: John Artuso
Deputy: LTC Chris Williams
Building 572**

**Acquisition
Support
Division

AZA**

**Financial
Division

AZF**

**Contracting
Division

AZK**

**Engineering
Division

AZE**

**T&E
Division
(CTA)

AQT**

**Program
Management
Division

AQP**

**HR/Ops
Division

AQO**



**Program Acquisition Support
“The ACE”
Building 570**

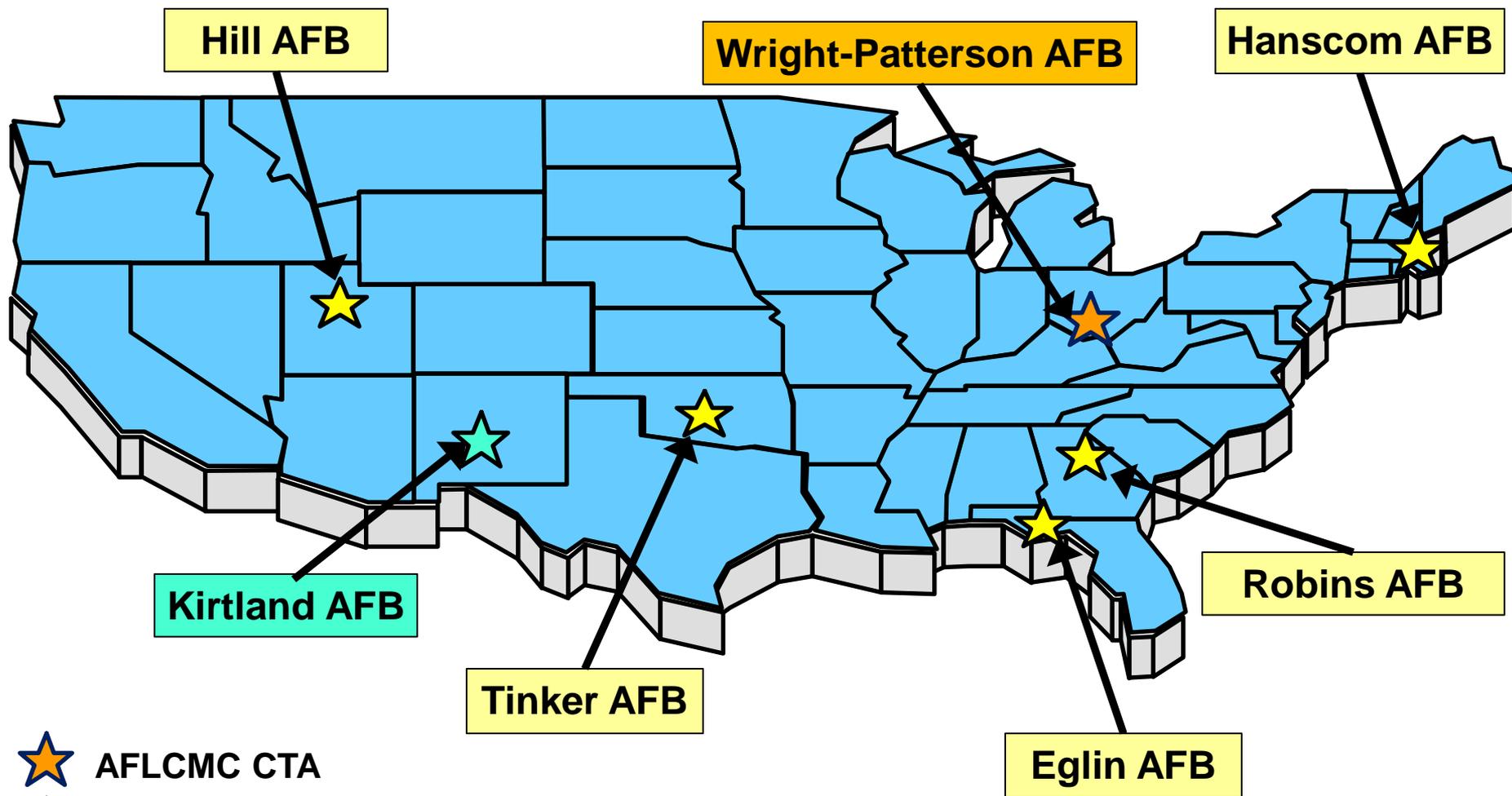
**Workforce Mgt
Building 572**

CTA mission includes both Acquisition Support and Workforce Management



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AFMC CTA Locations



-  AFLCMC CTA
-  Local AFLCMC CTA Locations
-  AFNWC



AFI 99-103: CTA Mission



- **AFMC will maintain on-site T&E focal points**
 - Provide T&E support/advice at centers and complexes
- **Center commander will: (AFMCI 99-103)**
 - Establish a CTA for T&E management/support
 - Establish local procedures for implementing Center's T&E process IAW DoDI 5000.02 & AFI 99-103
- **CTA: Overarching T&E authority for AFLCMC**
 - Responsible for providing staff support to PEOs and PMs for all assigned acquisition programs
 - Implement AFMC T&E policy, providing T&E tools and processes, and conducting T&E assessments
 - Responsible for T&E workforce management to include recruitment, hiring, assigning and training



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AFLCMC CTA Support to WPAFB Acquisition Directorates



| | |
|--|--|
| AFLCMC/AQT CTA Chief (T&E Center Sr. Functional) | Dr. Beverley Gable |
| Branch Chief, Program Support - AQTB | Michael Loosbrock |
| Agile Combat Support - AFLCMC/WN (EW/Avionics, Human Systems Integration, Simulators, Combat Electronics, Targeting Pods, Automatic Test Sys, Support Eq.) | POC: Orlando Grino (DSN 785-7516) |
| ISR & SOF - AFLCMC/WI (Recon/Special Ops, including 645 AESG "Big Safari") | POC: Joseph Twarek (DSN 785-8988) |
| Fighter/Bomber - AFLCMC/WW (B-1, B-2, B-52, F-15/16/22/35, CSS, A-10) | POC: Michael Loosbrock (DSN 785-7529) |
| Mobility and Tanker - AFLCMC/WL & WK (C-5/17/27/130, LAIRCM, FMS, KC-10/46/135, Aircraft Survivability, Tactical Airlift, Trainers) | POC: Carmen Prater (DSN 674-5492) |
| Program Development & Integration Directorate- AFLCMC/XZ (Pre-program plans support) | POC: Carmen Prater (DSN 674-5492) |
| FMS Program Support (WW, WI) → (WL, WK, WN) → | POCs: Mike Keltos (785-5065) Alex Cardenas (DSN 785-7360) |
| Branch Chief, Workforce Management - AQTA | Staci Hogan (DSN 785-6402) |
| T&E Workforce Development | Louis Alliod (DSN 674-5829) Todd Greiner (DSN 5-9529) |



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AFLCMC CTA Operating Location & Satellite Office Support to Acq. Directorates / Platforms



| | |
|--|---|
| Electronic Systems Complex: Hanscom AFB | CTA – OL, Michelle Kirstein T&E Site Senior Functional (SSF) |
| Battle Management – AFLCMC/HB (Hanscom) (AWACS, Joint STARS, mission planning, air space management) | POC: Michelle Kirstein (DSN 845-1662) |
| Bus. & Sys. Enterprise – AFLCMC/HI (Maxwell) | POC: Mike Harrington (DSN 845-1661) |
| C3I / Networks – AFLCMC/HN (Hanscom) | POC: Mariann Tobias (DSN 845-1649) |
| Strategic Systems – AFLCMC/SS (Kirtand) | POC: Michelle Kirstein (DSN 845-1662) |
| Air Armament Complex: Eglin AFB Armaments – AFLCMC/EB (Weapons, munitions) | CTA – OL, James Brogdon T&E SSF (DSN 883-0526) |
| Air Logistics Complexes: (Aircraft sustainment modifications, LDTO execution) | CTA – SO / T&E SSFs: |
| Tinker AFB (B-52, B-1, E-3, E-4, E-9, VC-25, KC-135, KC-10, C-32, C-40, T-53) | Daniel Llewelyn (DSN 336-4110) |
| Hill AFB (F-16, A-10, MAPA, Munitions, Space and C3I, ICBM) | Robert Lamb (DSN 586-1883) |
| Robins AFB (C-130, LC-130, AC-130, MC-130, WC-130, C-5, F-15, E-8, UH-1, HH-60) | Sam Huggins (DSN 472-2680) |



AFLCMC: AFTC & AFOTEC POCs



- **AFTC TestReps (Edwards AFB)**
 - WPAFB*: Vacant
 - Tinker: Mr. Roger Gates
 - Robbins: Mr. Paul Rowberry
 - Hill: Vacant



- **AFOTEC Liaison (Kirtland AFB)**
 - WPAFB*: LTC Jeff Webber (acting)

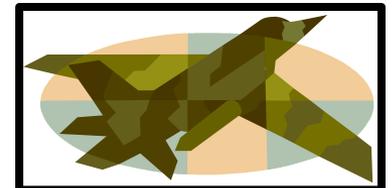
* Co-located with AFLCMC/AQT CTA, Building 572



Roles & Responsibilities – Program Support



- **“Trusted agent” to PEOs:**
 - MDD, ASP, MS Review, OT Readiness Cert, SSAC, etc.
 - Provide direct assistance and support to PMO PM/TMs
- **Serve as Center POC for T&E related issues**
 - Provide PEOs and programs sound technical advice
- **Provide Center T&E policy, guidance, processes & procedures, oversight of test plan development**
- **LDTO / DT&E execution for sustainment programs**
- **TRB & SRB support as needed with AFLCMC/SE**
- **T&E Rep to external organizations**
 - OSD, SAF/AQ, AF/TE, MAJCOMs, AFTC, AFOTEC...





Roles & Responsibilities – Program Support



- **POC for T&E documentation coordination:**
 - TEMPs, ITT charters, LDTO (RTO) designation, OT&E readiness certifications, LFT&E plans, FMS programs, workforce management
- **Review program documentation / execution**
 - LCSPs, ADMs, RFPs, ASP, Milestone & FRP briefs
- **Note: CTA is NOT the same as:**
 - ITT (Integrated Test Team)
 - CTF (Combined Test Force)
 - CLTA (Center Lead Technical Authority)
 - Test Rep (AFTC)
- **Owner of Center T&E processes**



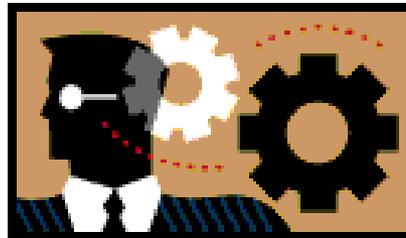
AFLCMC T&E Processes – Program Guidance



- **Standard Processes (key or critical)**
 - **LDTO Designation (index A13)**
 - PEO approves selection of organization executing DT&E
 - **OT&E Readiness Certification (index A10)**
 - PEO certifies readiness to enter OT&E phase to OTO/OTA
- **Process Guides**
 - **TEMP Development & Coordination (index T-119)**
 - Document “How to” guidance
 - **Test-Early Strategy & Issues Session (index A-104)**
 - Early ITT development and formation
- **AFLCMC Process Directory (APD):**
<https://cs4.eis.afmc.af.mil/sites/1534/ProcDir/default.aspx>

Roles & Responsibilities – T&E Workforce Management

- **Develop TE requirements, policies & processes**
- **Determine mix of organic and A&AS**
- **Review work packages**
- **Develop and execute hiring strategy**
- **Develop succession planning procedure**
- **Authorization Management**
- **Career Path**
- **Performance**
- **Training**





Close / Summary



- **Oversight of T&E for AFLCMC**
 - Center T&E Functional Management
 - Single AFLCMC CTA with local operating locations
 - Proactive program office T&E support
 - Provides Center T&E Workforce management
 - Center's T&E POC to external agencies
 - Monitor test enterprise for best practices/lessons
- **CTA Community SharePoint Site:**
<https://cs4.eis.afmc.af.mil/sites/1352/CTA/default.aspx>
- **CTA SharePoint CoP:**
<https://cs3.eis.af.mil/sites/OO-TE-AS-01/default.aspx>



Air Force Life Cycle Management Center



U.S. AIR FORCE

Interim DoDI 5000.02: Changes Test Managers Need to Know 25 March 2014

Mike Keltos
AFLCMC/AQTB
DSN 785-5065/(937) 255-
5065

michael.keltos.1@us.af.mil



Revised DoDI 5000.02 Structure



- **Core Instruction - Operation of the Defense Acquisition System**
- **13 Enclosures**
- **ALL Enclosures have been Revised...**
- **New ones highlighted in Red**
- **Old ones with Major Revisions highlighted in Blue**

This Briefing will focus on:
130 Pages total
Enclosures 4 and 5

Enclosures:

1. Acquisition Program Categories and Compliance Requirements
2. Program Management
3. Systems Engineering
4. **Developmental Test and Evaluation (DT&E)**
5. Operational and Live Fire Test and Evaluation
6. **Life-Cycle Sustainment Planning**
7. Human Systems Integration (HSI)
8. **Affordability Analysis and Investment Constraints**
9. Analysis of Alternatives
10. **Cost Estimating and Reporting**
11. **Requirements Applicable to All Programs Containing Information Technology (IT)**
12. **Defense Business Systems (DBS)**
13. **Rapid Acquisition of Urgent Needs**

Test & Evaluation Changes in Interim DoDI 5000.02

- **2008: "Integrated T&E" Enclosure [7 pages]; now two enclosures:**
 - **NEW Encl. 4: DEVELOPMENTAL TEST AND EVALUATION (DT&E) [7 pages]**
 - **Encl. 5: OPERATIONAL AND LIVE FIRE TEST AND EVALUATION (OT&E and LFT&E) [13 pages]**
- **Enclosure 4 adds role of Deputy Assistant Secretary of Defense for Developmental Test and Evaluation (DASD(DT&E))**
 - **Currently Dr. C. David Brown**
- **Enclosure 5 expands guidance on OT&E and LFT&E from DOT&E**
- **Integrated T&E still directed**
- **Both new enclosures contain lists of items to be included in**



Enclosure 4: DT&E



- **Adds role of Chief Developmental Tester (CDT) on MDAPs / MAIS**
 - 10 U.S.C. 139b and 1706
- **Adds references to Lead Developmental Test Organization (LDTO)**
 - Must be a Gov't test agency
 - Replaces use of “Responsible Test Organization (RTO)”
- **Requires use of Government T&E capabilities unless an exception can be justified as cost-effective to the government**



Enclosure 4: DT&E



- **TEMP is the primary test planning & management document starting at MS A – no more Test & Evaluation Strategy (TES)**
 - (Table 2) TEMP approval required at MS A; then it is a component-approved draft until MS B; update info at MS C & FRP/FD
 - Use TEMP format & content from DAG / DOT&E Guidebook
- **DT&E planning considerations to be included in the TEMP:**
 - Integrated Test Program Summary / Master Schedule
 - TEMP is a source document for RFP development
 - System level reliability testing



Enclosure 4: DT&E



- **Emphasis on:**
 - Use of scientific test and analysis techniques to design the test program
 - Program Protection and Cybersecurity
 - Interoperability Testing
- **Reliability Growth Curve(s) included in the MS-B TEMP**
 - Update in all future TEMPs
 - Includes Software (“in any system”) maturity metrics
- **For accelerated acquisition and urgent programs, levels of DT&E required will be “highly tailored to emphasize schedule over other considerations”**
 - See Enclosure 13 for applicability



Enclosure 4: DT&E (continued)



- **“Develop a strategy and budget resources for cybersecurity testing”**
 - **DAG Section 7.5 to be re-written as DIACAP is replaced by RMF;**
 - **DoD will continue to follow the DoD 8500 series for Cybersecurity policy (formerly Information Assurance)**
 - **NEW: DoDI 8500.01 “Cybersecurity” and DoDI 8510.01 “Risk Management Framework for DoD IT” – signed 7 March 2014**
 - **Pending Cybersecurity Implementation Guidebook for Acquisition PMs**
 - **Series of memos from DOT&E for oversight pgms regarding Eval of IA**



Enclosure 4: DT&E (continued)



- **MDAPs / MAIS / AT&L special interest programs:**
 - DT&E TEMP approval authority will present an assessment based on DT&E to date to the MDA at each milestone review / decision point
- **“System of systems” end-to-end capabilities test**
 - This may be a significant / difficult requirement; consider the case where the weapon system is a small part of the SoS



Enclosure 5: OT&E



- **Emphasizes "early engagement" and formation of T&E WIPT (ITT) "as soon as practicable" after Materiel Development Decision (MDD)**
 - **Lead OTA to provide DOT&E with memo assessing T&E implications of initial CONOPs "as soon as practical" after MDD**
- **"Unless specifically waived, the test-related documentation that is required for MDAP programs will be required for all programs on the DOT&E Oversight List..." (p.97, Para e.)**
- **DoD component-approved TEMP's will be submitted to OSD for approval NLT 45 days prior to the milestone decision**
- **States (p. 98 Para 5.a) "the TEMP is a signed contract among DOT&E, the MDA, senior DoD Component leadership, the lead OTA, and the PM"**
 - **Stronger language than in the past**



Enclosure 5: OT&E (p. 99)



- **“Every TEMP will include a table of independent variables... (aka “factors”, “parameters”, “conditions”) that may have a significant effect on operational performance.”**
- **“Starting at MS B the updated table of variables will include the anticipated effects on operational performance, the range of values, the overall priority of understanding the effects of the variable, and the intended method of controlling the variable during test...”**

Use scientific test and analysis techniques to design the test plan

- **For more info: Guidance on the use of Design of Experiments (DOE) in Operational Test and Evaluation, DOT&E, October 19, 2010;**
- **DOT&E TEMP Guidebook 28 May 2013 has examples**
- **OSD STAT T&E COE (hosted by AFIT at WP AFB) exists to assist MDAPs with test design**



Enclosure 5: OT&E (continued)

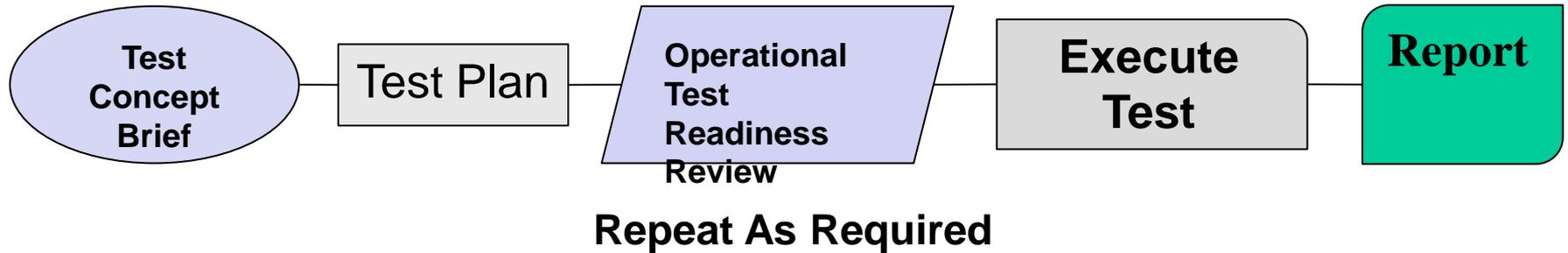


- **New section on Software Testing (Pages 101-3)**
 - Requires plans for test automation starting at MS-A
 - Requires Cybersecurity T&E strategy in TEMP at MS-A
 - Plan for use of software logs starting at MS-B
 - Demonstration of regression testing at or before IOT&E
 - Demonstration of software maintenance at or before IOT&E
 - Includes risk-based OT, IA, and interoperability

Primarily refers to Software Acquisitions, others should tailor to weapon system containing software

Enclosure 5: OT&E (continued)

Operational or Major Live Fire Test Event:
Planning, Approval, Execution, and Reporting



For all programs on DOT&E oversight, DOT&E will approve operational & live fire test plans ...



From New Table 2.



| Info Req't | Prgm Type | Event | Source | Approval |
|---|--|-----------------|--------------|-----------------------|
| DoD Component LFT&E Report | MDAP, ACAT II & ≤III on DOT&E LFT&E oversight list | FRP/FD Decision | DoDI 5000.02 | CAE |
| DOT&E Report on IOT&E* | MDAP, MAIS, ACAT II & ≤III on DOT&E oversight list | FRP/FD Decision | Title 10 | DOT&E |
| IT & NSS Interoperability Certification | MDAP, MAIS, ACAT II & ≤III | FRP/FD Decision | DoDD 4630.05 | JITC or DoD Component |
| LFT&E Report | MDAP, ACAT II & ≤III on DOT&E | FRP/FD Decision | Title 10 | DOT&E |
| | *formerly known as "Beyond LRIP Report" | | | |



From New Table 2. (Continued)



| Info Req't | Prgm Type | Event | Source | Approval |
|----------------------------|----------------------------|---|--------------|--------------------------------|
| OTA Report of OT&E Results | MDAP, MAIS, ACAT II & ≤III | FRP/FD Decision | DoDI 5000.02 | OTA |
| Operational Test Plan | MDAP, MAIS, ACAT II & ≤III | Prior to start of OT | Title 10 | DOT&E* or Component Equivalent |
| TEMP | MDAP, MAIS, ACAT II & ≤III | MS A; updates at Dev RFP Rel, MS B, C, FRP/FD Dec | DoDI 5000.02 | See notes.** |

*Statutory if on DOT&E oversight list.

**DOT&E will approve the TEMP for DOT&E Oversight programs (10 U.S.C. 2399, Reference (n)); DASD (DT&E) will also approve the TEMP for DT&E Engagement programs (10 U.S.C. 139b, Reference (n)); the DoD Component equivalent will approve the plan for other programs.

Table 2. Milestone and Phase Information Requirements, Continued

| INFORMATION REQUIREMENT | PROGRAM TYPE ¹ | | | | LIFE-CYCLE EVENT ^{1,2} | | | | | | | | SOURCE | APPROVAL AUTHORITY |
|--|---|------|------|-------|---------------------------------|------|---------|-------------|-------------------|------|------------|-------|--|------------------------------------|
| | MDAP | MAIS | ACAT | | MDD | MS A | CDD Val | Dev RFP Rel | MS B ⁴ | MS C | FRP/FD Dec | OTHER | | |
| | | | II | ≤ III | | | | | | | | | | |
| NOTES | | | | | | | | | | | | | | |
| TECHNOLOGY READINESS ASSESSMENT (TRA) | • | | | | | | | • | ✓ | • | | | SEC. 205, P.L. 111-23 (Ref. (av)) | ASD(R&E) |
| | STATUTORY. A preliminary assessment is due for the Development RFP Release Decision Point. The Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) will conduct an independent review and assessment of the TRA conducted by the Program Manager and other factors to determine whether the technology in the program has been demonstrated in a relevant environment. The assessment will inform the 2366b CERTIFICATION MEMORANDUM at Milestone B (in accordance with 10 U.S.C. 2366b (Reference (n))). The TRA at Milestone C is a Regulatory requirement when Milestone C is Program Initiation. | | | | | | | | | | | | | |
| Technology Targeting Risk Assessment | • | • | • | • | | • | | | | | | | This instruction DIA Directive 5000.200 (Ref. (v)) DIA Instruction 5000.002 (Ref. (w)) | Validation by DIA or DoD Component |
| | Regulatory. Prepared by the DoD Component Intelligence analytical centers per DoDI O-5240.24 (Reference (aw)) and DoDI 5200.39 (Reference (aq)). Forms the analytic foundation for Counterintelligence assessments in the associated PPP. DIA will validate the report for ACAT ID and IAM; for ACAT IC, IAC, and below, the DoD Component will be the validation authority. | | | | | | | | | | | | | |
| TERMINATION LIABILITY ESTIMATE | • | | | | | • | | ✓ | | ✓ | ✓ | ✓ | SEC. 812, P.L. 112-239 (Ref. (y)) | MDA |
| | STATUTORY. Part of the Acquisition Strategy that must be updated whenever necessary to satisfy this requirement. Program managers planning a contract for the development or production of an MDAP for which potential termination liability could reasonably be expected to exceed \$100 million must include an estimate of potential termination liability in the Acquisition Strategy. The estimate must include how such termination liability is likely to increase or decrease over the period of performance. The Program Manager must consider the estimate before making recommendations on decisions to enter into or terminate such contracts. | | | | | | | | | | | | | |
| Test and Evaluation Master Plan (TEMP) | • | • | • | • | | • | | ✓ | ✓ | ✓ | ✓ | | Enclosures 4 and 5 of this instruction | See Notes for this row. |
| | Regulatory. A draft ⁵ update is due for the Development RFP Release Decision Point; approved at Milestone B. For DBS programs, a summary of the T&E planning for integrated developmental/operational test, jointly developed by the Program Manager, functional sponsor, and T&E community must be included in the Business Case. DOT&E will approve the TEMP for DOT&E Oversight programs (10 U.S.C. 2399, Reference (n)); DASD (DT&E) will also approve the TEMP for DT&E Engagement programs (10 U.S.C. 139b, Reference (n)); the DoD Component equivalent will approve the plan for other programs. TEMP outline guidance is located at http://www.dote.osd.mil/docs/dote-temp-guidebook/20130712_TEMP_Guide_2.1.pdf | | | | | | | | | | | | | |
| Table Notes: 1. A dot (•) in a cell indicates the specific applicability of the requirement to program type and life-cycle event, and represents the initial submission requirement. Moving right across a row, a checkmark (✓) indicates the requirement for updated information. 2. All of the "Life-Cycle Events" will not necessarily apply to all "Program Types." 3. Documentation for the identified events will be submitted no later than 45 calendar days before the planned review. 4. Information requirements that have been finalized and approved by the responsible authority in support of the Development RFP Release Decision Point do not have to be re-submitted prior to Milestone B unless changes have occurred. In that case, updated documents will be provided. 5. In this table, "draft" means a "DoD Component-approved draft." | | | | | | | | | | | | | | |



Final Thoughts



“Finally, I have also tried to reinforce the importance and primacy of the acquisition chain of command - particularly Program Executive Officers (PEOs) and PMs. In general, the Acquisition Executives, PEOs, and PMs are responsible and accountable for the programs they manage; *everyone else has a supporting or advisory role.*”

Consistent with this fundamental principle, all 5000.02 required program documentation should be considered *first and foremost as having utility for planning and managing the program*, not as “inspectors” compliance documents.”

- Frank Kendall, Nov 2013



Conclusion



- **This presentation is not a valid substitute for actually reading the Interim DoDI 5000.02**
- **Test Managers should thoroughly review the new Enclosures 4 & 5!**
 - **Expect “new” requirements to be enforced by OSD**
- **AFLCMC/AQT can help “run to ground” questions on T&E policy**



BACKUP SLIDES



Background

- New version of DoDI 5000.02 issued 26 Nov 2013 as “Interim” instruction implements statutes and regulations that have come into existence since the last version was published in 2008.
 - Cancels DoDI 5000.02 dated 8 Dec 2008 with exception of Enclosure 9 “Acquisition of Services”
 - “Final” version to be coordinated within 180 days; after PEO conference planned in January 2014
- Formalizes Better Buying Power Initiatives developed by Frank Kendall & Ashton Carter.
 - Includes: Tighter integration of requirements and acquisition communities, should cost, and affordability analysis
 - “Program managers have a fundamental responsibility to understand their cost and to act to try to control their costs to drive them down” (Kendall)



Top Level Changes



Adds two major decision points:

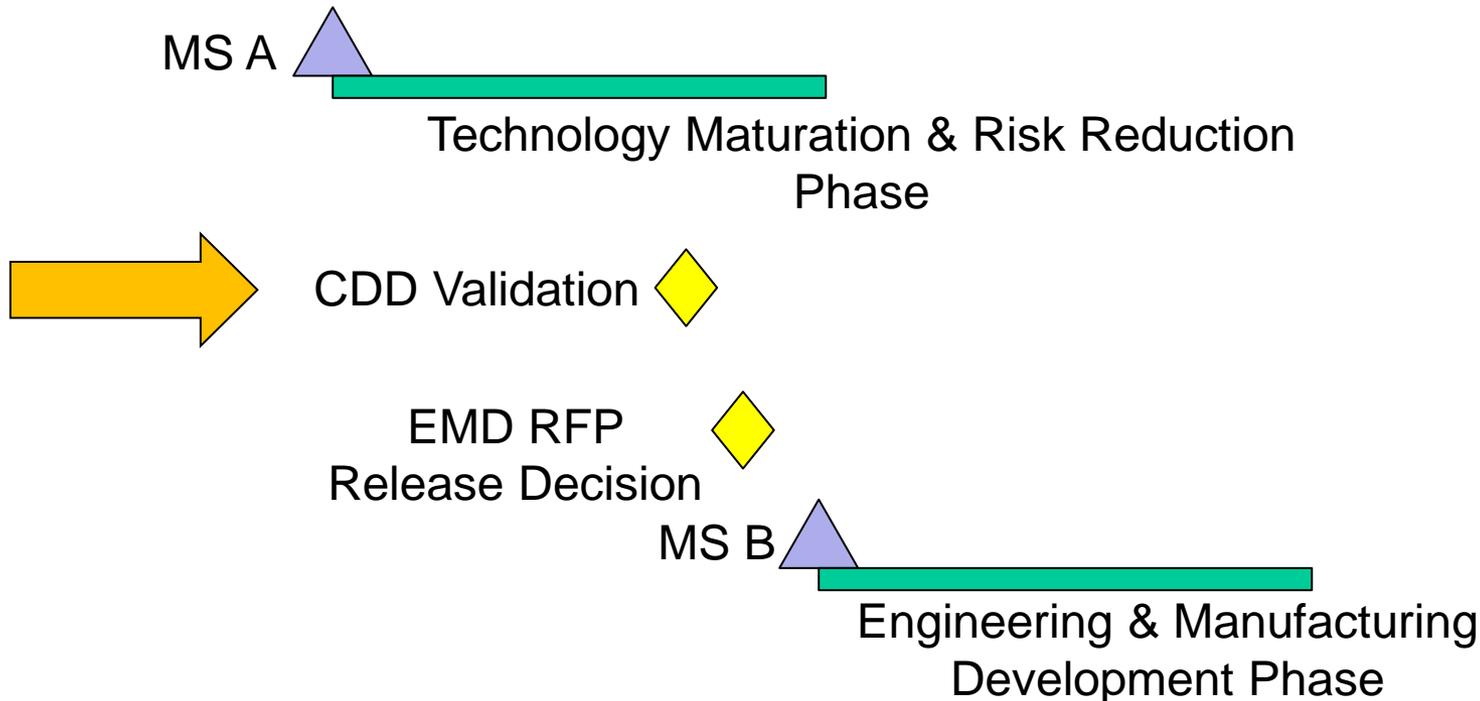
- **Requirements Decision Point**
 - Occurs during Technology Maturation and Risk Reduction;
 - Provides the starting point for the requirements analysis and allocation system engineering process that culminates at the PDR;
 - Informs the Request for Proposal (RFP) for the Development phase.
- **Development RFP Release Decision Point**
 - Institutionalizes the "Pre-EMD Review."
 - "I regard this as the most important single decision point in the entire life cycle ... the release of the EMD RFP sets in motion everything that will follow in the product's life cycle." (Kendall)



Requirements Decision Point

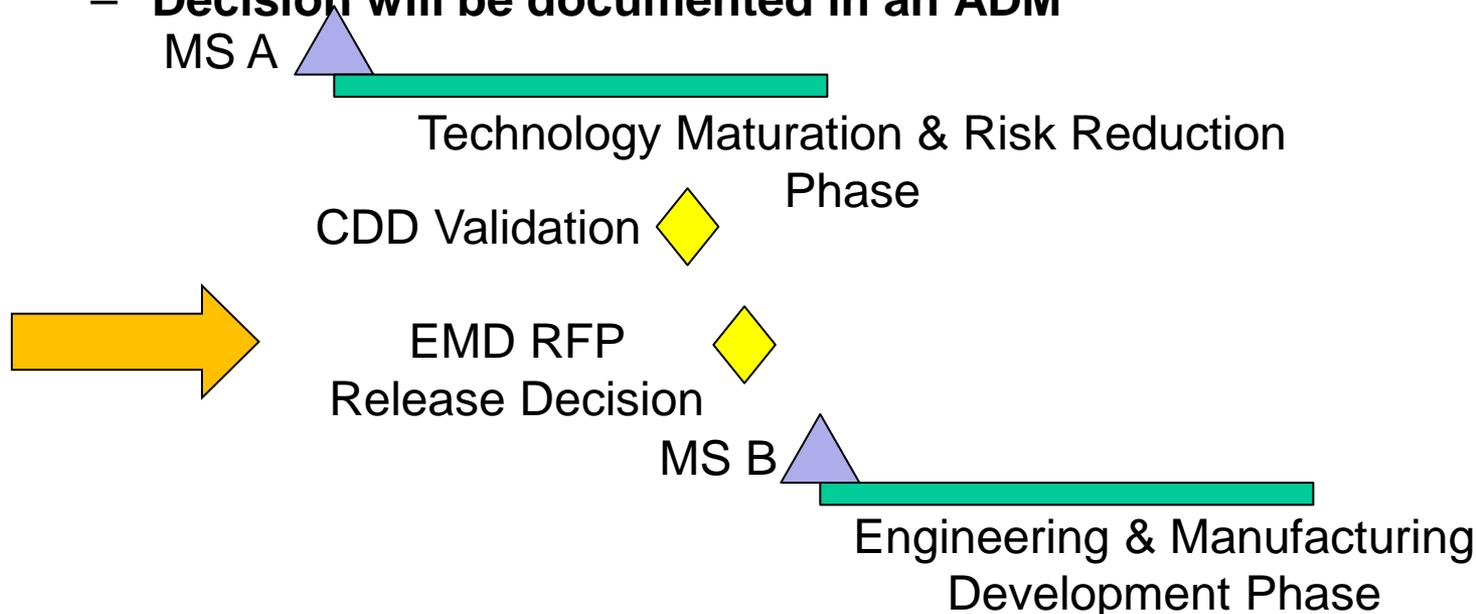


- **Essentially same event as CDD validation (DoD)**
 - **Major cost & performance trades have been completed; enough risk reduction completed to commit to set of requirements for preliminary design activities, development, and production (subject to refinement)**



Development RFP Release Decision Point

- **Point at which planning for development is complete and RFP can be released (may include LRIP options)**
 - Ensures, prior to the release of the solicitation for EMD, that an executable and affordable program has been planned using a sound business & technical approach
 - “This review is the critical decision point in an acquisition program” (p.21)
 - **Decision will be documented in an ADM**





New Language Encl 5.



11. OPERATIONAL TEST READINESS. The DoD Components will each establish an Operational Test Readiness Review process to be executed for programs on DOT&E oversight prior to any Operational Test. Prior to IOT&E, the process will include a review of DT&E results, an assessment of the system's progress against the key performance parameters, key system attributes, and critical technical parameters in the TEMP, an analysis of identified technical risks to verify that those risks have been retired or mitigated to the extent possible during DT&E and/or OT&E, a review of system certifications, and a review of the IOT&E entrance criteria specified in the TEMP.

- Essentially the same as old language. Old reqt for DUSD(A&T) to conduct an independent AOTR has been deleted.