

# Test & Evaluation Policy Changes in New DoD 5000 Series

## Significant Changes That Impact Planning & Execution of Test & Evaluation

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On March 15, 1996, Secretary of Defense William J. Perry approved the release of DoD Directive 5000.1 and DoD Regulation 5000.2-R for immediate implementation. Do not panic! Unless directed by the Milestone Decision Authority, program documentation approved prior to March 15, 1996, need not be revised for the sole reason of satisfying the new requirements that are specified in DoD Regulation 5000.2-R. New programs must implement the revised guidance. Wise program and test managers will incorporate the new guidance, when appropriate, as program documentation is routinely updated or revised because of program changes.

This article summarizes the most significant changes that impact the planning and execution of test and evaluation for major defense acquisition programs and for major automated information system acquisition programs. Follow-on articles can address the potential impacts (good and bad) on the planning and execution of a test and evaluation strategy for major defense acquisition programs or major automated information system acquisition programs.

### Guiding Principles and Mandatory Procedures

DoD Directive 5000.1 provides guiding principles, while DoD 5000.2-R specifies mandatory procedures. When specifically stated in legislation

or when placed on the Office of the Secretary of Defense oversight list, specified mandatory procedures in DoD Regulation 5000.2-R may also apply to less-than-major programs. For example, legislation mandates live-fire testing for covered systems, major munitions, or missile programs, as well as related covered product improvements. Some of these systems may be non-major programs such as an Acquisition Category III (ACAT III) missile program. Figure 1 summarizes requirements, as extracted from DoD Regulation 5000.2-R, for test and evaluation by ACAT.

### Key Policy Changes

It is important to note that the major requirements concerning test and evaluation for major defense acquisition programs are essentially the same as previously prescribed in the old DoD 5000 series. One noticeable difference is that TEMP's are no longer mandated for all acquisition programs. Without further study, a test manager for a weapon system that is a major defense acquisition program might conclude that the revised DoD 5000 series requires little or no change in the planning and execution of test and evaluation. The test and program managers for major automated information system acquisition programs will probably consider the requirement for ACAT IA programs to have an approved Operational Requirements Document (ORD) in the format as prescribed in Appendix II of DoD Reg-

ulation 5000.2-R, to be a very significant change. The major automated information system manager may also have some concerns in using a TEMP format that applies equally to weapon and automated information systems. In addition to these more obvious changes, numerous significant changes can be discovered in the details of the revisions.

### Significant Changes from Section 3.4 (Test and Evaluation), DoD Regulation 5000.2-R

**Section 3.4.1 {Test and Evaluation Strategy}**. This section mandates that the various Measures of Effectiveness and Measures of Performance used in the analysis of alternatives, the TEMP, and the acquisition program baseline shall be consistent. This guidance implements a 1992 Office of the Secretary of Defense (OSD) memorandum that addressed inconsistency between the measures used in the cost and operational effectiveness analysis when compared with actual test data.

A second significant revision is the requirement to tailor the test program for nondevelopmental items and commercial off-the-shelf items to recognize past commercial testing and experience. This change formalizes what has been recognized as a "best practice" among the Services.

A third change mandates that potential environmental impacts associated with testing on DoD ranges and facili-

Figure 1. T&E Requirements by ACAT

T&E Requirements	ID & IC	IA	II	III
TEMP in OSD Format .....Yes (DoD Regulation 5000.2-R, app. III)	Yes	Yes	No**	No**
Live-fire Testing .....Yes* (DoD Regulation 5000.2-R, app. IV)	Yes*	No	Yes*	No**
Test Reports to Director, Test, System .....Yes Engineering and Evaluation (DTSE&E) & Director, Operational Test and Evaluation (DOT&E)	Yes	Yes	No**	No**
Mandated OSD ORD Format .....Yes	Yes	Yes	No	No
Beyond Low Rate Initial Production Report Based ...Yes on Initial Operational Test & Evaluation (IOTE)	Yes	No	Yes	No
IOTE .....Yes	Yes	Yes	Yes	No
Operational Assessments .....No	No	No	No	No

\* If provide crew protection, missile or munitions program

\*\* Except OSD Oversight

Note: As part of the TEMP approval process, DOT&E might require an operational assessment and/or IOTE for an ACAT III program that is designated for OSD oversight.

- Software Maturity Criteria
- Performance Exit Criteria
- Risk Management Metrics, Measures, Indicators, and Associated Thresholds
- Mission Impact Analysis of Unmet Metrics

**Section 3.4.5 {Operational Test and Evaluation}.** An eighth change mandates that Operational Test Agencies shall participate early in program development to provide operational insights to the program office and to the acquisition decision makers. This change reflects the increased emphasis on effective use of working and over-arching level integrated product teams. Without Operational Test Agencies' participation, these Integrated Product Teams will have reduced effectiveness.

A ninth change is the requirement to structure operational testing to take maximum advantage of training and exercise activities in order to decrease test costs and to increase the realism of operational testing.

A tenth change is a clarification on the use of modeling and simulation in conducting operational assessments. When actual testing is not possible to support an operational assessment, such assessments may rely upon computer modeling, simulations, or analysis of information contained in key program documents. As specified in the old DoD 5000 series, an operational assessment based solely on modeling and simulations will not be used as a condition to proceed beyond low rate initial production. The extent that modeling and simulation is used in conjunction with operational testing must be explained in the TEMP.

**Section 3.4.9 {Live Fire Test and Evaluation}.** An eleventh change delegates the authority to the Under Secretary of Defense (Acquisition & Technology) (USD[A&T]) for ACAT ID programs, and to the Component Acquisition Executive (CAE) for less than ACAT ID programs to waive the requirement for full up, system-level

ties be considered. Environmental considerations must be addressed in part 5 of the TEMP.

A fourth change is the requirement to use modeling and simulation (Figure 2), as appropriate, throughout the system life cycle in support of acquisition activities, including test and evaluation. This change reflects the increased emphasis that is being placed on the use of modeling and simulation to reduce costs and to reduce the schedule.

**Section 3.4.2 {Developmental Test and Evaluation}.** A fifth change mandates that developmental test and evaluation programs shall assess the validity of assumptions and conclusions from the analysis of alternatives. This change was enacted to support the requirement to establish linkage and harmonization of test parameters and measures among the key acquisition documents.

A sixth change emphasizes that developmental testing shall be used to assess progress toward meeting critical operational issues. This change was

enacted to reduce the number of shortcomings discovered during operational testing that were previously not identified during developmental testing. Past guidance did address the use of developmental testing to support the decision that the system was ready for operational testing, but failed to specifically mention the assessment of critical operational issues based on developmental testing.

**Section 3.4.3 {Certification of Readiness for Operational Testing}.** A seventh change mandates that the developing agencies formally certify that the system is ready for the next dedicated phase of operational test and evaluation to be conducted by the DoD Component Operational Test Activity. Past guidance was to simply state that developmental testing shall support the decision to certify that the system is ready for operational test and evaluation. The revised guidance mandates that the developing agency provides the following information and assessments prior to formally certifying the system to be ready for the next dedicated phase of operational test and evaluation:

tests and lethality tests before the system enters the engineering and manufacturing development phase. This revision mandates that the USD(A&T) or the CAE must certify to Congress that live-fire testing of such system or program would be unreasonably expensive and impractical. In addition to the clarification as to who submits Live-Fire Testing and Evaluation (LFT&E) waivers, the LFT&E guidelines are now fully incorporated into the DoD Regulation 5000.2-R. Appendix IV provides details on LFT&E reports and procedures that were not included in the previous version of the DoD 5000 series.

### Key Changes to the TEMP Format

The remainder of this article will address changes that impact test and evaluation planning and execution as documented in the TEMP. Key format changes include removing the 30-page limitation and adding the requirement for the Component test and evaluation director to sign the TEMP as part of the approval process. Other significant changes in the TEMP follow:

- PART 1 Changes
  - List the operational performance parameters (Measures of Effectiveness and Measures of Suitability) from the Operational Requirements Document as a replacement for minimum acceptable operational performance requirements.
  - Ensure the critical technical parameters include software maturity and performance measures.
  - Ensure the critical technical parameters include parameters in the acquisition program baseline.
  - Specify compatibility, interoperability, and integration issues.
- PART 3 Changes
  - Address the degree to which system hardware and software design has stabilized so as to reduce manufacturing and production decision uncertainties.
  - List all models and simulations to be used, explain the rationale for their credible use, and provide

their source of verification, validation, and accreditation.

- PART 4 Changes
  - Move “Live Fire Test and Evaluation” from part 3 to part 4.
  - Follow the guidelines provided in Appendix IV, “Live Fire Test and Evaluation Guidelines,” of DoD 5000.2-R to describe strategy and planning for the system.
  - Address procedures to obtain a waiver prior to Milestone II, when appropriate.

### Most Significant Changes to TEMP

Of the preceding changes to the TEMP format, the most significant are the requirement to list operational performance parameters from the ORD and the expanded requirements in addressing live-fire testing. In the past, the TEMP summarized the most significant thresholds from the ORD as minimal acceptable operational performance requirements. Now the TEMP lists all operational performance parameters from the ORD. For a complicated system with a large ORD, this list can be quite extensive and complicated. For a system that is covered under the live-fire testing legislation, the TEMP must summarize where, when, and how the LFT&E issues will be tested and evaluated. The TEMP must also include a matrix that will cover all tests within the LFT&E strategy; their schedules; the issues they will address; which planning documents the Services propose for submission to the Director of

Operational Test and Evaluation for approval; and which documents are proposed for information and review submission only.

### Summary

This article addressed the most significant test and evaluation changes in the revised DoD 5000 series. Numerous less significant, but still important, changes were not addressed. DoD Directive 5000.1 and DoD Regulation 5000.2-R are effective now. Test managers of programs with OSD oversight should obtain a copy of DoDD 5000.1 and DoD Regulation 5000.2-R through their publication support agencies and carefully study those sections referenced in this article. During this study, you should determine what changes are needed in your test and evaluation strategy, and what changes are required in your TEMP to be fully in compliance with the latest DoD guidance.

For programs with documentation approved prior to March 15, 1996, the Integrated Product and Process Development process is ideal for identifying which changes in program documentation are appropriate for immediate implementation, and for identifying which changes are not appropriate or should be implemented at a later date. Good luck...and may you experience great success in implementing your test and evaluation strategies based on this latest DoD guidance.

Figure 2. Modeling & Simulation

