Operational Evaluation Framework – Guidance

Overview

The Operational Evaluation Framework (OEF) is a tool for communicating the entire OT plan and providing a basis for a decision maker to determine test adequacy. The OEF doesn't add information; it packages the plan for easy consumption.

The TEMP should be organized to present separate developmental and operational evaluation approaches. Part 3.2 should include the developmental evaluation methodology and framework. Part 3.4 should include the operational evaluation methodology and framework.

After the Developmental Evaluation Framework (DEF) and Operational Evaluation Framework (OEF) have been developed, the integrated test planning process can proceed. By comparing similar data requirements from the DEF and OEF, DT&E and OT&E planners can design integrated test events to generate the data needed for the independent evaluations. Scientific Test and Analysis Techniques (STAT) provide ideal tools for developing these integrated test events.

3.4.2. Operational Evaluation Framework

The OEF table summarizes the mission focused evaluation methodology and supporting test strategy, including the essential mission and system capabilities that contribute to operational effectiveness, suitability, and survivability. The table identifies the goal of the test (within a mission context), quantitative mission-focused measures (also referred to as quantitative mission-oriented response variables), factors that affect those measures, and test designs for strategically varying the factors across the operational envelope, test period, and test resources. The evaluation framework may also include standard measures of program progress including: key performance parameters, critical technical parameters, key system attributes, interoperability requirements, cybersecurity requirements, reliability growth, maintainability attributes, and others as needed. However, the framework should focus on (1) the subset of quantitative mission-focused measures critical for assessing operational effectiveness, suitability, and survivability and (2) resource, schedule, and cost drivers of the test program.

The OEF should show how the major test events and test phases link together to form a systematic, rigorous, and structured approach to quantitatively evaluate system performance across the operational envelope. The table should also be used to justify the resources necessary for an adequate test.

The operational evaluation framework should also support integrated testing by identifying opportunities for using DT data for OT evaluation. In cases where DT data supports OT evaluation, the evaluation framework table should link to the supporting developmental evaluation framework and summarize procedures for ensuring data collected in DT will be adequate for OT evaluation.

The evaluation framework table should mature as the system matures and be updated at each revision of the TEMP. The table may be inserted in Part III of the TEMP. Alternatively, the framework can be embedded as an Excel table/database, or provided as an appendix.

Table 3.X, provides the essential information to be included in the OEF. Below that table are hyperlinked examples (based on notational programs) of how an evaluation framework table can be organized. These examples should not be taken as a 'cookbook' or template – each program is unique and

will require thoughtful tradeoffs in how to apply this guidance. Equivalent Service-specific formats that identify the same relationships and information may also be used.

Table 3.X. Operational Evaluation Framework Essential Information

Goal of the Test	• Focus on an operational mission and/or capability being assessed. • Link each mission/capability to at least one quantitative mission-focused measure. • Identify the associated COI(s) or COIC(s), where applicable.
Quantitative Mission-focused Measures (Response Variables)	• Quantitative mission-focused test measures provide criteria for mission accomplishment (not technical performance for a single subsystem) and comprehensively cover the reasons for procuring the system (the need). • Also include the resource, schedule, and cost drivers of the test program.
Test Design	• Factors that affect the quantitative mission-focused measures during operation employment of the system. • Experimental design approach (e.g. Fractional Factorial or D-Optimal 2nd order model) for strategically varying the factors across the operational envelope. • Effect sizes for observing identified factors and their interactions where appropriate. • When not using an experimental design approach provide a brief description of the test design and further details on how the test method was selected in the STAT Appendix. The OEF should provide a brief summary; the STAT appendix should include the detailed test design, the corresponding statistical measures of merit (confidence and power), and effect sizes. •
Test Period	• Include all operational test periods when collecting data (e.g., LUT, OA, IOT&E, FOT&E, etc.)
Resources	• High level summary of the resources (time, people, places, and things) needed to execute an adequate test.

Operational Evaluation Examples (pdf files)

Operational Evaluation Framework Aircraft Example

Operational Evaluation Framework Space Observation Radar Example

Operational Evaluation Framework Clean Example

Downloadable Excel Files (These will take a few moments to download.)

Operational Evaluation Framework Aircraft Spreadsheet

Operational Evaluation Framework Space Observation Radar Spreadsheet

Operational Evaluation Framework Clean Spreadsheet

References

DoDI 5000.02

Guidance on the use of Design of Experiments (DOE) in Operational Test and Evaluation

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