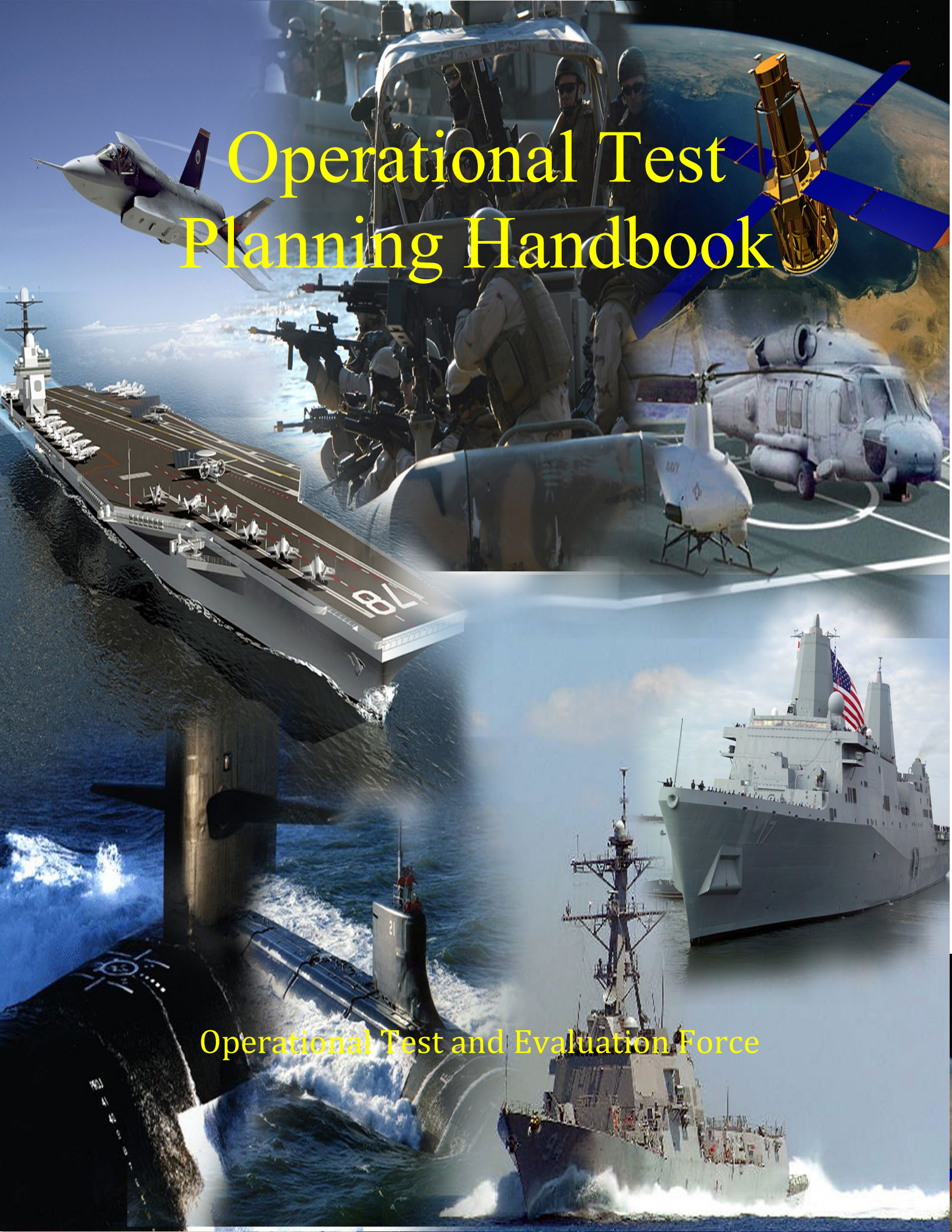
Operational Test Planning Handbook



Operational Test and Evaluation Force

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21 August 2024

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RECORD OF REVISIONS

Number of Change	Summary of Changes	Updated
1	This is the initial Test Reporting Handbook	11 May 20
2	Incorporates update to Command name and Director title. Updated Points of Contact, Chapter 8 Limitations to Test, Chapter 10 Middle Tier of Acquisition. Added a 5-working-day prior requirement for read-ahead documents for combined Touch Points C&D. Added new Chapter 12 on Data Collection Plan, and Appendix C on Test Card format with examples.	21 August 24

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Forward

To succeed in our mission to "ensure Naval Forces can fight and win by evaluating warfare capabilities in realistic combat environments with Fleet warfighters" Operational Test and Evaluation Force (OPTEVFOR) must develop test plans that exercise the test article within the System of Systems (SoS) under conditions that are as close as possible to the expected natural, operational, and combat environment using operational scenarios. Using Mission-Based Test Design (MBTD) and stakeholder collaboration, Operational Test (OT) plans will provide the basis for operationally relevant results and concise, informative reports for the Fleet.

This handbook was prepared to help the OPTEVFOR team: military, civilian, and contractors, produce test plans that stress test article capabilities, provide opportunities to discover system limitations, and support the evaluation of Operational Effectiveness and Operational Suitability (Cyber Survivability test planning is covered by a separate handbook). Most importantly, the test plan will lead to impartial and defendable test results.

This handbook implements OPTEVFOR policy for test planning. It is also the basis for the test planning course and portions of the Operational Test Director (OTD) Basic Course conducted by OPTEVFOR. As the complexity of acquisition programs vary widely, test teams are expected to tailor test plans to the needs of their particular program, working in collaboration with Program Offices (PO), Warfare Division leadership, and OPTEVFOR Competencies. Efficient and collaborative test planning supports the execution of a minimum, but adequate operational test, which results in a robust, credible, and defendable test report.

Operational Test Planning Handbook

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Introduction

The Operational Test and Evaluation (T&E) community's value to the acquisition process is in the observations and evaluations provided to the stakeholders in the form of *robust*, *repeatable*, and *defendable* test reports. The most valuable element to any OT report is credible data informing the evaluation. The effective test plan supports thorough and complete data collection, which in turn informs clear and concise mission-focused Critical Operational Issue (COI) results paragraphs and Blue and Gold sheets. The well-constructed test plan is inextricably linked to the well-written test report. A properly executed test plan provides the test team with all the data required to adequately evaluate the test article within the SoS for any given COI. Additionally, since the MBTD process and resulting Integrated Evaluation Framework (IEF) forms the foundation for the test design, the IEF document is critical to and the source of the bulk of the content contained within OPTEVFOR test plans. The operational test plan adds the detail not contained within the IEF or Test and Evaluation Master Plan (TEMP). Specifics, such as test dates and locations, test assets and ranges, squadron number, aircraft type(s), ship name/hull number, support asset type and unit name/number, detailed scenarios, are described in the test plan. The Detailed Method of Test (DMOT) and the Data Collection Plan (DCP) are developed during test planning and provided in the test plan. Many times, the resources defined as the "minimum but adequate test" in the IEF are not physically available or affordable for the test phase. This may force additional limitations to be included within a test plan. In other cases, development of the System Under Test (SUT) will not have progressed as planned and elements may not have reached the anticipated level of maturity. With this as a backdrop, the operational test plan is the document explaining the "who, what, when, where, why, and how" for the test. The OTD and supporting test team should base the test plan on policy guidance in the Secretary of the Navy Instruction (SECNAVINST) 50000.2 (Series), expand upon the detailed work specified in the IEF, and clearly point out any differences.

The guidance contained in this document serves as a foundation for the test-planning course, available for OPTEVFOR personnel. Additional guidance may be found on the OPTEVFOR share drive: https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx.

CHAPTER 1 - THE OPERATIONAL TEST PLAN

This chapter covers the basis for OT planning and outlines an OPTEVFOR general test plan outline.

1-1 STAKEHOLDER COORDINATION AND COLLABORATION

The OT plan must be coordinated with all stakeholders. Test planning will continue to use the relationships with external stakeholders that were established during MBTD. These key stakeholders include Director, Operational Test and Evaluation (DOT&E) (for oversight programs), the Program Manager (PM), the Resource Sponsor, Fleet representatives, Warfighting Development Centers, and analytical support activities. For multiservice tests where OPTEVFOR is the lead agency, close coordination with participating Operational Test Agencies (OTA) or responsible test organizations is essential. Proper coordination and early identification of issues requiring resolution by the OPTEVFOR chain of command is critical to successful preparation and approval of the test plan.

1-2 TEST PLANNING ADEQUACY

For an adequate OT, the OT plan must exercise the test article within the SoS under conditions that are as close as possible to the expected natural, operational, and combat environment. The plan should use operational scenarios derived from MBTD vignettes in which forces employ realistic tactics against realistic simulations of potential adversaries and targets. Additionally, the test article must be:

- Representative (considering the stage of development and phase of test) of the intended production equipment.
- Operated and usually maintained by Fleet personnel. Operation by Fleet personnel is always required for OT once a mature (production-representative) system is available. System operation by contractors or Subject Matter Experts (SME) may not be appropriate for OT in any but the earliest phases, usually OT-A/OT-A1 Early Operational Assessments (EOA) / Operational Assessments (OA) when there is only a prototype or brassboard, or while depending on computer or paper drawings or simulation. The same is not true of maintenance. During early phases of OT, maintenance by Fleet personnel is usually not possible, making maintainability data unusable for COI evaluation. On occasion, the Navy's maintenance plan states a continuing role for contractor personnel in organizational-level maintenance. While testing a system with an approved plan of this kind, contractor personnel participation is permitted exactly as specified in the approved plan.
- Operated or exercised in an operationally representative environment. OT seeks to provide data on test article performance (where performance includes all the elements of operational effectiveness and operational suitability) in the operational environment and the test article's capability to contribute to the SoS in which it is employed.
- Installed (considering the stage of development) as it is expected to be installed in the Fleet.

1-3 THE OT PLAN OUTLINE

The process for conducting OT planning is found in Chapter 4. An overview of the content of the OT plan follows:

1-3.1 Section 1 – Introduction

The introduction includes a plain-language description of the purpose of test, the Test Article and SoS descriptions, guidance for test plan deviations, and a discussion of any differences between the test article or SoS configuration during test compared to the Fleet configuration.

1-3.2 Section 2 – Scope of Test

The scope of test includes discussions on the selected COIs; contributions from Developmental Testing (DT), Integrated Testing (IT), and Modeling and Simulation (M&S); regression testing; limitations to test; previously identified deficiencies that impact the scope of test; and a consolidated listing of required resources.

1-3.3 Section 3 – Safety

This section identifies the safety roles and responsibilities, hazards specific to the planned OT, and risk mitigation controls.

1-3.4 Section 4 – Project Management

Project management covers the administrative requirements for the planned OT phase, including points of contact, visitor control, test reporting, and the control and release of OT data.

1-3.5 Appendix A – Test Execution

Appendix A is designed to be used during test to facilitate test execution. The appendix includes an overview of the schedule and a detailed schedule, and may include the event-by-event Detailed Method of Test (DMOT) and Data Collection Plan (DCP) if not covered by test cards in appendix C.

1-3.6 Appendix B – Test Design

Appendix B is included to provide traceability between the OT Plan and the IEF test design. Specifically, Mission-Based Test and Evaluation System (MBTES) outputs four Excel spreadsheets that will be embedded in the OT Plan. They are the Measures-to-Data Requirements Matrix (MDRM), the Conditions-to-Data Requirements Matrix, the Run Matrix, and the Traceability Matrix. Measures, tasks, or any other IEF artifacts that were grayed out as not applicable for this test phase should be removed from files embedded in test plans if they were included in the report output from MBTES.

1-3.7 Appendix C – Test Cards, Data Sheets, and Surveys

Appendix C includes all the test cards, data sheets, surveys, focus group and interview guides necessary to execute the OT phase. Review reference material located in OPTEVFOR SharePoint drive (see page v for http link) for survey, interview and focus group guidance.

1-3.8 Appendix D – Acronyms and Abbreviations (optional)

1-3.9 Appendix E - References

1-3.10 Enclosure (2), Section 1 – Data Analysis Plan

The Data Analysis Plan is organized COI-by-COI and includes the COI resolution methodology and the data analysis methodology for each critical measure.

1-3.11 Enclosure (2), Section 2 – Scoring Board

Scoring Board guidance includes information necessary to effectively conduct the scoring board, including board composition, discussions on data validity (qualifying the data for OT), run scoring (did the run meet the controlled condition requirements within allowable tolerances), and data scoring (pass/fail, hit/miss, Operational Mission Fault/Failure (OMF)/not, abort/not, etc.).

1-4 LETTER OF INSTRUCTION (LOI) REQUIREMENTS IN THE TEST PLAN

For project operations involving multi-unit coordination, an LOI will normally be required to ensure all participants have a clear understanding of their roles and responsibilities in the execution of the test. Further information regarding the need for an LOI and the format is contained in the Test Execution Handbook.

CHAPTER 2 - OPERATIONAL TEST PLANNING AND THE TEST AND EVALUATION WORKING-LEVEL INTEGRATED PRODUCT TEAM (T&E WIPT)

2-1 DISCUSSION

A T&E WIPT will be used by the System Command/PM as early as MS-A for Acquisition Category (ACAT) I/II programs. Ideally, all T&E efforts will be coordinated through a WIPT (or WIPT-like) process. The T&E WIPT will provide discussion of, coordination on, and resolution of test planning goals and issues. The T&E WIPT is also a forum to initiate discussions concerning fact-of-life funding or physical limitations that may reduce the resources specified for the "minimum but adequate test" as designed in the IEF. Many of these resource issues, ultimately, may require Flag Officer resolution. Additionally, the T&E WIPT will provide opportunities for the open dialogue necessary for properly designed and adequately tested systems in preparation for OT; and the forum to review the appropriate capabilities / requirements document and to develop the TEMP.

2-2 BACKGROUND

The T&E WIPT will be chaired by the PM or designated representative (normally a military O-6/O-5 or civilian equivalent). The membership should include the requirements officer; Chief of Naval Operations (CNO) (N94) T&E Coordinator; OPTEVFOR OTD, including Air Test and Evaluation Squadron (VX)/Marine Operational Test and Evaluation Squadron (VMX)/Marine Helicopter Operational Development Squadron (HMX) OTDs; PO DT representative; Assistant Secretary of the Navy for Research, Development, and Acquisition staff; and contractors; as applicable. Depending on the program, representation could include Joint Service representatives and Office of the Secretary of Defense personnel.

2-3 WIPT BATTLE RHYTHM

The frequency of T&E WIPT meetings will be determined by the PM. Minutes of each meeting should be distributed to all members and shared internally with all members of the OPTEVFOR test team. Any Operational Test and Evaluation (OT&E) issues should be promptly briefed to the cognizant Warfare Division Director and/or Deputy Director.

2-4 STAKEHOLDER DISAGREEMENT RESOLUTION

Ideally, all major disagreements that could arise during test planning have already been addressed in test design, perhaps negotiated via the WIPT. As disagreements with external stakeholders arise during the test planning process, a Comment Resolution Matrix (CRM) is used to document all issues and their resolution. If an issue cannot be resolved quickly, the pace of test planning requires rapid elevation of the issues to the Warfare Division Director and, if necessary, to the OPTEVFOR Director for resolution.

2-5 DOT&E OVERSIGHT PROGRAMS

For DOT&E oversight programs, early and frequent communication with DOT&E representatives are key to successful OT program execution. Early contact with DOT&E Action Officers (AO), to include agreed-upon methods for document routing, data sharing, and test oversight issue resolution, result in more successful and timely test execution. The DOT&E AO should be invited to attend all T&E WIPT meetings. It is the responsibility of the Warfare Division Directors to ensure any DOT&E test adequacy issues identified at the O-6 level are tracked, elevated, and resolved using the Running Comment Resolution Matrix (RCRM), and any known disagreements are briefed to the OPTEVFOR Director before the Concept of Test (COT) brief to DOT&E.

CHAPTER 3 - TYPES OF OPERATIONAL TEST PLANS

While the primary focus of this handbook is a full Operational Test Plan with OPTEVFOR as the lead OTA, it is important to address the full spectrum of test planning policy. This chapter covers the basis for determining the type of test to be conducted and in which format the test planning will be captured.

3-1 ACAT I-III PROGRAMS AND ABBRIEVIATED ACQUISITION PROGRAMS

Test plans are required for each identified phase of OT&E (e.g., OT-A, OT-B, OT-C, etc.). These include EOAs, OAs, Initial OT&E (IOT&E), and Follow-on OT&E (FOT&E) phases. For IT phases, a DCP will serve as the plan for gathering OT-related data during IT when an OT test plan is not available. When conducting a FOT&E phase, determination of the scope and level of testing may be required. The Level-of-Test Determination (LTD) process will be used to assist in determining exactly what must be tested and how much testing is needed. The LTD process is described in OPTEVFOR SharePoint drive (see page v for http link).

3-2 NON-ACAT PROGRAMS

OT&E is not required for these programs; however, OPTEVFOR's services may be required to test the capabilities of the system. If OT is to be included for a non-ACAT program, a test plan is required. The PM and OPTEVFOR must agree to the scope of appropriate testing.

3-3 JOINT CAPABILITY TECHNOLOGY DEMONSTRATION (JCTD)

Depending on the previously agreed-to level of OPTEVFOR involvement with the particular JCTD, OPTEVFOR provides input for COIs and Measures of Performance/Measures of Effectiveness/Measures of Suitability. The scope of the assessment is further refined in the Demonstration Execution Document (DED), a document similar to a test plan that provides sufficient detail to evaluate Measures of Performance, Measures of Effectiveness, and Measures of Suitability and assess each COI. COIs will be assessed using EOA/OA color codes, assessing military or operational utility. OPTEVFOR will not attempt to resolve JCTD COIs as Satisfactory (SAT) or Unsatisfactory (UNSAT). That task must wait until after transition to formal acquisition, if transition occurs.

3-4 OBSERVATION OF DT

Observations of DT is not OT. Refer to Chapter 9 for a discussion of the two types of observation of DT reports written by OPTEVFOR.

3-5 QUICK REACTION ASSESSMENT (QRA)

QRAs use the test planning process described in Chapter 4 to develop a test plan. Additional discussion on QRA test planning is presented in Chapter 10.

3-6 RAPID FIELDING – OPERATIONAL DEMONSTRATION

For programs using rapid fielding acquisition authorities (sometimes referred to as Middle Tier of Acquisition (MTA)), an operational demonstration is required by DoDI 5000.80. Per SECNAVINST 5000.2G the OTA will monitor MTA DT testing and conduct a QRA using existing policies to support the operational demonstration.

3-7 VERIFICATION OF CORRECTION OF DEFICIENCIES (VCD)

The process for planning a VCD and preparing the VCD test plan is described in Chapter 11.

3-8 INTEGRATED TESTING (IT)

OT data collection during an IT phase of test is conducted per an OT Data Collection Plan (DCP), normally signed by the Warfare Division Director, or a signed OT test plan. The DCP discusses specific OT objectives or goals within the context of the planned IT phase. It may be necessary to refer to specific operational requirements, system enhancements (for an IOT&E or FOT&E of an upgrade), or the intended mission of the platform or equipment being tested. The DCP should discuss why the IT phase is being conducted, and describe how data collected during the IT phase will support the follow-on IOT&E or FOT&E analysis and evaluation. Collecting IT data for OT does not start without an approved DCP (as described in Chapter 12) or IOT&E/FOT&E Test Plan.

CHAPTER 4 - OPERATIONAL TEST PLANNING PROCESS

4-1 RESPONSIBILITIES

The OTD, with a supporting operational test team, is responsible for test planning. 01B, 01C, and 01D provide support to the OTD and the test team during OT planning. A checklist, appendix B of this handbook, outlines the test planning process in detail, and provides a structure for both formal and informal touch points, guiding the OTD through the OT planning process. The test planning process should begin immediately following the completion of the IEF, and not later than 7 months prior to the expected start of test. While OT planning may occur in parallel with the final stages of IEF development, OT planning cannot begin until all measures requiring test scoping through statistical design are fully described in the IEF section 2 and MBTES is up-to-date for the current phase of test (including the creation of applicable vignettes). The overarching philosophy of the OT planning process is to start with the IEF, review and update the IEF as necessary, and add enough detail to support the efficient execution of the designed test, including the collection of all required test data. OTDs shall use this OT planning process to create OT plans for all phases of OT (EOA, OA, IOT&E, FOT&E, VCD and QRAs).

4-2 TEMPLATES

Templates are available on the NIPR SharePoint Online OT Resources library and SIPR share drives. While it is not possible to create a template for every conceivable type of system or scale of test, there are unique templates tailored to the major phases of test (OA, IOT&E, etc.). With the exception of an IT DCP, each test plan template is split into two files. The first file includes the Director's Letter and enclosure (1). The second file contains enclosure (2), the Post Test Guidance sections. Enclosure (2) is not required to be approved by DOT&E. The separate files are intended to facilitate easier routing of the test plan post signature. The templates contain boilerplate text in black that must still be tailored to the specific test being planned. The magenta text provides important, policy guidance beyond that provided in the Operational Test Planning Checklist.

4-3 MEETING ATTENDEES

During the OT planning process, the OT plan will be reviewed at a series of touch points. These touch points occur either as working level or leadership level meetings.

4-3.1 Working Level

The majority of the touch points are working level meetings. Membership includes the OTD, the OTD's immediate leadership, Lead Test Engineer (LTE), DOT&E AO, PO any support contractors, and competency division personnel.

4-3.2 Leadership Level

This category of meetings brings in warfare division, competency division, and squadron leadership for the purpose of obtaining leadership approval to continue the planning process or routing the finalized OT plan.

4-3.3 List of Required and Recommended attendees

Refer to the applicable section of the Operational Test Planning Checklist, appendix B, for the list of required and recommended attendees for each touch point and the Test Plan Review Board (TPRB).

4-4 TOUCH POINT A

Touch Point A is an informal, working-level meeting including the OTD, the Section Head (SH)/OT Coordinator (OTC), LTE, other members of the test team, 01B Core Team Facilitator (CTF), 01C Action Officer (AO), DOT&E AO, PO, and 01D Lead Cyber Analyst (LCA). The purpose of the touch point is to review and update (as necessary) the purpose of test, test article and SoS descriptions, COIs, critical tasks, critical measures, and limitations to test. The touch point also serves as the hand-off between 01B and 01C competencies as they provide process support to the OTD.

4-4.1 Determine the Purpose of Test

The purpose of test describes, in plain English, the primary reason for OT and specify the decision the report is intended to inform. In general, the purpose of test for a new system should focus on the capabilities being introduced to the Fleet by the test article. For upgrades to existing systems, the purpose of test should focus on new capabilities or enhancements being introduced to the SUT.

4-4.2 Review References

At this stage of test planning, the review of program documentation should focus on updates and changes since the documentation was reviewed during the IEF production process.

4-4.3 Create a Test Plan within MBTES

Within MBTES, the team will work in the Test Plan module to assist in developing artifacts for inclusion in the test plan. The test team shall keep the framework updated as changes are made during the test planning process. Coordinate with the 01B CTF for all IEF issues or the MBTES administrator for all database issues.

4-4.4 Review and Update the Test Article Description

The test article description is derived from the IEF paragraph 1.2.1.1 Fielding Configuration, should clearly identify the system version or increment being tested, and describe the system configuration for the specific phase of test, including major hardware and software components and subcomponents. Avoid listing promised, and as-yet untested, capabilities in the test article description as if the capabilities have already been realized. New, enhanced, or upgraded design capabilities should be described, and these capabilities should be traced to specific hardware and software components. The hardware and software component descriptions should be detailed

enough to clearly define the test article, such that risks or deficiencies identified during test can be assigned to either the SUT or the SoS. Any substantive deviations from the TEMP or IEF SUT descriptions must be identified and adjudicated among stakeholders via the T&E WIPT. Additionally, configuration descriptions help the test team monitor configuration changes from previous testing and how updates in the middle of test might affect the test article. A detailed software configuration description will also help identify regression-testing requirements for FOT&E phases.

4-4.5 Review and Update the SoS Description

The SoS description should describe the external systems the test article will interface and interact with, and help determine whether risks or deficiencies identified during test are assigned to the SUT or SoS. The objective is to have a visual depiction of the SUT within the SoS, clearly depicting the boundary between the two.

4-4.6 Review and Update the Mission Decomposition

Review Effectiveness and Suitability COIs and the associated critical tasks and subtasks from the IEF. The test team must have a clear understanding of the SUT mission areas, how the test article will contribute to the accomplishment of those missions, how the critical tasks and subtasks will be observed, how they will be measured, and the linkage from critical measures, to critical tasks, to COI resolution. For Suitability COIs, the test team must understand the SUT's maintenance strategy, and how the maintenance strategy impacts the Suitability COI evaluation strategy. Update COIs, critical tasks, and critical measures as needed, keeping MBTES updated as well.

4-4.7 Review the Measures-to-Data Requirements Matrix

The current Measures-to-Data Requirements matrix shall be examined for criticality to reassess the work performed during test design for any changes required relative to the current understanding of the test article.

- Are the current critical measures still relevant?
- Should other measures be identified as critical?
- Are the measures testable?
- Are the measures clearly defined?
- Are there unnecessary measures? If yes, delete them.
- Are new measures needed due to SUT/SoS updates?
- Are the Data Requirements (DR) measurable/collectable?
- Are the DRs reasonable?
- Are there unnecessary DRs? If yes, delete them.
- Are there additional DRs required to answer the measure? If yes, add them.

4-4.8 Review DT Contributions

Review DT measures and data requirements that are necessary for evaluating the effectiveness of the test article.

4-4.9 Determine Regression Testing Requirements

For FOT&E, the test team needs to have a plan for regression testing. Regression testing verifies previously evaluated capabilities have not been adversely affected by newly introduced capabilities.

4-4.10 VCD Requests

For FOT&E, or a dedicated VCD phase of test, any formally requested VCDs received from the PO must be accounted for in the test plan. See Chapter 11 for additional discussion on VCD.

4-4.11 Review and Update Limitations to Test

Review the limitations to test from the IEF. See Chapter 8 for a detailed discussion of limitations to test in test planning. Update the limitations as needed.

4-5 TOUCH POINT B

Touch Point B is a formal, O-6-level review. The meeting has two primary objectives: 1) qualifying previously collected data for OT (only as required) and 2) approving a test schedule. For programs on DOT&E oversight, the DOT&E AO **must** be invited to the Touch Point B review. If scoring previously collected data, the DOT&E AO **must attend** the Touch Point B.

4-5.1 Review all previous program test data and reports

Working with the T&E WIPT, the OTD should be aware of SUT test data that could be used to satisfy OT data requirements. This data could come from previous OT, or from IT or DT. Regardless of the source, potential data for OT must be qualified for each phase of OT.

4-5.2 Determine which data must be qualified for OT

For previously collected data, regardless of the source, to be used in a phase of OT, it must be qualified for the specific phase of OT. To be qualified for OT, the data must have been collected in an operationally representative environment, with Fleet representative users, with the SUT stressed in an operationally representative manner (including operationally realistic threats, targets, and loads), and with the SUT in the appropriate software and hardware configuration. Data meeting these criteria and satisfying conditions called for in the IEF are eligible for scoring during Touch Point B. Data scored for DOT&E oversight programs need DOT&E AO concurrence. If qualified for OT, previously collected data may be used to satisfy data requirements from the IEF, potentially reducing the scope of dedicated OT.

4-5.3 Identify data requirements, test events, and runs satisfied by previously collected data

Based on the expected qualification of previously collected data, the test team determines which measures, vignettes, or runs within vignettes, have been satisfied, potentially reducing the scope of the planned OT phase.

4-5.4 Review available resources

Beginning with the TEMP and the IEF, the test team reviews the required resources and compares the requirements with available resources. Coordination outside the OPTEVFOR

Division or Squadron (via the OPTEVFOR Fleet Resource Personnel) may be required to identify available resources that could be leveraged for test, including underway periods, Large Force Exercises, and other scheduled test events or range periods. In addition to the resources required for the SUT, consider requirements for data collection tools, instrumentation, and personnel (including travel, training, and proficiency).

4-5.5 Review vignettes and define test events

Determine which vignettes, runs, and demonstrations can be grouped together, conducted sequentially, or conducted concurrently. Linking and grouping of vignette(s)/runs, maintenance demonstrations, effectiveness demonstrations, and regression testing into test events can be accomplished by reviewing the IEF test design for commonalities. By identifying common tasks being observed or common controlled conditions required for test, test execution may be streamlined. The goal is to optimize test time and resources.

4-5.6 Develop the test schedule

The test schedule should cover the entire Test Phase (e.g., OT-B2, OT-C1). Test Phases are divided into Test Periods. Test Periods are usually driven by real-world schedules, allowing for the execution of a large portion of testing. Test Periods are typically defined by underway periods, squadron detachments, Large Force Exercises, or other major geographic or calendar discriminator. Do not insert an organizational layer into the test schedule unless it is necessary. Test Periods are made up of multiple Test Events. Test Events are the foundation and building block of the test schedule. They are executable, trackable, and focused on collecting data from observed tasks and subtasks. The test team must clearly understand how they intend to execute each test event before the test schedule can be completed. As such, some Touch Point C and D work may be required to adequately prepare for Touch Point B. For test designs including randomized run orders, consult with 01B CTF and 01C AO to ensure sufficient operational realism is maintained while satisfying the design requirements. Once the test schedule is approved at Touch Point B, the schedule is maintained by the test team and should be continuously updated as changes occur.

4-6 PREPARE THE DOT&E COT BRIEF

The DOT&E, or their designated representative, is to be briefed on the COT for any program under DOT&E oversight. The COT brief should be conducted no later than 180 days before the planned start of testing. The brief is essentially an OT plan brief with as much detail as possible 6 months before testing begins. The information contained within, and the format of the COT brief, should follow as closely as possible the template and the outline described in Chapter 7. The COT brief may be presented during Touch Point B based on Warfare Division practice. For larger projects, consider scheduling separate meetings for Touch Point B and presentation of the COT brief for Warfare Division Director approval. Once Warfare Division Director approval for the COT brief is received, the COT brief shall be presented to the OPTEVFOR Director for concurrence of the overall concept of test, and for approval to present the brief to DOT&E.

4-7 TOUCH POINT C

Touch Point C is an informal, working-level meeting including the OTD, the SH/OTC/LTE, other members of the test team, 01C AO, and 01D LCA. The 01B CTF should be invited, and

should participate if available. The purpose of the touch point is to review the DMOT. As the name implies, the DMOT is a detailed, event-by-event, description of how the test will be conducted. With the concurrence of 01C AO, Touch Point C may be combined with Touch Point D for smaller-scope phases of test.

4-7.1 Review Employment Documents

The method used to execute each test event should be in line with Tactical Manuals (TACMAN); Concept of Operations (CONOPS); and Tactics, Techniques and Procedures (TTP) used by the Fleet. For new systems, OTDs should engage Warfare Development Centers to develop initial tactics and CONOPS in a timely manner to support OT. If there are draft TACMAN and TTP documents, they should be referenced and used for developing the DMOT.

4-7.2 Review Test Methods in the IEF

The OTD must leverage the IEF, as each vignette should already have a test method described. Specifically, review each vignette within the Vignette-to-Subtask-to-Conditions matrix (Run Matrix) from the IEF database. Expand the test method to fully describe the test procedures necessary to achieve test objectives.

4-7.3 Determine Event Objectives, Methods, and Conditions

Based on the overall test schedule approved at Touch Point B, for each test event determine the specific objectives, test methods, and test conditions. Particular focus is required to ensure test participants are controlled via test methods such that necessary test conditions are achieved in order to capture valid test data.

4-7.4 Determine Conditional Requirements

Review the IEF test designs for controlled, constant, and recordable conditions to determine what tolerances must be met to validate test data.

4-7.5 Define Start and Stop for Major Events

Identify the conditions necessary to start and stop each major test event. Test teams must consider how to transition between major test events, including data management and test equipment, personnel, and SUT logistics.

4-7.6 Determine Go/No-Go Criteria

For each major test event, the OTD, supported by the test team, identifies the prerequisites and "must haves" needed to be in place prior to the start of the test event. The purpose of establishing Go/No-Go criteria is to ensure the test event can be conducted safely and all data requirements associated with the test event can be collected. Anyone with information, understanding, or belief that conditions exist that could lead to injury or equipment damage is empowered and obligated to communicate his or her concern, and the test team must stop testing to address the concern. Critical thinking (Operational Risk Management (ORM)) during the test planning process is required to identify potential risk areas to successful test event execution.

4-7.7 Develop the DMOT for Each Event

Starting with the IEF OT Vignette Strategy, expand the detail already included in the test method section to include pre-test and post-test briefing requirements, roles and responsibilities for adjunct testers, operators, and test team members, and Go/No-Go considerations. The DMOT is written event-by-event per the approved test schedule from the operator's perspective, including those using the SUT, operating the SoS, and driving the threat presentations.

4-7.8 Maintenance Demonstration (M-DEMO)

M-DEMO is planned for every test to yield the necessary data to address time to correct Hardware and Software OMFs critical to mission completion. Start with the IEF Mission-Critical Subsystem Matrix (MCSM) or the Test Plan Mission-Critical Subsystems (Test Plan Enclosure 2 paragraph 2.4.2) to determine what is needed to build test cards to collect this data.

4-7.9 Prepare Test Cards

Test cards should be prepared for every event and are included in appendix C along with the data sheets, surveys, and interview questions. Test cards should include (at a minimum):

- Pre-event briefing requirements
- Test event objectives
- Go/No-go criteria
- Controlled conditions and tolerances
- Detailed test methods for all operators
- Risk assessment (ORM) guidance
- Post-event Hot Wash requirements

4-8 TOUCH POINT D

Touch Point D is an informal, working-level meeting including the OTD, the SH/OTC, LTE, other members of the test team, the 01D representative (as applicable), and 01C AO. 01B CTF should be invited, and should participate if available. The purpose of the touch point is to review the DCP, a detailed, event-by-event, description of how test data will be collected. The focus is on answering the following questions:

- Who is responsible for collecting each data requirement?
- What data are being collected?
- Where will the data be collected, recorded, and stored?
- When will the data be collected, and how often?
- Why is each data element required?
- How are the data being collected?

With the concurrence of 01C AO, Touch Point D may be combined with Touch Point C for smaller-scope phases of test.

4-8.1 Determine all Data Elements being collected per Event

Touch Point D preparations begin with a detailed review of the Measures/Conditions to DRs by event in MBTES. The objective is to identify all data elements required for each test event.

4-8.2 Determine Required Measurement Tools and Devices

Determine the sources of required data. Identify the required measurement tools and devices, and the SUT components and subcomponents providing the data. Determine if there are any calibration requirements.

4-8.3 Build the Data Requirements Table

Build the Data Requirements-by-Event and Data Collector Table in MBTES for each data element and recordable condition by completing the fields for the unit of measure, the precision of the measurement, the source of data, the associated measure(s), the data record, and the person responsible for collecting the data. The purpose of the Data Requirements-by-Event and Data Collector Table is to ensure data sheets are complete, alternate data sources are available for critical measures, and individuals responsible for data collection are not overloaded. This table does not appear in the final test plan in this form.

4-8.4 Build the Data Collection Plan for each Event

Using the Measures/Conditions to DRs by event in MBTES, create the Data Collection Plan for each event in the test schedule. The Data Collection Plan should describe data collection procedures, assign data collection responsibilities, describe how data will be collected, establish when data will be collected (including the sample rate), identify test support equipment requirements, and describe how data will be returned to OPTEVFOR.

4-8.5 Test Cards

Complete the test cards by adding data collection requirements and assignments.

4-8.6 Create Data, Survey, Focus Group, and Interview Sheets

Based on the Data Collection Plan, the test team should create data sheets to facilitate the data collection process while on test, and create surveys, and standardized interview and focus group questions as needed. Early coordination with 01C is required to ensure surveys are used appropriately and are correctly written to collect the desired data. For any disagreements about the Data Collection Plan that cannot be resolved at this touch point, the Warfare Division Deputy Director should be briefed and will act as the decision authority to proceed to the next test-planning phase.

4-9 TOUCH POINT E

Touch Point E is an informal, working-level meeting including the OTD, the SH/OTC, LTE, other members of the test team, the 01D representative (as applicable), and 01C AO. The 01B CTF must be invited and should participate in order to provide the context for the design of test, linking test design and data analysis. The purpose of the touch point is to review the Data Analysis Plan. The Data Analysis Plan is written from the perspective of the analyst, is included in the final test plan within enclosure (2), and provides the details for how data will be analyzed, COI-by-COI, for every critical measure. The analysis plan may include noncritical measures as coordinated with 01C.

4-9.1 Review the IEF Section 2

Touch Point E preparations begin with a detailed review of the IEF section 2. COI-by-COI, review the planned statistical design(s), critical tasks, and critical measures.

4-9.2 Describe the COI Resolution Methodology for Each COI

Focusing on the tasks and subtasks to be observed, describe the resolution methodology for each COI.

4-9.3 Describe the Analysis Plan for every Measure

COI-by-COI, describe how measures will be analyzed and used to evaluate associated tasks to support COI resolution. The discussion should include descriptions of the analytical method or formula to be used to calculate the measure, appropriate units and tolerances, and statistical methods, including factor analysis and confidence interval calculations. For qualitative measures, describe which data will be used, and how they will be used, to evaluate the measure. Detailed discussions of analysis methodologies are not required for calculations with a standard methodology, such as the mean, median, or standard deviation. Planned deviations from standard definitions must be described.

4-9.4 Determine the Scoring Criteria for every Critical Measure

For every critical measure, determine the scoring criteria to establish the validity of the data. The first step in scoring data is to qualify the data for OT. Was the Test Article being employed by a Fleet-representative operator? Was the Test Article in the Fleet configuration? Was the Test Article being stressed in an operationally representative fashion? Having qualified the data for OT, the scoring process needs to review the controlled conditions to ensure the executed run meets the designed run requirements (if applicable). Finally, the result of the run needs to be scored. Was it a hit or miss? Pass or fail? Was the failure or fault an OMF? Did the failure or fault result in an abort? Scoring criteria in the test plan should strive to remove ambiguity in the scoring process by establishing detailed and repeatable criteria.

4-10 TEST PLAN DOCUMENT DEVELOPMENT

Having completed Touch Points A through E, the test team completes the test plan using the Operational Test Planning Checklist, appendix B, as a guide.

4-11 TEST PLAN REVIEW BOARD

The final step in the test planning process is to convene a TPRB. The objective of the TPRB is for the OTD to demonstrate mastery of the test plan, and to gain approval from the Warfare Division Director for routing the draft OT plan for signature. Additionally, the TPRB ensures OT has been planned correctly, test methods and data requirements are adequate and correct, and risk review and mitigation are adequate.

4-11.1 Prepare for the TPRB

The deliverable for the TPRB is the complete draft test plan ready for routing. In preparing for the TPRB, the OTD should be prepared to discuss, at a minimum, the following:

- Purpose of Test

- Test Article Description
- SoS Description
- Mission Area Discussion (COIs, critical tasks, critical measures)
- Resources
- Limitations to Test
- Previous Deficiencies
- Amendments to the standard Test Plan Deviation Guidance
- Safety Responsibilities
- Risk Mitigation Plan
- Test Execution
    - Schedule
    - DMOT
    - DCP
- Data Analysis Plan
- Report Timeline

CHAPTER 5 - ROUTING AND RELEASE OF TEST PLANS

5-1 ROUTING

Test plans for DOT&E oversight projects require approval by OPTEVFOR no later than 60 days prior to start of project operations. Test plans for non-oversight projects are completed so OPTEVFOR issues them no later than 30 days prior to the start of project operations. For multiservice test plan routing time lines, see the Multi-service Operational Test and Evaluation (MOT&E) Memorandum of Agreement (MOA). IT DCPs must be signed, and provided to DOT&E for their review, prior to the start of OT data collection.

5-1.1 Program Manager (PM)

For all oversight test plans, the PM will be provided a copy after the Director has signed the test plan.

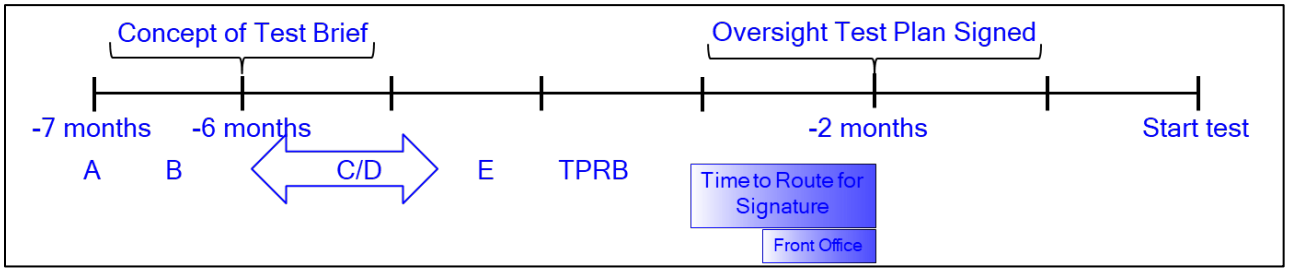
For all non-oversight test plans, the PM will be provided a copy after the Warfare Division Director has signed the test plan.

5-2 DOT&E OVERSIGHT TEST PLANS

Based on the deadline for DOT&E to receive the test plan NLT 60 days prior to the start of test, a notional test planning timeline is presented in Figure 5-1. The COT brief should be presented to the DOT&E Warfare Area Deputy Director no later than 180 days prior to the start of test. If the 180-day milestone is missed, the fidelity of the COT brief is expected to increase commensurate with the amount of detail and firming-up of the schedule that has been realized during continued test planning. To achieve the planning requirements necessary to facilitate the COT brief at 180 days prior to the start of test, the recommendations is to start test planning no later than seven months prior to the planned start of test.

Figure 5-1. Notional Test Planning Process Timeline for an Oversight Program

UNCLASSIFIED

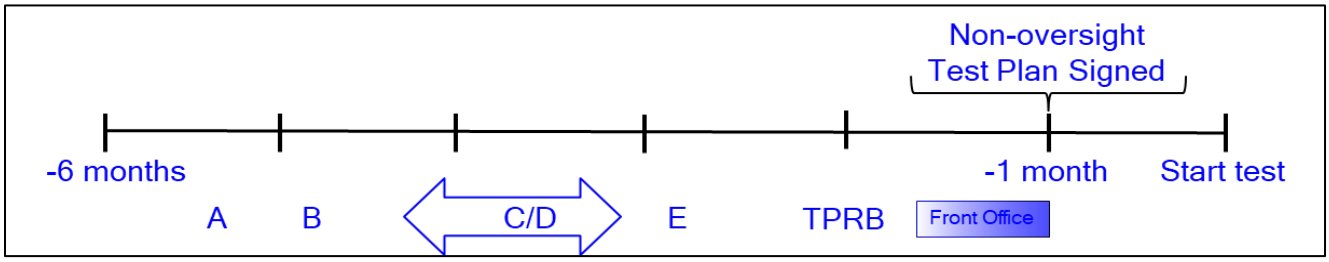


The Director approves all COT briefs being presented to DOT&E and all test plans being forwarded for DOT&E review. Office of the Chief of Naval Operations (OPNAV) (N94) AO(s) and PM shall be notified of the scheduled COT brief so that they can prepare and attend.

5-3 NON-DOT&E OVERSIGHT TEST PLANS

For non-oversight programs, if the Director has not indicated a desire to review the test plan prior to approval, the Warfare Division Director signs and releases the document. A notional timeline for a non-DOT&E oversight test plan is presented in Figure 5-2.

Figure 5-2. Notional Test Planning Process Timeline for a Non-oversight Program



CHAPTER 6 - TEST PLAN CHANGES

6-1 DISCUSSION

Due to the operational nature of OT, there may be times when an approved test plan must be changed prior to or during test execution. These test plan changes fall into two categories:

6-1.1 Substantive Test Plan Changes

These involve changes in the scope of testing and/or significant reduction or change of test resources resulting in additional limitations to test. Substantive test plan changes require the same routing process as the original test plan and a formal brief to the Director and to DOT&E for oversight programs. These changes need to be routed as expeditiously as possible to meet the test execution time line.

6-1.2 Administrative Test Plan Changes

These involve changes the test plan that do not impact the scope of test or modify test resources. Administrative test plan changes include changes to participant names (e.g., changes or additions to test team members, ship names and hull numbers, etc.). Administrative changes may also amplify the existing test plan content with information such as data management procedures that were not formulated or available when the test plan was originally approved. Administrative changes cannot limit the scope of the original test plan. Administrative test plan changes must be reviewed and approved by the Warfare Division Director. The Director and Deputy should be informed of any administrative changes made to test plans under DOT&E oversight and a courtesy copy provided to the DOT&E AO. Test plan administrative changes via e-mail are encouraged.

CHAPTER 7 - BRIEFING TEST PLANS

7-1 GENERAL TEST PLAN BRIEFING INSTRUCTIONS

The Director approves all test plans forwarded for DOT&E review.

7-2 THE CONCEPT OF TEST BRIEF

The Director is briefed on all DOT&E oversight test plans (including OAs) as part of the test plan approval process using the COT brief (COT brief template in OPTEVFOR SharePoint drive (see page v for http link). Briefings should be scheduled so time is available to incorporate the Director's guidance prior to briefing DOT&E no later than 180 days prior to expected test operations. OTDs are advised to schedule the Warfare Division Director, Director, and DOT&E COT briefs well in advance of need to avoid schedule conflicts. Sending calendar invites four weeks prior to the planned briefings is recommended.

7-2.1 COT brief to the OPTEVFOR Director membership includes:

- Director
- Deputy Director
- Technical Director
- Warfare Division Director or designated representative
- Squadron Commanding Officer or designated representative (for VX/VMX/HMX SUTs)
- 01C Director or designated representative
- 01B Director or designated representative
- 01D Director or designated representative – required for test phases including Cyber Survivability
- OTD
- Warfare Division Deputy Director
- Squadron Chief OTD (COTD) and/or Assistant COTD (ACOTD)
- SH/OTC
- LTE
- 01C AO
- 01B CTF
- Test Team Members

7-2.2 COT Brief Outline

- Introduction Slide
  - Basic Program Information
  - What decision will the test inform and when
- Review / Coordination (removed after briefing the Director)
  - 01B, 01C, and 01D
  - DOT&E
- Purpose of Brief/Summary
- Test Article Description

- SUT CONOPS
- SoS Description
  - DoD Architecture Framework Operational View 1 diagram (OV-1)
- Prior OT
- Scope of Test
  - Purpose
  - Duration (start/stop dates)
  - Key events
- COIs & Evaluation Criteria (COI by COI)
  - Evaluation Criteria
  - Statistical Design
- Test Conduct
  - Schedule
- M&S
- Limitations
- Potential Barriers to Test (removed after briefing the Director)
- Resource Requirements
- Reporting
- Way Ahead
- Decision & Directed Actions

7-2.3 COT Brief to DOT&E

The COT brief will be presented to the applicable DOT&E Deputy Director. OPNAV (N94) AO(s) and PM shall be notified of the scheduled COT brief so that they can prepare and attend.

CHAPTER 8 - LIMITATIONS TO TEST

Limitations to any OT may preclude the testers', customers', or stakeholders' understanding of the full range of capabilities of the Test Article within the SoS. As such, any limitation to test implies the CNO or Fleet Commander is accepting some risk by not knowing the system performance or capability in the specified mission areas, conditions, or threats associated with the limitation.

8-1 IMPLICATIONS OF TEST PURPOSE

For test plans for mature systems where a test article exists (IOT&E, FOT&E, late stage OA, and QRA), it is very important for the OTD to describe limitations not only in terms of what the limitation is, but also in terms of the impact of the limitation; what is it that will not be known in terms of the COI and what is the impact to COI assessment or resolution? Additionally, any mitigation for the limitation should be discussed. For EOA and OA test plans where the scope of testing is restricted due to the early position of the program within the acquisition life cycle; e.g., there is no representative test article and the EOA is being performed as a paper study, all limitations should be defined within the frame of reference of the scope of testing. In other words, for an EOA of a ship that has not started construction, not having a ship to observe, walk on, and test is not a limitation to test, but would be described in the purpose and scope of testing. Therefore, for EOA and OA test plans, severe limitations do not apply.

8-2 SEVERITIES

Limitations fall into three categories of severity, as listed below:

- **Severe Limitation.** Limitation precludes COI resolution and adversely impacts the ability to form conclusions regarding operational effectiveness, suitability, or cyber survivability.
- **Major Limitation.** Limitation may affect or preclude COI assessment or resolution but should not impact the ability to form conclusions regarding operational effectiveness, suitability, or cyber survivability.
- **Minor Limitation.** Limitation has minimal impact on COI assessment or resolution and does not impact the ability to form conclusions regarding operational effectiveness, suitability, or cyber survivability.

8-3 LIMITATION PARTS

The description, impact, and mitigation parts of a limitation serve distinctly different purposes. For example, the limitation severity is determined based on the impact. Be careful not to place content in the wrong location, or duplicate ideas between parts.

8-3.1 Description

Write a title that accurately summarizes the description (not the other parts), followed by the impacted COI (each limitation has one or more impacted COI). Then describe the data that will not be gathered, or that cannot be qualified for OT.

Do not use the previously common, generic, and almost meaningless limitation that the SUT will not be tested in all environmental conditions. If environmental limitations are significant, be specific as to how. Use the Fleet Numerical Meteorology and Oceanographic Center (FNMOC) web site https://portal.fnmoc.navy.mil/climoportal/index.htm to focus on particular meteorological parameters of interest and their specific differences between the anticipated test range/location and the anticipated operational area.

8-3.2 Impact

Keep the test report in mind as the impact statement is written. Address how the lack of data may or will impact data analysis and the subsequent evaluation. Focus on the impact to task and mission accomplishment.

Note, impacts may differ between COIs, and each impact should be clearly described.

8-3.3 Mitigation

A mitigation must act counter to the described limitation, and thus reduce the impact. Write clearly about the execution, data, and analysis potentially resulting from the mitigation. When there is no mitigation, write exactly that.

A mitigation that is certain to happen is not a mitigation. It is a planned part of test, and should already be described in the test execution/data collection. Mitigation statements must only include data gathering that may happen, and how this might reduce the impact.

CHAPTER 9 - PLANNING FOR OBSERVATION OF DEVELOPMENTAL TEST

9-1 SUPPORTING DOCUMENTATION

- https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx.

9-2 PURPOSE

This chapter covers the preparation for OPTEVFOR observations of DT that are separate from a full-scale Integrated Test period being conducted as part of an OT phase. The observation will occur under a MOA between the Warfare Division Director and the Program Manager. Prior to departing for the observation, a pre-test brief will be presented to the Warfare Division Director, and that brief is covered in the Test Execution Handbook. Ultimately, the observation will result in either a Letter of Observation (LOO) or an Assessment of Operational Capability (AOC) letter. Refer to the Test Reporting Handbook for guidance on how to write these letters.

9-3 CONDITIONS FOR USE

When observing a phase of DT or specific DT event(s) of an acquisition program, whether a future phase of OT is planned for the test article will determine the type of letter produced at the end of the OT observation of DT.

- If the OT observation of DT is part of an acquisition campaign including a future phase of IOT&E or FOT&E, a DT Assist LOO will be written characterizing the risk of the SUT being determined operationally effective, suitable, or cyber survivable at the conclusion of the future IOT&E or FOT&E.
- If there is no future phase of OT planned for the specific test article, an AOC letter will be written answering the specific purpose(s) identified in the MOA.

Consult with the assigned LTE and 01C AO when planning to observe DT.

9-4 BACKGROUND

Although OT observation of DT has traditionally been used by many acquisition programs, the demand for more efficient use of test resources, the "shift left" initiatives such as Capabilities Based Test and Evaluation (CBTE), and the CNO's direction to provide more rapid capability to the Fleet have increased the demand for OT testers to be involved in early DT phases of test. For acquisition campaigns including dedicated OT, we provide a DT Assist LOO upon completion of OT observing DT events; however, to answer the demand for more rapid fielding of capability, program managers, resource sponsors and the Fleet have opted to field or introduce systems/system upgrades after completion of only DT, with no plan for any future OT. For these cases, the Program Manager and/or the Fleet may request OT involvement to include our input to their risk assessment prior to releasing the system after DT. An AOC letter is the appropriate report format in this case. OT observation of DT, regardless of the report letter format, is not a formal phase of OT and no OT plan is required; however, pre-test planning is required and the

post-test analysis, production, and review process should be carefully scheduled to meet decision timelines. Issues identified while observing DT are documented as Blue and Gold Sheets. LOOs document issues as risks, while AOC letters document issues as deficiencies.

9-5 DESCRIPTION

Although no OT plan is required for observing DT, a MOA between the PM and the OPTEVFOR Warfare Division Director guides testing scope and reporting content. The most useful observations of DT are constructed with thorough understanding of the system being tested, communication with the program office managing the testing, detailed pre-event planning, and discussion with and approval by the Warfare Division Director. Specific considerations include:

- System components and capabilities being tested,
- How performance will be measured,
- What DT data will be collected by the program, and
- How DT data and associated metrics will be reported.

Observing DT also provides test teams the opportunity to learn about and gain familiarity with the SUT and/or new SUT capabilities and enhancements, regardless of future OT. The most successful observations of DT are ones including a cooperative effort between the PM and the Warfare Division Director to maximize benefit to the acquisition process.

9-6 PLANNING

The request for a DT Assist LOO or AOC letter should be initiated by the PO. Initial discussions are usually informal, covering topics such as test objectives, assets, schedule, and funding. These discussions form the basis of the MOA between the PM and the Warfare Division Director. When approached about conducting an OT observing DT event, the OTD should:

9-6.1

Review the supporting documentation listed at https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.

9-6.2

Consult with their SH/OTC, LTE, and 01C AO. Planning should start early, with the goal to have the MOA signed by both parties no later than three months prior to the planned start of test operations.

9-6.3

Coordinate the MOA with the PO to formalize expectations. The MOA should define:

- Roles and Responsibilities of the signatories,
- The overall purpose of the test, and the purpose of OT participation,
- Details about support contractor funding (as needed),
- Procedures for data collection, data reduction and data sharing,
- Test schedule and test locations,
- Specific areas of PM-desired observation and feedback,

- Funding for test team travel and participation,
- Stakeholders
- OT reporting format and letter production timeline.

Special attention must be given to identify the specific questions the PM desires answered, and any critical information desired to be included in the OT letter.

9-6.4

Work with the program to obtain a draft DT plan as soon as possible, and the signed DT Plan when it is available. The DT Plan is required to understand the scope of testing so OT planning can focus on those events and tasks with potential operational significance.

9-6.5

With the DT plan in hand, review any associated program documentation for an understanding of SUT performance shortfalls and new capabilities or enhancements to be observed during the DT period (these documents may or may not be available):

- Capabilities or requirements document(s) - review SUT capabilities to be delivered.
- IEF - review SUT description, CONOPS, and mission areas. In conjunction with the DT plan, determine which IEF tasks and associated measures are candidates for OT observation.
- TEMP - if conducting OT observing DT resulting in a DT Assist LOO, ensure it aligns with the supported test phase. OT observing DT resulting in an AOC letter may not be formally documented in a TEMP.
- Previous OT reports - review outstanding risks or deficiencies (Blue/Gold Sheets).
- Previous DT reports – to understand SUT maturity, desired capability, and the expected level of performance.

9-6.6

A “cross walk” to the tasks and measures in the IEF is a good technique to help focus the test team during DT observation planning (see https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx). Meet with the OT team to review the DT Plan to determine those events, tasks and supporting DT data that would be most important to the Fleet operator. Review any SUT performance issues or tasks for which the PM desires specific OT observation, future OT risk assessment or risks to fielding for an AOC letter.

CHAPTER 10 - QUICK REACTION ASSESSMENTS AND MIDDLE TIER OF ACQUISITION

QRAs are abbreviated OT&E events in support of Department of Navy Urgent Capability Acquisition pathway and MTA pathway programs. This assessment is specific to warfighting solutions that address an Urgent Operational Need (UON) or that qualify for MTA authority. A QRA provides an objective characterization of system operational capabilities, limitations, and deployment considerations, using the criteria supplied by the end user in the capabilities or requirements documentation. QRA requirements, schedule and resources shall be documented as part of the program Master Test Strategy (MTS). The QRA test plan will be produced using the test planning process described in Chapter 4. QRA test plans for efforts under DOT&E oversight shall be approved by DOT&E. The QRA Report Letter will NOT resolve COIs, make effectiveness or suitability determinations, or make Fleet introduction recommendations. QRAs will only assess those capabilities or attributes identified in the tasking letter or MTS, and should make a risk assessment for early deployment relative to selected COIs.

By virtue of the rapid deployment need, QRAs are limited in scope. Although an IEF is not required, a QRA test plan should take advantage of an available IEF, if one already exists. If an IEF does not exist, and time permits, develop a Tailored IEF to improve test adequacy. The QRA test plan should be structured to provide clear insight into the risks associated with a rapid deployment with limited OT.

When developing the plan for a QRA, the OTD should:

- Review the QRA policy guidance in the SECNAVINST 5000.2 (Series).
- Ensure the assessment addresses every issue discussed in the MTS.
- Use the Developing Agency's request letter, the OPNAV tasking letter, applicable Joint Urgent Operational Need Statements (JUONS), Urgent Operational Needs Statement (UONS-Navy), Urgent Universal Needs Statements (UUNS-Marine), or MTS supported by operational experience, to develop the QRA test plan.
  - Determine the system's intended mission(s).
  - Define the system's expected capability(ies).
  - Identify the system's expected operational environment.
  - Identify the system's expected threats.
  - Design test events to demonstrate and assess the system's capability in the expected operational environment with the system's expected threats. Focus on heart-of-the-envelope employment.
- When possible, include representatives of the unit expected to deploy with the operational capability in QRA planning and execution.

CHAPTER 11 - VERIFICATION OF CORRECTION OF DEFICIENCIES

The purpose of a VCD is to confirm correction of deficiencies identified during IOT&E or FOT&E. This evaluation applies to only those deficiencies the Program Manager submits as having been corrected (or substantially mitigated). A VCD can occur through OPTEVFOR review and endorsement of corrective actions or, in some cases, through an end-to-end test of the complete system, depending on the complexity of the system and the extent of the corrections. Where retest of deficiencies is required, a VCD can occur as part of a formal FOT&E phase of test or as a specific stand-alone test limited to the verification effort. Stand-alone VCDs focus on deficiencies vice COI resolution. In order to resolve a COI that was previously evaluated as UNSAT or unresolved, a formal FOT&E phase of test is normally required. Typically, when the COI is unresolved or is resolved as UNSAT, deficiency(ies) prevented the full evaluation of the mission area, and additional testing beyond that required to address the correction of the deficiency(ies) may be required. However, with proper pre-test coordination and thorough test planning and sufficient resources, a VCD for a non-oversight program may be used to evaluate a previously unresolved COI, or to reevaluate a previously UNSAT COI. Stand-alone VCDs will use a test plan, produced using the test planning process described in Chapter 4, to guide the execution of the VCD. For programs on DOT&E oversight, the signed VCD test plan will be provided to DOT&E prior to execution. (DOT&E does not need to approve the VCD since they already approved the original test plan and the VCD should be using that vignette to conduct that event.

11-1.1 VCD Procedures

Following the initial VCD discussions with the Developing Agency, OTDs should coordinate with 01C for program-specific guidance. The following steps are used by the Warfare Division to conduct VCD test planning:

11-1.2 Receive VCD Request

The Developing Agency should submit VCD requests in writing (i.e., Naval message, letter, or e-mail) to OPTEVFOR with an information copy to CNO (N94) identifying the specific deficiency(ies) that have been corrected. The Warfare Division only conducts a VCD in response to a request received from the Developing Agency for the system. The OTD should coordinate with the Developing Agency to include the following information for each deficiency in the request:

- Root cause analysis
- Corrective action(s)
- DT conducted to verify corrective action

If not included in the VCD request, the OTD should coordinate with the Developing Agency to receive this information (in writing) to support the VCD test design.

11-1.3 Determine VCD Scope of Test

After review of the VCD section of the Operational Test Evaluation Manual, the Warfare Division, with support from 01B and 01C, will:

- Identify the minimum, adequate test needed to determine whether specific deficiency(ies) have been corrected or substantially mitigated.
- Determine whether regression testing is required, and if it is, identify the scope of required regression testing.
- If a statistical design is used, schedule a working-level meeting with the test team, 01C AO and 01B CTF/Analyst to discuss the proposed statistical design(s) for test and to draft the relevant statistical design paragraphs using section 2 of the IEF template.
- If a statistical design or regression testing is required, schedule a Design Working Group (DWG) with Warfare Division Director/Deputy Director, 01B Director, 01C Director, 01C AO, 01B CTF, SH/OTC, LTE, OTD, contractor support, and DOT&E (for oversight programs).

11-1.4 VCD Regression Testing

OTDs shall consider the need for regression testing of SUT capabilities and system functionalities that may have been affected by the corrective action taken to address the deficiency. In order to assess the need for and amount of regression testing required, OTDs must have a thorough understanding of the following:

- Mission task decomposition (from the IEF process)
- Hardware and software component decomposition (functionally traced back to mission tasks – provided by the PO)
- Hardware and software changes to correct the deficiency (provided by the PO)
- Available resources.

Regression testing can take the form of structured designed tests, free play demonstrations, or routine daily operations. The DWG will assess the amount of required regression testing, if any, given the scope of changes made to correct the original deficiency(ies) and the available resources. Include all regression testing requirements in the VCD test plan.

11-1.5 Draft the VCD Test Plan

If testing is required, the OTD, with support from the LTE, 01C and 01B, develops a test plan for the VCD to describe the specifics of the given test. The test plan will address what data will be collected and how the data will be analyzed / used to determine whether the original deficiency has been corrected or mitigated to such an extent as to merit re-characterization. Where an end-to-end test is deemed necessary, the initial premise should be that the VCD would involve a subset of the vignettes developed for the original test. The cognizant Warfare Division uses the test planning process described in Chapter 4 to produce a test plan containing the following for each deficiency identified in the VCD request:

- The original deficiency(ies) to be evaluated.
- The root cause and corrective action taken.
- The scope of the VCD: Number of days of laboratory/ground test, number of sorties, steaming days, missile shots, to include any required regression testing.

- The test methodology - where appropriate, reference vignettes or test events from the previously approved OT plan or the IEF; describe any newly constructed vignettes.
- The specific resources required and any shortfalls.

11-1.6 Conduct the DWG

If the scope of the planned VCD includes a statistical design or regression testing, the cognizant OPTEVFOR Warfare Division will chair a DWG (with DOT&E participation for oversight programs) to review and validate the planned statistical tests, any regression testing, and the draft test plan. The root cause of the deficiency, corrective actions taken, and any DT data used to verify the implemented solution corrected the deficiency, will be analyzed to validate the scope of test.

CHAPTER 12 - IT DATA COLLECTION PLAN

12-1 SUPPORTING DOCUMENTATION

- https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx.

12-2 PURPOSE

This chapter covers the preparation for OPTEVFOR observations of IT periods being conducted as part of an IOT&E or FOT&E. Data collection may occur during IT phases, with an approved IT DCP or an OT Test Plan covering the specific test periods.

12-3 CONDITIONS FOR USE OF THIS CHAPTER

When participating in an IT phase where the data is planned to be scored for IOT&E or FOT&E:

- The SUT must be production representative with Fleet operators conducting the mission.
- An approved DCP or IOT&E/FOT&E test plan is required.

12-4 BACKGROUND

Although participation in IT has traditionally been used by many acquisition programs, the demand for more efficient use of test resources, "shift left" initiatives such as Capabilities Based Test and Evaluation, and the CNO's direction to provide more rapid capability to the Fleet have increased the demand for OT testers to be involved earlier in the test campaign. OT testers must plan to have an approved IT DCP or IOT&E/FOT&E test plan if they plan to use IT data for OT reporting.

12-4.1

OTDs should consult with their SH/OTC, LTE, and 01C AO early. Planning should start early to ensure the IT DCP or IOT&E/FOT&E test plan is signed before the first DT/IT collection opportunity.

12-4.2

Work with the program to obtain the signed or draft DT test plan as soon as possible. The DT plan is required to understand the scope of testing so planning can focus on those events and tasks with potential operational significance.

Appendix A - *ACRONYMS*

00	Director, OPTEVFOR
00D	Deputy, OPTEVFOR
00TD	Technical Director, OPTEVFOR
01A	OPTEVFOR Operations Competency
01B	OPTEVFOR Test Design Competency
01C	OPTEVFOR Test Planning and Evaluation Competency
01D	OPTEVFOR Cybersecurity Test Competency
ACAT	Acquisition Category
ACOTD	Assistant Chief Operational Test Director
AO	Action Officer
AOC	Assessment of Operational Capability
CBTE	Capabilities-Based Test and Evaluation
CD	Capabilities Document
CNO	Chief of Naval Operations
COI	Critical Operational Issue
CONOPS	Concept of Operations
COT	Concept of Test
COTD	Chief Operational Test Director
CRM	Comment Resolution Matrix
CS	Cyber Survivability
CTF	Core Team Facilitator
DCP	Data Collection Plan
DMOT	Detailed Method of Test
DODAF	DoD Architecture Framework
DOT&E	Director, Operational Test and Evaluation
DR	Data Requirement
DT	Developmental Test
DWG	Design Working Group
EOA	Early Operational Assessment
FNMOC	Fleet Numerical Meteorological and Oceanographic Center
FOT&E	Follow-on Operational Test and Evaluation
HMX	Marine Helicopter Operational Development Squadron
ICTB	Integrated Capability Technical Baseline

IEF	Integrated Evaluation Framework
ILSP	Integrated Logistic Support Plan
IOT&E	Initial Operational Test and Evaluation
IT	Integrated Testing
JCTD	Joint Capabilities Technology Demonstration
JUONS	Joint Urgent Operational Needs Statement
LCA	Lead Cyber Analyst
LCSP	Life Cycle Support Plan
LOI	Letter of Instruction
LOO	Letter of Observation
LTD	Level-of-Test Determination
LTE	Lead Test Engineer
M-DEMO	Maintenance Demonstration
MBTD	Mission-Based Test Design
MBTES	Mission-Based Test and Evaluation System
MCSM	Mission-Critical Subsystem Matrix
MDRM	Measures-to-Data Requirements Matrix
MOA	Memorandum of Agreement
MOT&E	Multi-service Operational Test and Evaluation
M&S	Modeling and Simulation
MTA	Middle Tier of Acquisition
MTB	Mission Technical Baseline
MTS	Master Test Strategy
NTSP	Navy Training Systems Plan
OA	Operational Assessment
OMF	Operational Mission Failure
OPNAV	Office of the Chief of Naval Operations
OPTEVFOR	Operational Test and Evaluation Force
ORM	Operational Risk Management
OT	Operational Test(ing)
OTA	Operational Test Agency
OTC	Operational Test Coordinator
OTD	Operational Test Director
OT&E	Operational Test and Evaluation
OV	Operational View
PM	Program Manager
PO	Program Office

POA&M	Plan of Action and Milestones
POE	Projected Operational Environment
PTIP	Post-Test Iterative Process
QRA	Quick Reaction Assessment
RCRM	Running Comment Resolution Matrix
ROC	Required Operational Capability
RfR	Runs-for-the-Record
RV	Response Variable
SAT	Satisfactory
SECNAVINST	Secretary of the Navy Instruction
SH	Section Head
SME	Subject Matter Expert
SoS	System of Systems
SUT	System Under Test
SV	System View
TACMAN	Tactical Manual
TACSIT	Tactical Situations
T&E	Test and Evaluation
TEMP	Test and Evaluation Master Plan
TPRB	Test Plan Review Board
TTP	Tactics, Techniques, and Procedures
UNSAT	Unsatisfactory
UON	Urgent Operational Need
UONS-Navy	Urgent Operational Needs Statement
UUNS-Marine	Urgent Universal Needs Statement
VCD	Verification of Correction of Deficiencies
VMX	Marine Operational Test and Evaluation Squadron
VV&A	Verification, Validation, and Accreditation
VX	Air Test and Evaluation Squadron
WCB	Warfare Capability Baselines
WIPT	Working-level Integrated Product Team

Appendix B - *OPERATIONAL TEST PLANNING CHECKLIST*

B-1 OPTEVFOR Test Plan Checklist Introduction

Purpose: This checklist guides the OTD through OPTEVFOR's six (6) step **Test Planning process**. The Test Planning process should ***begin at least seven (7) months prior to the start of test.***

B-2 The checklist is broken up into smaller portions based on significant review milestones:

- Touch Point A
- Touch Point B
- Touch Point C
- Touch Point D
- Touch Point E.

The Test Planning process culminates in a **TPRB** to Divisional Leadership. Following successful completion of the process, the OTD receives approval for further routing of the Test Plan, per the OT&E Manual.

This checklist is intended to be utilized for planning **any type of test conducted by OPTEVFOR**, including the common phases of test:

- QRA
- EOA
- OA
- IT DCP
- MOT&E
- IOT&E
- FOT&E
- VCD

CAUTION: Critical thought is required. In coordination with the LTE, if assigned, consider each checklist step for applicability. ***Do not skip steps or delete sections from the template unless you understand the intent of that step/section and know it is not applicable to your test.***

- NIPRNET and SIPRNET resources available to the OTD outside this checklist (generally located in https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/SitePages/01A-Division-OT-Resources.aspx (NIPRNET), and Y:\OT&E Reference Library, Y:\OT&E Production Library\Test Plan and DCP (SIPRNET), including:

- OT&E Manual
- Test Plan templates
- Concept of Test Brief template
- OPTEVFOR Handbooks
- Standard Cyber Survivability (CS) products
- Test Planning course materials
- Mission Technical Baselines (MTB)
- Integrated Capability Technical Baselines (ICTB)
- Tactical Situations (TACSIT)
- Warfare Capability Baselines (WCB)
- Weapon/target pairings
- Scoring criteria

CAUTION: Using this checklist does not absolve the OTD of the responsibility for ***critical thought,*** or the requirement to understand why they are performing these steps and how to apply the results. ***If you do not understand, ask your 01C AO or LTE.***

B-3 Process Administration

Purpose: Complete these administrative actions before starting and update throughout the Test Planning process.

☐ 1. Read the Operational Test Planning Handbook.

☐ 2. Review and update the IEF, as necessary, to align with latest required measures or test methodology.

Step 2 will be dependent on the OTD's familiarity with the IEF, likely based on individual level of involvement in document development. Assess the signature date of the IEF against the effective date of policy and handbooks for OPTEVFOR processes. Align the IEF with current practices. This will reduce administrative delay during Test Planning.

☐ 3. Attend the Test Planning Course (OTP-200).

☐ 4. Develop and maintain test plan development Plan of Action and Milestones (POA&M) and brief to LTE and 01C AO. Include Division Cyber LTE or 01D LCA if CS is in the scope of testing for the test phase being planned.

a. Understand the overall test data collection strategy and identify appropriate OT data collection opportunities, such as DT or IT, to support desired data collection efforts.

b. Determine the intent of this test planning effort (i.e. combined Test Plan for IT and OT or simply an IT DCP now with separate Test Plan to come later).

c. Determine the driver and date required for the completion of the Test Plan.

The driver for Test Plan completion is typically the required signature date based prior to test phase start date as planned by the PM and identified in the TEMP.

d. The recommendation to begin test planning no later than 7 months prior to the start of test is based on the following assumptions:

- COT Brief is due to DOT&E no later than 6 months prior to start of test for oversight programs
- Test Plan signature date is required no later than 60 days prior to test for oversight programs and 30 days prior to test for non-oversight programs
- Routing the completed test plan through the Warfare Division, and Squadron if applicable, to the Director in 3-4 weeks, though routing can be streamlined slightly with proactive OTD coordination throughout the routing chop chain.

e. Draft a test plan development timeline to include each milestone in the process, as applicable for this test phase, based on:

- Cyber team site visit, if applicable, should be completed prior to Touch Point A
- Determined driver date

- Oversight status of the program
- Consider additional supporting efforts that may be required in parallel such as M&S accreditation, IEF updates, or system training.
- If DT M&S data is planned to be used, it must be accredited by OPTEVFOR.
- A qualitative assessment of the scope of the test based on established MBTD (so larger programs should begin detailed test planning earlier)
- The resources (divisional, squadron, analytical, CS, or external agencies) available to the test team to execute test planning
- Other test phases in test execution or post-test analysis that may impact this program test phase or members of this test team
- With LTE and 01C AO assistance, tailor this checklist and adjust the planning timeline to align to the Lead OTA MOT&E planning process when OPTEVFOR is a supporting OTA
- For MOT&E projects where OPTEVFOR is the Lead OTA, ensure additional OTA staffing times agreed to in the MOA for MOT&E are accounted for in the POA&M.

All touch points will generally apply to any type of test plan, with the exception of an IT Data Collection Plan (DCP), which may not require the Data Analysis Plan and Scoring Criteria (Touch Point E) since this will generally be included within the follow-on IOT&E or FOT&E Test Plan.

☐ 5. Enter, and update as required, the Test Planning Touch Point completion dates in iBoss Program Manager.

☐ 6. Ensure required personnel have MBTES (IEF Database) access.

Use of MBTES is required for all Test Plans. Many of the tables in the Test Plan document are produced directly from this database.

a. OTD contact the 01B CTF to request/update access. CTF will pass approved tasking to the Database Analyst.

b. The Database Analyst will confirm access (Common Access Card-enabled) granted

Access for contractors is granted through OTD request. If contractors associated with a program change over time, the OTD must inform their 01B CTF of these changes (additions and removals).

c. Consider verifying current IEF database applicable common measures and data requirements are updated per current guidance (i.e. suitability and cyber survivability measures are aligned with current handbooks).

d. Create IEF Change or IEF Revision databases as required. Consult your 01B CTF as required.

Any changes to the MBTD made through the test planning process must be officially changed or revised (as appropriate, and agreed to by Warfare Division Director and 01B).

☐ 7. Remain engaged with Core Team and stakeholders leveraging relationships established in the MBTD IEF process, as well as any additional stakeholders required, to support the planning, execution, or post-test analysis products.

The Core Team generally includes:
The PM, Program T&E Lead, Resource Sponsor, the OPNAV T&E rep, the Fleet User community, the applicable Warfare Center of Excellence rep, and the DOT&E AO for oversight programs. For Multi-service testing, coordinate with the involved OTAs to consult the equivalent personnel from the other services.

Additionally, other agencies (such as NSWC Corona, Johns Hopkins APL, or NUWC Newport) that are providing data collection/extraction, reduction, and/or analysis expertise may need to be consulted throughout the Test Planning process so they are fully prepared to support test execution and/or post-test analysis.

☐ 8. The OTD is now ready to begin the test planning process, based on the developed schedule.

a. Do not schedule a touch point without LTE concurrence that the appropriate product(s) will be ready two (2) or five (5) days prior to the desired touch point date.

b. The meeting should be cancelled and rescheduled at any time the LTE or OTD find the product will not meet the required two (2)- or five (5)-working day read-ahead availability prior to a scheduled touch point.

c. The scheduled duration of each meeting should account for the amount of material to be reviewed and the complexity of possible discussions.

d. For programs on DOT&E oversight, the OTD shall maintain a CRM, as well as an RCRM used to capture all unresolved O-6-level stakeholder comments generated during the test planning process. Business rules for the 01C Test Planning CRM can be found at OPTEVFOR SharePoint drive (see page v for http link).

☐ 9. Templates and example test plans are available on the OPTEVFOR SharePoint site.

a. https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx for templates tailored to a specific phase. The templates are separated into two parts:

i. The test plan template document includes the cover, signature page, and enclosure 1.

ii. The test plan enclosure 2 document includes the data analysis plan.

b. https//items.navair.navy.mil/iReport/COTF/ for examples of Finalized Documents.

c. https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx for a COT Brief slide template.

d. https://flankspeed.sharepoint-mil.us/sites/OPTEVFOR/Sitepages/01A-Division-OT-Resources.aspx for lessons learned slide templates.

☐ 10. As template sections are encountered, that are not applicable to the test being planned, the section(s) should be removed and subsequent sections renumbered unless otherwise directed in template guidance. Consequently, the section titles listed for inclusion in the

read-aheads for each touch point should be the primary cross reference should the section number or appendix not align with those in this checklist.

B-4 Test Plan Touch Point A Checklist

Purpose: To define the **Purpose of Test**, including the Test Article Description, SoS Description, COIs, and how the test article's capability to accomplish the COI Critical Tasks will be evaluated.

☐ 1. Determine the Purpose of Test, considering the following:

a. Discuss supported PM(s) and Program Executive Officer.

b. Discuss the program decision being supported.

c. Discuss the test phase (e.g., EOA, OA, IOT&E, FOT&E, etc.) and planned test dates.

NOTE: The focus of an EOA is unique in that it is assessing the design of the SUT rather than its performance. Testing typically occurs at a point so early in the design of the SUT that data cannot be pulled forward into the EOA nor can data be later qualified for OT. As such, tailoring of this checklist and the template to align with the purposes of the EOA may be required.

d. Discuss reporting timeline and requirements.

e. Discuss status of CONOPS and TTPs.

f. Discuss the current/expected threat context.

g. Discuss major test objectives.

h. Discuss any risks/deficiencies identified during previous phase(s) of test.

i. Discuss any deficiencies identified as corrected by the PO, which require evaluation, for which a VCD has been requested.

j. Review lessons learned from previous phases of test (listed in the report Data Analysis Summary).

☐ 2. Review source documents, for changes and updates:

NOTE: The below list of documents is not all-inclusive. Some programs may not have all of the documents available, or documents may be in draft form. The OTD must communicate with the program office to receive the documents that apply.

a. Capabilities and requirements documents.
   i. Capability Development Document.
   ii. Capability Production Document.
   iii. Top-Level Requirements (MTA pathway)
   iv. Capabilities Needs Statement (software acquisition pathway)
   v. Other. The resource sponsor can establish derived requirements by agreeing any other documented statements/standards constitute a requirement (e.g., TEMP, IEF measure).

b. TEMP.

c. Concept of Employment.

d. Information Support Plan.

e. Integrated Logistic Support Plan (ILSP).

f. Life Cycle Support Plan (LCSP).

g. Navy Training Systems Plan (NTSP).

h. Maintenance Support Plan.

i. Required Operational Capability (ROC)/Projected Operational Environment (POE).
   i. USN ROC/POE.
   ii. Platform specific ROC/POE.

j. Functional Requirement Documents.

k. Operational View (OV) and System View (SV) diagrams from the DoD Architecture Framework (DoDAF) and Systems Command Integrated Capability Framework (ICF).
   i. OV-1 High Level Operational Concept Graphic.
   ii. AV-1 Overview and Summary Information.
   iii. OV-2 Operational Resource Flow Description.
   iv. OV-4 Organizational Relationships Chart.
   v. OV-5 Operational Activity Model.
   vi. SV-1 Systems Interface Description.
   vii. SV-2/SV-2a Systems Resource Flow Description.
   viii. OV-3/SV-6 Information Exchange Requirements (IERs).
   ix. SV-10c Systems Event-Trace Description.

NOTE: DoDAF architectures can be obtained from the program office or the resource sponsor (OPNAV).

l. WCB Weapon/Target Pairs.

NOTE: WCB is an OPTEVFOR-led assessment on high priority Fleet kill/effect chains prioritized by Fleet Forces and Pacific Fleet.

m. TACSITs.

NOTE: TACSITs provide Red Order of Battle (OOB), doctrine and TTPs, Blue OOB, doctrine and TTPs, environmental details, Command and Control, Rules of Engagement, and more based on current OPLANs. They are Fleet documents.

n. MTBs and ICTBs.

NOTE: These documents come from the acquisition community. MTBs describe the threat (Red OOB, TTPs, doctrine, etc.). ICTBs cover neutralizing threats (Blue OOB, TTPs, doctrine, etc.). See 01X for more information. The documents are available at SIPR Y:\OT&E Reference Library\WCBs, MTBs, ICTBs, and TACSITs.

o. Program Security Classification Guide (SCG).

NOTE: There is no requirement (statutory or regulatory) that requires PMOs to publish a SCG, unless they have classified information. The SCG is a required reference for every OPTEVFOR Test Plan that has classified information. The SCG should be reviewed at the beginning of each Test Planning effort to determine the appropriate classification of the Test Article configuration that will be tested. Additionally, the team should review the SCG for guidance on the appropriate classification for identified risks/deficiencies.

p. System Threat Assessment Report and/or Validated Online Lifecycle Threat, as applicable.

☐ 3. Review/update the SUT description from the IEF and TEMP. Consider:

a. Substantive deviations in the SUT description must be identified and should be adjudicated among stakeholders via the T&E WIPT.

b. Describe the Test Article (the actual hardware being assessed or evaluated), down to the sub-component level (including software versions), with enough detail to:

i. Define the line between SUT and SoS for the current phase of test.
ii. Clearly define an issue as a Blue Sheet or a Gold Sheet.

NOTE: The software configuration planned for the Test Article during the test period needs to be understood and presented as part of the Test Article description. A shell Software Configuration table is available in MBTES at Report tab -> Test Plans dropdown -> [select working test plan] -> Touch Point A -> Software Config Shell.

c. Discuss actual test configuration(s) for use in OT, including In-Scope and Out-of-Scope test article definitions for FOT&E.

i. Describe specific Test Article configuration.
ii. Describe major hardware/software, and any changes, from DoDAF architecture.
iii. Identify any differences between this test, any previous testing, and the expected Fleet configuration for IOC/deployment.
iv. For any post-IOT&E test phase, describe:
- Out-of-Scope SUT
- New capabilities
- Enhancements.

d. Discuss specific environment(s) to be examined.

☐ 4. Review/update SoS description from the IEF tailored to this phase of test.

a. Review DoDAF architecture and other publications to characterize Test Article and SoS interfaces.

b. Highlight any interface/interaction from SUT to SoS. Consider:

i. What else does the test article touch?
ii. What changes will require regression?
iii. How will test article affect the SoS and 'kill chain'?
iv. How will SoS be affected by planned OT?

c. Discuss SUT hardware/software requirements to enable SoS interface.

NOTE: In certain test environments the Test Article may not fully interact with its intended SoS (often occurs in EOA/OAs). The OTD must understand how this will affect test design.

☐ 5. Obtain access for required test team members to the current "live" database from the 01B System Analyst, or Mr. Aaron Hommell.

☐ 6. Review the Effectiveness and Suitability COIs and their Critical Tasks/Critical Measures from the IEF.

a. Review the applicable ROC/POE to ensure the SUT and COIs are aligned.

b. Discuss COIs and SUT tasks/functions/capabilities.

c. For FOT&E, ensure the COI questions reflect the focus on the In-Scope SUT.

d. Discuss decomposition of COI – Task – Subtask, and provide context to 'mission relation.'

e. Assess if any updates to the IEF are required.

NOTE: The COI Mission Critical Measures tables can be generated by MBTES. Report tab -> Test Plans dropdown -> [select working test plan] -> Touch Point A -> TP Crit Task to Crit Measures.

☐ 7. Review the CONOPS and understand the SUT's (hardware and software) contribution to each Effectiveness COI and Critical Task.

a. How will the SUT be used while executing the mission?

b. What hardware and software components are necessary to accomplish the mission(s)?

NOTE: The intent of step 7 is to ensure the Test Article component contributions to mission accomplishment are understood well enough to review the Mission Critical Subsystem Matrix, IAW the Operational Suitability Handbook during step 8.

☐ 8. Discuss the Maintenance Strategy and support of the various Suitability COIs.

a. Assess how the Maintenance Strategy will support completion of Critical Tasks.

b. Review the Mission Critical Subsystem Matrix.

c. Review the SUT sustainment plan and the suitability evaluation as described in the IEF.

i. Reference the ILSP, LCSP, and NTSP.
ii. Consider the Material Support Date and the Ready for Training Date as established by the Program Manager.

iii. Align the Suitability COIs and measures with this phase of test and test article.

NOTE: Suitability COIs often do not have associated Critical Tasks. In such cases, the Critical Measure may be sufficient, but the OTD should understand and document the strategy for how the measures will be assessed.

NOTE: Additional guidance on Suitability COIs [Reliability, Maintainability, Logistic Supportability, and Availability (RMLA)] can be found in the Operational Suitability Handbook, IEF Checklist annexes, and the Suitability Course. The latest Suitability Course materials can be found at H:\01C\Training\RMLA (latest course date).

☐ 9. Discuss the DT contributions to this OT phase.

NOTE: Focus should be on the DT measures and data requirements that are <u>necessary for evaluating the Test Article</u> but cannot be collected in an operationally representative

☐ 10. For FOT&E, evaluate Regression Testing requirements.

NOTE: The IEF process should have determined if significant hardware and software changes have affected legacy Critical Tasks and Measures, and identified Critical Measures to support regression testing.

NOTE: Regression test planning requires the following: 1) identification of hardware and/or software configuration changes, 2) further identifying the scope of regression through analysis of which subcomponents or software modules the identified changes directly interact with, and then 3) identifying the tasks and measures that correlate to the components within the scope of regression. The steps below are intended to guide the OTD through this methodology.

a. Review DoDAF SV diagrams and Interface Control Documents.

b. What components may have been affected by hardware/software changes?

   i. Consider potential impacts.
   ii. How do changes potentially affect Critical Tasks/Critical Measures?

c. Coordinate with the PO to identify which impacts have been assessed by Contractor Testing and those that will be assessed during DT.

d. Develop IT DCPs and OT plans for regression testing, stressing the system and relevant interfaces.

e. Document the plan to execute identified tasks and collect data for applicable measures in order to evaluate SUT performance for 'unintended consequences'.

NOTE: Non-significant updates and changes may be easily regression tested by testing with operators who have experience with the legacy system. Major issues can often be discovered this way. In all cases, the OTD should have a plan for Regression Testing.

☐ 11. For a stand-alone VCD or for an FOT&E, discuss any formally requested VCDs received from the PO. For each potentially mitigated or corrected deficiency provide:

a. Root Cause Analysis.

b. Corrective Action Taken.

c. Results of verification testing and regression testing conducted by the PO.

☐ 12. Review limitations to test in the IEF and determine if updates or additions are required.

a. What can't we test (or can't test in an operationally representative manner) and why?

b. What will we not learn?

c. Which COI(s) is affected and what is the impact of the limitation?

d. What is the mitigation? If none, so state.

☐ 13. Prepare Touch Point A read-ahead.

a. Includes the following test plan sections, as applicable to the test being planned:

i. Purpose of Test
ii. Test Article Description (Test Article Description)
iii. SoS Description
iv. Fielding Configuration
v. Mission Area *or* COI Discussion
vi. DT Contributions
vii. VCD
viii. Regression Testing
ix. Limitations to Test
x. Mission Critical Subsystem Matrix (Enclosure 2, Section 2)
xi. Measures to data requirements table

b. **Two (2)-working days prior** to the scheduled Touch Point A review, email the Read Ahead Materials to: 01B CTF, 01C AO, 01D LCA, SH/OTC, LTE, contract support, applicable PO Representative, any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.), and the DOT&E AO.

☐ 14. Conduct Touch Point A.

a. Schedule a review with the 01B CTF, 01C AO, SH/OTC, LTE, contract support, and the other members of the test team. Include the 01D LCA if Cyber Survivability is within scope for the test phase being planned. The applicable PO Representative and any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.) should be invited.

b. For oversight programs, the DOT&E AO shall be invited to participate. Provide the post-Touch Point A product by e-mail. Document any unresolved substantive or critical comments in the CRM. If comments are known to be O-6-level disagreements, brief the Warfare Division Director and add them to the RCRM.

c. Be prepared to provide the relevant required documentation (e.g., Capabilities/ Requirements document, SEP, Maintenance Plans, etc.) and previous risks and deficiencies, as applicable.
d. OTD will coordinate with 01B M&S team and provide status update to M&S accreditation for all M&S being used for test.

NOTE: The touch point meeting should be cancelled and rescheduled any time the LTE or OTD find the product will not meet the required two (2)-working day read-ahead availability prior to a scheduled touch point.

NOTE: If there is disagreement about Purpose, Test Article, SoS, or COI discussion that cannot be resolved at Touch Point A, the Warfare Division Deputy Director (or Squadron COTD/ACOTD) should be briefed and act as the decision authority to move on to the next phase of Test Plan development.

☐ 15. Capture Touch Point A lessons learned.

a. Document test planning lessons learned or issues the team encountered and any recommendations for follow-on teams to consider.
b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 16. Provide revised Touch Point A read-ahead materials and meeting minutes (including all agreements and unresolved stakeholder comments) to all stakeholders.

☐ 17. Log Touch Point completion in iBOSS Program Manager with 01C AO concurrence.

B-5 Test Plan Touch Point B Checklist

Purpose: To develop the **Test Schedule** and understand what data has been collected and **qualified for OT**, what data still need to be collected, and when those data will be collected.

> ***NOTE: If detailed planning for Touch Point C/D is considered advantageous prior to Touch Point B, this can be accommodated with division/squadron leadership approval. The team should be aware of the potential risk to schedule induced by a delayed COT Brief and leadership buy-in to the overall scope of test that this methodology may result in if not pro-actively managed.***

> ***NOTE: The IEF is used to determine data requirements to address measures that are used to inform COI resolution. Data is collected throughout all phases of the SUT life cycle (DT/IT/EOA/OA/IOT&E/FOT&E). DT and IT data must be qualified for use in OT. All qualified data should be used.***

☐ 1. Review all previous program test data and reports.

   a. DT data; including: Deficiency Reports, Report of Test Results, and DT to OT Transition Reports.
   b. IT data.
   c. Any other previous OT results (EOA, OA, IOT&E, FOT&E, VCD, etc.)

☐ 2. Determine what previously collected data may be qualified for use during this phase of OT.

   a. Evaluate previously collected data to determine whether it meets the following criteria:

      i. Was the SUT configuration the same as intended for this phase of test?

> ***NOTE: For IOT&E/VCD/FOT&E: Previous Test Article configuration(s) should be the same as that intended for use in OT, and for the Fleet. Be prepared to discuss and explain any deltas in configurations.***

      ii. Were data collected under conditions specified in IEF?
      iii. Was the SUT realistically stressed?
      iv. Was environment operationally representative?
      v. Were operators operationally representative?
      vi. Were threats/targets operationally representative?

   b. Be prepared to discuss qualification rationale for every event or run, as applicable, with previously collected data.

☐ 3. Based on the data qualified for OT (IOT&E/FOT&E template section 2.4), or expected to be qualified (IOT&E/FOT&E template section 2.5), determine which measures, vignettes, or runs within vignettes, have been fully or partially satisfied.

> ***NOTE: The Previous Data Qualified for OT table can be generated by MBTES. Report tab -> Test Plans dropdown -> [select working test plan] -> Touch Point B -> Previous Data Qualified for OT.***

☐ 4. For IT events, discuss requirement for a DCP or inclusion of IT data collection in this test plan.

NOTE: A Scoring Board shall be conducted to approve the previously collected data for use toward this phase of test. This scoring process may occur at Touch Point B, or a separate Scoring Board meeting may be scheduled in preparation for a streamlined Touch Point B meeting, if desired.

☐ 5. Review available resources and major planned operational opportunities (e.g., underway periods, large force exercises, etc.) that can be leveraged for test.

a. Review planned resources in the TEMP and IEF.

b. Review available ranges and their schedules.

c. Consider regression-testing requirements identified in Touch Point A.

d. Consider major operational opportunities that can be used to fulfill data requirements.

e. Are additional test-specific resources required?

f. Any environmental restrictions or constraints?

g. Consider requirements for data collection tools, instrumentation, personnel, etc.

☐ 6. Organize testing and define Test Events by determining which vignette(s), specific run(s), and demonstrations should be grouped together, conducted in sequence, and/or conducted concurrently.

NOTE: Linking and grouping of Vignette(s)/Runs, Maintenance Demonstrations, Effectiveness Demonstrations, and Regression Testing into test events can be accomplished by reviewing the IEF test design for commonalities. The goal is to optimize test time and resources.

NOTE: Events are constructed in MBTES out of one or more vignettes that align with a desired event. This links the event to measures, Data Requirements (DRs), and conditions. To export the schedule for inclusion in the test plan from MBTES: Report tab -> Test Plans dropdown -> [select working test plan] -> Touch Point B -> Schedule Summary.

☐ 7. Develop the test schedule.

NOTE: The test schedule should cover a Test Phase. Test Phases are usually determined by a milestone within the development lifecycle of the Test Article (e.g., OT-B2, OT-C1, OT-D1, see OT&E Manual). Multiple Test Periods may compose the Test Phase. Test Periods are usually driven by real world schedules that allow for the execution of a large portion of testing (i.e., detachment, underway period, deployment, or large force exercise). Multiple Test Events compose a Test Period, and are focused on collecting data to address measures. Test Events can be a standalone DOE run from a vignette or demonstration, a group of vignette runs with similar conditions, an entire vignette, or multiple vignettes executed consecutively. The Test Event is the foundation on which the test schedule is built. OTDs need to check on Fleet assets available with the Fleet Scheduler early in test planning process. If inadequate, encourage aggressive pursuit of collaboration with fleet exercise planning.

a. Define each Test Phase and Test Period (as applicable).

b. Describe individual Test Events (the building blocks for each Test Period).

i. Establish initial draft test objectives.
ii. Provide a summary of the events, including the factors being varied if an event supports a Response Variable (RV) or total number of required runs for non-RV vignettes.
iii. Determine an order of execution, and arrange Test Events in MBTES to the planned chronological execution sequence (1, 2, 3, etc.).

NOTE: Ensure every DOE run is included in the schedule. Some DOE require randomized run order. When required, the OTD must ensure randomization is integrated into the plan.

NOTE: If multiple vignette run matrixes are being combined, MBTES will have combined those run matrixes when the event was created. Runs specific to this phase of test can be selected, as required.

c. Review, verify, and discuss Test Conditions for each Test Event.

i. Controlled Conditions
ii. Recordable Conditions
iii. Constant Conditions.

d. Review, verify and discuss resources required for each Test Event.

i. Targets
ii. Ranges
iii. Test Articles
iv. Support equipment
v. Any additional requirements.

☐ 8. Draft Touch Point B read-ahead, and email to the Warfare Division A&B Codes, Squadron CO, Squadron COTD, Squadron ACOTD, 01B A&B Codes, 01C A&B Codes, 01B CTF, 01C AO, SH/OTC, LTE, contract support, other members of the test team, applicable PO Representative, any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.), and the DOT&E AO **five (5)-working days prior** to the scheduled Test Plan Touch Point B.

NOTE: It is highly recommended to provide the read-ahead to the SH/OTC, 01C AO, 01B CTF, and 01D LCA prior to distributing to the senior leadership to reduce the working-level comments during the conduct of Touch Point B.

a. Touch Point B read-ahead includes the following test plan sections, as applicable:

i. All TP A materials
ii. Scope of Test Summary
iii. Data Qualified for OT
iv. Scheduled IT Events Supporting OT
v. Schedule Overview
vi. Test Execution

NOTE: The test schedule in appendix A must account for every DOE run. The test schedule should be presented in a calendar format at Touch Point B if the appendix is not formatted as one.

b. Provide the latest copy of the Run Matrix approved by the Design Working Group.

c. Prepare COT Brief, if required by Warfare Division practice, for presentation at Touch Point B.

****For Oversight Programs, DOT&E must be provided** Touch Point B read-ahead**.****

NOTE: Discuss with Warfare Division leadership to determine if the draft Concept of Test Brief is a required entry criterion and read-ahead item for Touch Point B.

☐ 9. Conduct Touch Point B.

a. OTD will schedule a review with the following people:

i. Required: Warfare Division Director, Squadron CO, 01C, 01B (or their designated reps).
ii. Recommended: Warfare Division Deputy Director, COTD, ACOTD, SH/OTC, LTE, 01C AO, 01B CTF, contract support, and other members of the test team. Include the 01D LCA if Cyber Survivability is within scope for the test phase being planned. The applicable PO Representative and any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.) should be invited.
iii. **For oversight programs, the DOT&E AO must be invited.** Document any unresolved substantive or critical comments in the RCRM.

b. Be prepared to provide the relevant required documentation (e.g., previous test reports, data collected, previous risks and deficiencies, run matrices, etc.).

c. OTD brief to the Warfare Division Director/Squadron CO will discuss:

i. Provide the status (number of items and which stakeholders have responded) of the CRM and address applicable items during the corresponding portion of the meeting.
ii. Review Touch Point A results highlighting the "Purpose of Test" and "Limitations of Test".
iii. Scoring of previously collected data for specific runs, vignettes, and measures that have been fully or partially satisfied.

NOTE: Use the Vignette-to-Subtask-to-Conditions Matrix and the guidance in step #2 above as the basis for discussions concerning satisfying runs, vignettes, and/or measures.

iv. Scheduled IT contributions, including previously documented DCP requirements, and inclusion of IT events in this test plan.
v. Data left to be collected and for which runs, vignettes, and measures, including regression requirements.
vi. Test Execution Schedule of Events and when remaining data will be collected.

NOTE: Focus on who will be involved, what will be accomplished and with what assets, when and where it will occur, why it is occurring (i.e. high-level purpose), and how the test team will be involved. Make sure you allot time in the schedule for data analysis, training and proficiency, and potential re-testing requirements.

A preliminary understanding of how events will be conducted, flow from one to the next, are linked to vignettes, and will support collection of the required data is necessary to successful completion of Touch Point B.

NOTE: The touch point meeting should be cancelled and rescheduled any time the LTE or OTD find the product will not meet the required five (5)-working day read-ahead availability prior to a scheduled touch point.

☐ 10. Capture Touch Point B lessons learned.

a. Document test planning lessons learned or issues the team encountered and recommendations for follow-on teams to consider.

b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 11. Provide revised Touch Point B read-ahead materials and meeting minutes (including all agreements and unresolved stakeholder comments) to all stakeholders.

☐ 12. Prepare the COT Brief for presentation to Director and DOT&E if not already complete.

☐ 13. Log Touch Point completion in iBOSS Program Manager with 01C AO concurrence.

B-6 Test Plan Touch Point C Checklist

Purpose: To develop the **DMOT** for executing the test events detailed in the test schedule by determining how the test will be conducted and flow from event to event throughout the test phase.

NOTE: The events should line up with the test schedule. Consideration should be given for how the entire test will flow. Maintenance Demonstrations, Effectiveness Demonstrations, and Regression testing should be treated like any other Test Event. Since the events should be sequential and relate to one another by common conditions and objectives, there should be a method for how the events can be efficiently and effectively executed in chronological order and how they will flow. Once complete, the DMOT should be a detailed, executable document, understood by all participants, which flows logically from event to event, while remaining aligned with the Test Schedule.

☐ 1. Review applicable schedules, TACMANs, TTPs, CONOPS, and TACSITs.

NOTE: The method used to execute each test event should be in line with the tactics and CONOPS used in the Fleet. For new systems or those in need of updated tactics development, engage the appropriate Warfare Development Center(s) (NAWDC, SMWDC, etc.).

☐ 2. Review the IEF Vignette (paying close attention to the vignette test methodology) and the Run Matrix (table B-1).

NOTE: The IEF began the process of developing the test method. OTDs should leverage the IEF by determining how the test will be executed and flow from event to event throughout the day. Additionally, operational subject matter expert and adjunct tester expertise should be leveraged, as required, in developing the test method.

☐ 3. Based on each day's test event schedule, determine:

a. What are the *test objectives* for this test event?

i. Build upon the initial test objectives established for Touch Point B
ii. Ensure the discussion broadly captures the event
iii. Provide enough detail to determine if objective will be met following test execution.

b. What *test methods* or maneuvers will be used?

c. What *test conditions* do we need to establish?

i. What are the common conditions required throughout the event?
ii. What are the randomized conditions required to be varied during the event?
iii. What unique conditions are required?
iv. Are there any hard to change conditions?
v. How will the test participants be prompted/directed to establish the necessary test conditions?

NOTE: Unique conditions are generally considered as very expensive or rare resources or difficult to attain conditional requirements. Hard to change conditions are challenging to vary in an operational environment or in an operationally realistic manner.

vi. Are there any **additional** conditions that need to be considered? **If so, consult with 01B and 01C and update the IEF.**

d. What is the plan for handling *deviations and limitations* to test? (i.e. When to call home?)

☐ 4. Determine the conditional requirements for each test event to ensure data collected are valid for those runs to be executed. Consider:

a. What are the required (test specific) conditions, status, configurations, or setups needed?

b. Review test design for Controlled, Constant, and Recordable Conditions to determine what tolerances must be met to validate test events.

c. How will you know if data collected are valid (required tolerance)?

d. Identify a person responsible for all data collected.

NOTE: These tolerances will be documented in the Data Analysis Plan for Touch Point E. A shell is available from MBTES under Report tab -> Test Plans dropdown -> [select working test plan] -> Touchpoint E -> Conditional Criteria and Tol Shell if the team desires to begin populating the table in parallel with step 4.b or 4.c.i.

☐ 5. Define the start ('COMEX') and stop ('FINEX') of each test event, as applicable.

a. What pre-test conditions must be met prior to the start of the test event?

b. What 'trigger' will be used to establish the start of the event?

c. What vignettes compose each test event?

NOTE: This was accomplished during the steps for Touch Point B using MBTES. Check for any other vignettes that should be included as part of each event.

d. What test criteria must be met, and what data must be collected, in order to call the test event complete?

e. What criteria or indication will be used to define the stop of the event?

NOTE: The intent of defining the start and stop criteria for each event is that the event will be repeatable. So if a future test team needs to revisit this event, they will be able to understand and repeat the event based on the defined start and stop.

☐ 6. Determine Go/No Go criteria for each major test event. Consider:

a. What are specific Go/No-Go criteria for each event (i.e. visibility)?

b. What specific threshold conditions for these criteria must be met (i.e. visibility > 0.5 nm)?

c. If any prerequisite for test is not available, test team is a 'No-Go' to execute the test event.

NOTE: In step 6, the test team identifies the prerequisites and 'must haves' before testing can commence.
Go: All preplanned events and requirements to safely proceed have been met
No-Go: Requirements for test have not been met; the test team is faced with a missing requirement

NOTE: If you are using test cards skip to paragraph 8.

☐ 7. Define each test event's DMOT for execution.

a. Start with the Run Matrix, expanding on the detail already included in the test method section.

i. Describe test objectives.
ii. Describe test methods/maneuvers to be executed.
iii. Discuss CONOPS, TTPs, or TACSITs to be used.
iv. Discuss any 'build-up' required for critical test events (proficiency).

b. At a **minimum** the event DMOT should include:

NOTE: The DMOT must include detailed instructions for how the OTD or test control cell will ensure the SUT, opposition forces, and data collectors are prepared to begin each event. Additionally, it should describe how to transition between runs within an event or between events, ensuring each run is independent of the conditions established in previous runs.

i. The steps required to set up the test event. Review and expand on the pre-test discussion in the Run Matrix test method section.
ii. Actions and responsibilities of the OTD, adjunct testers, operators, and test team required to facilitate the test event.
iii. How the test will be executed (test methodology)? Review and expand on the test execution discussion in the Run Matrix test Design of Experiments Notes section. This encompasses discussion from both Blue Force and Red Force perspectives, as well as any required White Cell.
iv. Briefing requirements, both pre- and post-test.
v. Step-by-step timekeeping, event execution and data collection synchronization.

- Timeline of key events.
- Describe how to get from the end of the previous test event to beginning of this one.
- Describe how you will end this test event and set up for the next one.

vi. ORM/safety considerations.
- Identify any specific range safety/clearance requirements.
- Identify any proficiency 'build-up' required for critical test events.
- Identify any hazards or high-risk operations present during any test event.
- Review emergency procedures, if applicable.
- Discuss 'what if' drills.

☐ 8. Test Card **shall include at a minimum (*) (See Appendix C for examples)**

a. Test Objective for each test event.

b. DMOT for each test event. (*)

i. Event execution actions.

c. Daily Pre-Test Brief/Tailored post- event Hot Wash requirements. (*)

d. Data validity requirements.

i. COIs

ii. Tasks

iii. Measure

iv. Controlled Conditions and tolerances (*)

e. Start/Stop definitions. (*)

f. Go/No Go criteria, if applicable. (*)

g. Run Matrix.

i. Run profile diagram

h. Specific test personnel assignments. (*)

i. Name/Location/Data Sheet. (*)

i. Event Intelligence Scenario.

i. Intel disclosure list, pictures, cards

ii. Synthetic geography

iii. Enemy order of battle

iv. Target configuration

j. Event Communication (internal/external).

k. Opposition Force operator instructions. (*)

l. Safety and risk assessment (ORM). (*)

☐ 9. Draft Touch Point C read-ahead and email it to the 01C AO, SH/OTC, LTE, contract support, applicable PO Representative, any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.), DOT&E AO, and other members of the test team **two (2)-working days prior** to the scheduled Test Plan Touch Point C. **Touch Point C read-ahead includes Section 3 (Safety with hazard mitigations) of the Test Plan and either Section A.3 (Detailed Execution Plan) or DMOT portion of Test Cards for every event.**

If conducting a combined TP C/D, provide read ahead products five (5)-working days prior to the scheduled meeting.

☐ 10. Conduct Touch Point C.

a. Schedule review with 01C AO, SH/OTC, LTE, contract support, and other members of the test team. Invite the 01B CTF (may attend but not required). Include the 01D LCA if Cyber Survivability is within scope for the test phase being planned. The applicable PO Representative and any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.) should be invited.

b. For oversight programs, the DOT&E AO shall be invited to participate. If not attending, provide the post-Touch Point C product by e-mail. Document any unresolved substantive or critical comments in the CRM. If comments are known to be O-6-level disagreements, brief the Warfare Division Director and add them to the RCRM.

c. Be prepared to provide the relevant required documentation (e.g., ship schedules, Test Schedule, CONOPS, Run Matrix, etc.).

d. Provide the status (number of items and which stakeholders have responded) of the CRM and address applicable items during the corresponding portion of the meeting.

NOTE: The touch point meeting should be cancelled and rescheduled any time the LTE or OTD find the product will not meet the required two (2)-working day read-ahead availability prior to a scheduled touch point.

NOTE: If there is disagreement about the DMOT that cannot be resolved at Touch Point C, the Warfare Division Deputy Director (or Squadron COTD/ACOTD) should be briefed and act as the decision authority to move on to the next phase of Test Plan development.

☐ 11. Capture Touch Point C lessons learned.

a. Document test planning lessons learned or issues the team encountered and any recommendation for follow-on teams to consider.

b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 12. Provide revised Touch Point C read-ahead materials and meeting minutes (including all agreements and unresolved stakeholder comments) to all stakeholders.

☐ 13. Log Touch Point C completion in iBOSS Program Manager with 01C AO concurrence.

B-7 Test Plan Touch Point D Checklist

Purpose: To develop the **DCP** in order to ensure all data requirements are linked to vignettes, test events, associated measures, and will be collected during test.

NOTE: The Measures-to-Data Requirements Matrix (MDRM) and the Conditions Directory from the IEF should be used as a resource for the development of the Data Requirements Table. If new Data Elements and Conditions are discovered or discussed or Data Elements and Conditions are determined no longer to apply, the IEF should be updated accordingly.

☐ 1. Review all data elements required for each test event from the IEF and the IEF database, particularly the MDRM (appendix B), Run Matrix, (appendix B), Conditions-to-Data Requirements Matrix (appendix B), and Conditions Directory (appendix A). Update the Test Plan Database accordingly to reflect the in-scope measures and data requirements for this phase of test.

☐ 2. Review and update the source of data, including the required measurement tools and devices. Consider:

   a. What system or measuring device (e.g., workstation, stopwatch, combat system automated data extraction (Auto DX)) will provide the data?

   b. Are there any calibration requirements for these tools or measurement devices?

☐ 3. Review and update the Data Requirements in MBTES with the following information for each data element and recordable condition:

NOTE: The end purpose of step 3 is to ensure data sheets are complete, alternate data sources are available for critical measures, and individuals responsible for data collection are not overloaded. The Measures to DRs by Event report is also used as a checklist to ensure all the data and recordable conditions are captured on an appropriate record. Once that is satisfied, the OTD needs to ensure the data records are assigned to an individual so that the data can be recorded during the test event and the record can be collected after the test event.

   a. Verify units of measure, including the precision required (e.g., whole foot, nearest 100 yards, HH:MM:SS.S).

   b. Data Source (validated in step 2 above).

   c. Collector Location (Where will the person collecting the data physically be positioned to collect the data?).

   d. Where recorded (What data sheet or data device, retained by the test team, is storing the information?).

   e. Responsibility (Who is responsible for collecting the data?).

   f. When Collected (at what point during the event should the data be recorded).

   g. Sample Rate (Consider the sampling rate for each data requirement. How frequently must the data be collected? Ensure the data sheet or data device supports the requirement).

☐ 4. Organize data collection. From the Measures-to-DRs by Event report, sort each test event by data recording 'Responsibility'. Ensure data collection is executable from a workload/logistics perspective.

☐ 5. Determine DCP the for each test event.

a. Delineate data collection procedures (***who, what, where, when,*** and ***how***).

i. What data are to be collected?
ii. Who will collect the data?
iii. What are the data collection procedures?
- Where will test personnel need to be positioned to observe data sources?
- When will data be collected?
- How often must the data be collected?
- How will data be collected?

iv. Are the data classified?
v. How will data be returned to OPTEVFOR Headquarters/Squadron?

b. Review, and update as necessary, test support equipment resources in the TEMP/IEF, to produce a comprehensive list of required resources for each test event.

NOTE: The OTD should aggregate all the required test support equipment and test support personnel to determine if adequate resources are available before starting test.

NOTE: Test support equipment includes equipment required to capture data, take measurements, or facilitate test (e.g., measuring tape, GPS tracker, targets, DX data recorder, etc.).

☐ 6. Review requirements for data records.

a. Create required data sheets, interviews, focus groups, and surveys.

b. Create user feedback administration plan.

i. What Human System Integration (HSI) concepts will be measured?
ii. What method(s) will be used to measure them?
iii. When will the data be captured?
iv. How will the data be captured?
v. Refer to DOT&E memo of 25 September 2019 regarding HSI and OPTEVFOR Introduction to Surveys in OT&E course for more detailed direction on methods of collecting user feedback.

☐ 7. Draft Touch Point D read-ahead and email it to the 01C AO, SH/OTC, LTE, contract support, applicable PO rep, any supporting data collection / reduction / analysis agency rep (i.e., NSWC Corona, JHU APL, etc.), DOT&E AO and other members of the test team **two (2)-working days prior** to the scheduled Test Plan Touch Point D. **If conducting a combined TP C/D, provide read ahead products five (5)-working days prior to the scheduled meeting. Touch Point D read-ahead includes DCP portion of Test Cards for every event, containing the following information:**

a. DCP, to include any specific required procedures.

b. DRs-by-Event and Data Collector.

c. Test equipment and personnel requirements.

d. Surveys, Interview, Focus Group, and Data Sheets

e. Measures-to-Data Requirements Table (B.1)

f. Conditions-to-Data Requirements Table (B.2)

☐ 8. Conduct Touch Point D.

a. Schedule review with 01C AO, SH/OTC, LTE, contract support, and other members of the test team. Invite the 01B CTF (may attend but not required). Include the 01D LCA if Cyber Survivability is within scope for test phase being planned. The applicable PO Representative and any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.) should be invited.

b. For oversight programs, the DOT&E AO shall be invited to participate. If not attending, provide the post-Touch Point D product by e-mail. Document any unresolved substantive or critical comments in the CRM. If comments are known to be O-6-level disagreements, brief the Warfare Division Director and add them to the RCRM.

c. Be prepared to provide relevant documentation (MDRM, Run Matrix, Conditions Directory, etc.).

d. Provide the status (number of items and which stakeholders have responded) of the CRM and address applicable items during the corresponding portion of the meeting.

NOTE: The touch point meeting should be cancelled and rescheduled any time the LTE or OTD find the product will not meet the required two (2)-working day read-ahead availability prior to a scheduled touch point.

NOTE: If there is disagreement about the Data Collection Plan that cannot be resolved at Touch Point D, the Warfare Division Deputy Director (or Squadron COTD/ACOTD) should be briefed and act as the decision authority to move on to the next phase of Test Plan development.

☐ 9. Capture Touch Point D lessons learned.

a. Document test planning lessons learned or issues the team encountered and any recommendations for follow-on teams to consider.

b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 10. Provide revised Touch Point D read-ahead materials and meeting minutes (including all agreements and unresolved stakeholder comments) to all stakeholders.

☐ 11. Log Touch Point D completion in iBOSS Program Manager with 01C AO concurrence.

B-8 Test Plan Touch Point E Checklist

Purpose: To develop the **Data Analysis Plan** to ensure the data is analyzed per the IEF and the Post-Test Iterative Process (PTIP).

☐ 1. Review section 2 of the IEF, COI by COI.

☐ 2. For each COI, describe the *COI assessment or resolution methodology*. Discuss COIs, tasks, and measures, and focus on Critical Tasks and Subtasks.

☐ 3. Describe how measures will be analyzed to assess or evaluate associated tasks and assess or resolve COIs.

a. Discuss M&S contributions, DT-only measures, and previously qualified data.

b. Present the data elements required to determine the measure result.

NOTE: This was created by MBTES as part of Deliverable D. For a format more usable in developing the Data Analysis Plan, follow Report tab -> Test Plans dropdown -> [select working test plan] -> Touch Point E -> Measure Required Data Elements.

c. Describe the analytical method or formula to be used to calculate the result of each run and address how those individual run results will be analyzed to determine the overall/final measure result. Also, address the task to which this measure will contribute.

NOTE: If the measure is qualitative, then a discussion of how the data requirements will be analyzed and the result attained is appropriate. In the case of a Yes/No threshold being required, then the result required to achieve a "Yes" must be thoroughly discussed.

d. If applicable, describe the statistical method (e.g., ANOVA and confidence interval evaluation) to be used for the factor analysis.

e. Discuss non-standard data analysis methodologies.

f. Discuss appropriate units and tolerances criteria that will be used to report the result.

NOTE: Detailed discussions of analysis methodologies are not required for 'standard' calculations such as the mean, standard deviation, or the Wilson Score Method. Deviations from standard methodologies must be described.

☐ 4. For every Critical Task in support of a COI, define scoring criteria and allowable tolerances.

NOTE: Scoring data is a four-part process: (1) qualify the data for OT (Fleet representative operator, Fleet Test Article configuration, operationally realistic stress, etc.), (2) inventory all data requirements per measure and condition, (3) confirm data met run controlled condition tolerances, (4) score the run (hit/miss, pass/fail, Operational Mission Failure/not, abort/not).

☐ 5. Draft Touch Point E read-ahead, Data Analysis Plan, and email it to the 01C AO, 01B CTF, SH/OTC, LTE, contract support, data analysts, applicable PO Representative, any

external supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.), DOT&E AO and other members of the test team **two (2)-working days prior** to the scheduled Test Plan Touch Point E. Touch Point E read-ahead is the Data Analysis Plan and Scoring Board Procedures in enclosure (2), and includes the following presented COI-by COI:

a. COI resolution methodology

b. Critical Measures **with** and **without** Response Variables discussion.

c. Scoring Board Procedures.

d. Measure calculation discussion.

e. POA&M for the PTIP. (Not included in the Test Plan enclosure (2) document, but presented separately for review)

NOTE: The Post-Test Iterative Process POA&M should include:

- ***How many Scoring Boards and COI Evaluation Working Groups the team plans to conduct and when they will conduct them***
- ***Data analysis to be conducted by outside entities and the associated timelines***
- ***Timeline(s) associated with reviewing, reducing and analyzing the data***
- ***When the Analysis Working Group and/or the Blue & Gold Sheet peer review (as desired) will be scheduled***
- ***When the Deficiency/Risk Letter(s) and Data Analysis Summary will be signed out***
- ***When the System Evaluation Review Board and Executive System Evaluation Review Board will be scheduled.***

NOTE: See Y Drive (Y:\OT&E Production Library\Test Plan and DCP or 01C SharePoint site) for the Test Plan and enclosure (2) templates and examples. See the Operational Test Reporting Handbook for POA&M development guidance.

☐ 6. Conduct Touch Point E.

a. Schedule a review with the 01C AO, 01B CTF, SH/OTC, LTE, contract support, data analysts, and other members of the test team. Include the 01D LCA if CS is within scope for the test phase being planned. The applicable PO Representative and any supporting data collection / reduction / analysis agency representative (i.e., NSWC Corona, JHU APL, etc.) should be invited.

b. For oversight programs, while DOT&E conducts independent analysis, the DOT&E AO shall be invited to participate. If not attending, provide the post-Touch Point E product by e-mail. Document any unresolved substantive or critical comments in the CRM.

c. Be prepared to provide the relevant required documentation (e.g., IEF section 2, MDRM, Conditions Directory, etc.).

d. Provide the status (number of items and which stakeholders have responded) of the CRM and address applicable items during the corresponding portion of the meeting.

NOTE: The touch point meeting should be cancelled and rescheduled any time the LTE or OTD find the product will not meet the required two (2)-working day read-ahead availability prior to a scheduled touch point.

NOTE: If there is disagreement about the Data Analysis Plan that cannot be resolved at Touch Point E, the Warfare Division Deputy Director (or Squadron COTD/ACOTD) should be briefed and act as the decision authority to move on to the next phase of Test Plan development.

☐ 7. Capture Touch Point E lessons learned.

   a. Document test planning lessons learned or issues the team encountered and any recommendations for follow-on teams to consider.

   b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 8. Provide revised Touch Point E read-ahead materials and meeting minutes (including all agreements and unresolved stakeholder comments) to all stakeholders.

☐ 9. Log Touch Point E completion in iBOSS Program Manager with 01C AO concurrence

B-9 Test Plan Document Development Checklist

Purpose: To review and edit the information from the touch point read-aheads, IEF, and other source documents and construct a final draft **Test Plan** document for routing.

☐ 1. Review and edit, as required, Section 1 and 2 of the following template paragraphs:

a. Purpose of Test (Touch Point A).

b. Test Article description (Touch Point A).

c. SoS description (Touch Point A).

d. Mission Area Discussion (Touch Point A).

☐ 2. Review and edit, as required, Test Execution details (appendix A and C):

a. Test Schedule (Touch Point B), test period by test period.

b. DMOT (Touch Point C), event by event, under its associated test period.

c. DCP (Touch Point D), event by event, under its associated Test Method.

☐ 3. Finish Section 1.

a. Discuss the Test Configurations.

b. Consider and document, as appropriate:

i. Hardware configurations of the Test Article that are not representative of the Fleet
ii. Software configurations of the Test Article that are not representative of the Fleet
iii. Aspects of the test environment that are not representative of Fleet conditions
iv. Aspects of the threat and target that are not representative of Fleet operations.

☐ 4. Finish Section 2.

a. For 'Data Qualified for OT' (Touch Point B), review and update, as required.

b. For 'Scheduled IT Events Supporting OT' (Touch Point B), review and update, as required.

i. For DT/IT events that have not occurred yet, make sure the date, location, measures, vignettes are discussed and how data will be qualified for OT.
ii. To be qualified for OT, DT/IT data must use:

- Operationally realistic operator
- Operationally realistic environment
- Operationally realistic threat
- Operationally realistic target
- The Test Article configuration defined for this phase of OT.

b. For 'M&S':

i. Review and include applicable portions of the M&S portion of the IEF and TEMP.

ii. Discuss the Verification, Validation, and Accreditation (VV&A) plan for models used.
iii. Discuss models used for DT data being brought forward and their VV&A.
iv. M&S V&V runs should be conducted as soon as the model is mature and stable. The V&V runs include all the Runs-for –the-Record (RfR) and more. Once the model is accredited, the V&V runs are scored for use as RfR for OT.

c. For 'Limitations' (Touch Point A):

i. Review the limitations identified.
ii. Do you have adequate time and resources?
iii. Can you test in key environmental elements that can affect performance?
iv. Are you able to test all capabilities delivered by the SUT?
v. Are you able to test with all aspects of the SoS required to exercise capabilities of the SUT?
vi. Do you have test constraints?
vii. Is the SUT production representative?
viii. Are you using M&S instead of the SUT for particular capabilities?

d. For FOT&E or VCD, update any additional previous deficiencies or supporting documentation that have been requested to be evaluated or provided by the PO.

e. For 'Consolidated Resources':

i. Bring forward the resources from the TEMP and IEF applicable to current phase of test.
ii. Add any additional resources identified during Touch Points B, C, and D.
iii. Add cost estimates for the resources or, if cost is unavailable, provide level of detail allowing cost calculation to be derived.

☐ 5. Finish Section 3 by discussing 'Safety Responsibilities'.

a. Assign responsibilities for using ORM principles.

b. Discuss Range Safety responsibilities if applicable.

c. Discuss Fire Break procedures if not thoroughly documented in an operator publication.

d. Discuss who is responsible for the SUT and who will initiate mishap responsibilities.

e. What potential hazards exist to the accomplishment of the test?

f. What potential hazards exist to the operators and test observers?

g. What potential hazards exist to the SUT?

h. What potential hazards exist to the environment/civilian bystanders?

i. Once those hazards are identified, discuss their likelihood/severity, mitigation strategy, and likelihood/severity after implementation of the mitigation strategy.

☐ 6. Finish Section 4.

a. Discuss 'Program Administration'.

b. Discuss 'Visitor Control'.

c. Discuss policies regarding release of OT data and Blue/Gold Sheets.

d. Discuss Reporting Timelines, including any unique requirements.

NOTE: Typically the Report timeline is 90 days for ACAT I programs and 60 for non-ACAT I programs. If the timeline cannot be met, the OTD should seek relief from the timeline from OPTEVFOR leadership. Include the actual timeline in this section or the OT&E Manual timeline if relief has not been granted.

☐ 7. Include the following appendices at a minimum:

a. Appendix A - Test Execution. (Touch Points B, C, and D).

b. Appendix B - Test Design. Includes updated:

i. Measures-to-Data Requirements, Table B-1 (Touch Point D)
ii. Conditions-to-Data Requirements, Table B-2 (Touch Point D)
iii. Run Matrix, Table B-3
iv. Traceability Matrix, Table B-4

c. Appendix C - Test Cards, Data Sheets, Surveys, Interviews, and Focus Groups (Touch Points C and D).

d. Acronyms and Abbreviations.

e. References (should be the last appendix).

f. Enclosure (2) with:

i. Section 1 - Data Analysis Plan (Touch Point E).
ii. Section 2 - OT Scoring Board Procedures (Touch Point E) (including the Mission Critical Subsystem Matrix (Touch Point A)).

NOTE: These appendices are included as sections of the test plan letter for tests of limited scope. Follow the template applicable to your phase of test for guidance.

☐ 8. Adjudicate any remaining comments from DOT&E AO included in the RCRM.

☐ 9. Organize for TPRB to discuss the following interest items at a minimum:

a. Purpose of Test (Touch Point A).

b. Test Article Description (Touch Point A).

c. SoS Description (Touch Point A).

d. Mission Area Discussion (Touch Point A).

e. Limitations to test (Touch Point A).

f. Previous Deficiencies (FOT&E or VCD) (Touch Point A).

g. Safety Responsibilities and Risk Mitigation.

h. Test Execution (appendix A).

i. Schedule (Touch Point B).
ii. Detailed Method of Test (Touch Point C).
iii. Data Collection Plan (Touch Point D).

i. Data Analysis Plan (Touch Point E).

j. Report timeline and supporting organizations involved in analysis TPRB

Purpose: The TPRB is not a document review but an opportunity for the OTD to demonstrate complete mastery of the proposed test and Test Plan to the Warfare Division Director, Warfare Division Deputy Director, and Squadron CO as appropriate. To support this purpose and encourage open and frank discussion, participation in the TPRB is limited to OPTEVFOR, test squadron, and other OTA (for multi-service programs) personnel.

NOTE: The focus of the TPRB is on Test Execution. The schedule, DMOT and DCP should be discussed in detail. Updating and building upon the original Concept of Test Brief to highlight the additional details of execution is acceptable for the TPRB.

☐ 10. Email the draft test plan and the TPRB brief, as appropriate, to the Warfare Division Director, Warfare Division Deputy Director, Squadron CO, COTD, ACOTD, 01C, 01B, 01D, SH/OTC, 01C AO, 01B CTF, 01D LCA, LTE, contract support, and other members of the test team **five (5)-working days prior** to the scheduled TPRB.

NOTE: Final 01C review and comments will be provided prior to or shortly after TPRB.

NOTE: It is highly recommended to provide the read-ahead to the SH/OTC, 01C AO, and 01B CTF prior to distributing to the senior leadership to reduce the working-level comments during the conduct of the TPRB.

☐ 11. Conduct TPRB.

a. OTD will schedule the TPRB with the following people:

i. Required: Warfare Division Director, Squadron CO, 01C, 01B (or their designated reps).
ii. Recommended: Warfare Division Deputy Director, COTD, ACOTD, SH/OTC, LTE, 01C AO, 01B CTF, contract support, and other members of the test team. Include 01D if Cyber Survivability is within scope for the test phase being planned.

b. Be prepared to provide all documents referenced in the test plan to address questions.

c. Provide the status (number of items and which stakeholders have responded) of the CRM and address applicable items during the corresponding portion of the meeting. OTD will brief the test plan. The objective of the meeting will be to gain approval for routing the draft test plan and obtain any feedback for inclusion in the test plan.

☐ 12. Incorporate all changes and updates to the test plan from the TPRB. Route the test plan for signature.

NOTE: The list below is provided as a recommendation for routing for final signature. Determine actual routing with Warfare Division Director.

a. LTE
b. SH/OTC
c. Warfare Division Director/Deputy Director
d. Editors (VX Squadrons only)
e. 00TD
f. 00D (for oversight programs)
g. 00 (for oversight programs)

☐ 13. Capture any final lessons learned.

a. Document development considerations and issues the team encountered and the recommendation for follow-on teams to consider.

i. Provide lesson-learned type (Best Practice, Problem, or Recommendation).
ii. Define Brief Description, Observations, and Conclusion.

b. Document any competency process documentation (i.e. specific checklist steps or template guidance) or expertise that may have better supported the team and improve initial document quality and/or timeliness.

☐ 14. Log TPRB completion in iBOSS Program Manager

Appendix C - ***TEST CARDS***

Examples of Test Cards: (Pre-Test, Post Test, Test Event Template and Detailed Event Card)

C-1 Test Card 1 (Pre-Test Brief)

- **Event**: Name of the Event

C.1.1 **Objective**

Prepare the test team, including adjunct testers, to execute test events.

C.1.2 **DMOT**

Prior to every event, the OTD will brief the following test event specifics by referencing the relevant test card(s).

1. Test event objective(s)
2. Test event summary (method of test)
3. SUT configuration (HW and SW)
4. SoS configuration
5. Controlled conditions (with tolerances)
6. Test support equipment.
7. Personnel assignments - for each test observer, discuss:
    - Observer location
    - Tasks to observe
    - Data to collect (units of measure and tolerance)
    - When to collect data (based on task or sample rate)
    - Data record (data sheet or data device)
    - Classification of data records
    - Special instrumentation (Observers synchronize time pieces to GPS)
8. Review Go/No-Go criteria
9. Safety / ORM

C.1.3 **(U) Test Card 2 (Post Test Brief)**

- **Event**: Name of the Event

C.1.3.1 **Objective**

Test team will review the conduct of completed test events and ensure required data was collected.

C.1.3.2 **DMOT**

After every event, the OTD will review the following.

1. Were test objectives met?
2. For each test team member, review:
    - Data sheets complete,
    - Data units of measure and tolerances are valid,
    - Data integrity on data devices verified,
    - Classification markings.
3. SUT or SoS issues identified?
    - Assign Blue/Gold sheet drafter for each potential issue.
4. Assign responsibility for follow-up interviews (as required).
5. Lessons learned – what went well? What didn't go well?
6. Assign responsibility for drafting summary e-mail.

C.1.4 **Test Card 3 (Event Title) (**Example**)**

- **Event**:
- **Vignette**: IT/OT-X-X (Pick Vignette Type IT or OT)
- **Runs:** All

C.1.4.1 **Objective**

C.1.4.2 **Detailed Method of Test (DMOT)**

The DMOT is written event-by-event per the approved test schedule from the operator's perspective, including those using the Test Article, operating the SoS, and driving the threat presentations

C.1.4.3 **Defining Criteria, Tasks and Measures**

Table X-1. Title	
Controlled Conditions	
Go/No-Go Criteria	
Start of Event	
Hold Event	Used for weather holds on test ranges
End of Event	

Table X-2. Program Title - Task and Measure	
Task	**Measure**
E X.X –	**MXX:**

C.1.4.4 **Personnel Required**

Personnel listed in table X-3 are required for the Program XX Operations - XX event.

Table X-3. Program XX - Event Personnel Requirements	
Role	**Personnel**
Event Personnel	OTD
	T&E Lead
	Lead Test Engineer (LTE)
	Range Conductor
	Test Analyst
	Test Facility Operators (as assigned)
	Test Support Personnel (as assigned)
OPTEVFOR Personnel	OTD and 1 Analyst

C.1.4.5 **Data Recording Responsibilities**

Test team members responsible for the collection of a specific data record are outlined in table X-4.

Table X-4. Operator Training Observation - Data Collection Responsibilities					
Collector	**Where Recorded**	**DR#**	**Data Requirement**	**Source**	**Measure(s) Supported**
OTD	D-1	D0021	OTD review and assessment of operations manuals, operator training manuals and courseware	LMMT Manuals / LMMT Courseware	**M1**
		D0022	Operations training progression (mobile training team/follow-on/OJT/ proficiency), execution (syllabus/duration/billets), and materials (courseware/ equipment/ devices/ aids/facilities), have been identified/ resourced/implemented	NTSP / LMMT Courseware	
		D0023	Initial operator training and/or train-the-trainers training planned and resourced	NTSP / PMO Documentation	
		D0031	Navy Training System Plan signed and funded	NTSP / PMO Documentation	
	D-2	D0027	OTD assessment of Mobile Training Team efficiency/quality for operator onboard training	OTD Observation	
OTD Support	I-1	D0025	Operator assessment of operator training efficiency/quality	LMMT Operator Interview	**M1**
DR - Data Requirement					

C.1.4.6 **Pre-Test**

C.1.4.7 **Event Execution**

C.1.4.8 **Post Test**

C.1.5 **Test Card X (Refueling) (**Example**)**

Events: 1-4

Vignettes: Refueling Vignette OT E 1-6

Runs: 1 – 6

C.1.5.1 **Objective**

These events will be used to evaluate the capability of the P-2V to perform refueling at a detachment representative location.

C.1.5.2 **DMOT**

If maintenance installs refueling equipment before event occurs, OTD or an analyst will observe and record appropriate information about the evolution.

Aircrew will conduct appropriate mission planning in JMPS and export the mission plan to a DTD for transfer to aircraft mission computer. Aircrew will then proceed to the aircraft and complete preflight. Pilots will upload the mission plan to the P-2V mission computer from the DTD using either the Upload All function or uploading individual mission components.

Start, Taxi, Takeoff (STTO) per normal procedures and proceed outbound to the preplanned landing zone or airfield where refueling evolution will take place. In zone, the crew will set up the refueling system for fuel give. Once the system is set up and ready, proceed to refuel designated aircraft for the event (rotary, turboprop, jet). During event, switch from refueling operations to Emergency refueling operations per test card. After last aircraft is refueled at refueling site, break down refueling system and prepare for Return to Base (RTB).

STTO per normal procedures and proceed back to home field. Upon shutdown, pilots will download mission computer data for postflight debrief and maintainers will download VSLED data for Quality Assurance (QA) analysis on a CAMEO workstation.

C.1.5.3 **Defining Criteria, Tasks and Measures**

Refueling data will be collected during Test Period 2. Table C-1 lists controlled conditions, go/no-go criteria, and event start/stop criteria. Event tasks, measures and data requirements are presented in table C-2.

All test aircrew should be Fleet representative. Detachment location shall be advised and approve of refueling operations. All test personnel will comply with any detachment site-specific fuel spill procedures, course rules, required equipment, and safety requirements.

UNCLASSIFIED
Table C-1. Refueling Overview

Controlled Conditions	Refueling, Receiver Aircraft (Rotary, Turboprop, Jet)
Go/No-Go Criteria	• Detachment location approval for refueling fueling operations received. • Fuel Spill Kit available and ready to support event. • Local emergency services available and ready to support event. • FARE kit available. • Fuel kit available. • Weather requirements in accordance with fueling TTPs.

UNCLASSIFIED Table C-1. Refueling Overview	
Start of Event	The event begins when maintenance briefs the configuration change for refueling installation. If no installation is required, the event will begin when aircrew begins AAR Mission Planning process.
Hold of Event	If lighting within 10 NM of field. Resume refueling when all clear is given.
End of Event	Completion of the events is when maintenance completes the configuration change for refueling equipment removal and aircrew completes post mission interviews.

C.1.5.4 **Task and Measures**

UNCLASSIFIED Table C-2. Refueling Tasks and Measures	
Tasks	**Measures**
E 1.1 Prepare/Configure	1, 2, 3, 4, 6, 7, 8, 91
E 1.7 Conduct Refueling	84, 85, 86, 87, 89
E 1.13 Post-mission Tasks	45, 46, 92

C.1.5.5 **Data Recording Responsibilities**

Personnel responsible for collecting specific data requirements are listed in table C-3 or another way to present the same data is in table C-4.

UNCLASSIFIED Table C-3. Refueling Recording Responsibilities		
Data Source	**Data Sheets**	**Data Sheet Collector**
Pilots	Pilot Flight Data Sheet (D-14) Mission Planning Data Sheet (D-15)	Lead Analyst
Crew Chief	Refueling Data Sheet (D-21)	Lead Analyst
Maintainers	Maintenance Data Sheet (D-16)	Lead Analyst
OTD or Analyst	OTD Notes Refueling Data Sheet (D-21) Pilot Interview (I-28) CC Interview (I-29) Refueling Receiver Interview (I-37)	Lead Analyst

UNCLASSIFIED Table C-4. Refueling – Data/Recording Collection Responsibilities					
Collector	**Where Recorded**	**DR#**	**Data Requirement**	**Source**	**Measure(s) Supported**
Lead Analyst	D-14	D0334	Time when refueling equipment load begins and is complete	Maintenance Control Logs	**M1**
		D0339	Time when refueling equipment begins and is complete.	Maintenance Control Logs	
OTD Support	D-21	D0335	Stop time of fuel flow to last refueling receiver	Fuel Truck meter	M87
DR - Data Requirement					

C.1.5.6 **Test Support Resources**

- JMPS laptop
- Fleet aircraft (H-60, C-2/E-2, F-18/F-35)
- CAMEO laptop for data analysis
- Adequate fuel for demonstration.
- Fuel spill kit, as required by airfield manager or base air operations manual.

C.1.5.7 **Execute Refueling Event and Run DMOT**

C.1.5.7.1 **Pre-Mission**

1. OTD or analyst observe refueling equipment installation, as required. OTD or analyst record refueling equipment installation start and stop times on refueling Data Sheet (D-21).
2. OTD or analyst will conduct the refueling equipment installation assessment with CC/maintenance using the CC Interview (I-29) and the refueling Interview (I-37).
3. Maintenance control will ensure aircraft is in operational configuration and ready to support the flight schedule.
4. OTD will brief test team for event and distribute data collection cards.

C.1.5.7.2 **Mission Planning**

1. Conduct mission planning in JMPS. Pilot records mission planning start time and time of paper products complete on Mission Planning Data Sheet (D-15).
2. Export the mission plan to a DTD for transfer to aircraft mission computer. Pilot records the DTD export start time and DTD export complete time on the Mission Planning Data Sheet (D-15).
3. OTD or analyst will conduct the JMPS operational assessment with aircrew using the Pilot Interview (I-28).

C.1.5.7.3 **Test Execution**

1. Aircrew perform preflight of aircraft per NATOPS.
2. Pilots will record aircraft spread start and stop times on the Pilot Flight Data Sheet (D-14), as required.
3. Pilots upload mission plan into the aircraft from DTDs and record number of attempts on Pilot Flight Data Sheet (D-14).
4. Aircrew conduct taxi – takeoff – transit to refueling site per NATOPS and local flight course rules.
5. After aircraft arrives at preplanned destination, aircrew conduct refueling set up. OTD or analyst records setup start and stop time on refueling Data Sheet (D-21).
6. OTD or analyst records conditional data for CMV and each refueling receiver aircraft on refueling Data Sheet (D-21).
7. Aircrew conduct refueling Operations per NATOPS/NATIP. OTD or analyst records refueling start and stop times, and amount of fuel transferred on refueling Data Sheet (D-21) for an aircraft.

8. After refueling is complete for one aircraft, aircrew reset for the next aircraft or setup refueling required. OTD or analyst records setup start and stop time on REFUELING Data Sheet (D-21), if required.
9. Aircrew repeat refueling procedures (steps 7 and 8) for the next aircraft until all runs are complete.
10. When complete, aircrew deconfigure refueling per NATOPS/NATIP. OTD or analyst records start and stop times on the refueling Data Sheet (D-21).
11. OTD or analyst complete interviews with aircrew and receiver aircraft crew between each run or before RTB on the Pilot Interview (I-28), the CC Interview (I-29), and the Refueling Receiver Interview (I-37).
12. Once complete, aircrew RTB per NATOPS and local flight course rules.
13. Upon shutdown, pilots will download mission computer data for post-flight debrief (as required) and maintainers will download maintenance/VSLED data to a maintenance DTD. Maintainers will record download start/stop times and number of download attempts of maintenance data on Maintenance Data Sheet (D-16).
14. CC/maintenance deconfigures refueling equipment from P-2V aircraft back to original pre-test state, as required. OTD or analyst records start/stop time on refueling Data Sheet (D-21).
15. OTD or analyst will conduct the refueling equipment deconfigure assessment with aircrew using the Pilot Interview (I-28).
16. After aircrew are complete with post-flight duties, they shall complete debrief and remaining qualitative interviews for the event with OTD or analyst.

C.1.5.8 **Data Collection Procedures**

C.1.5.8.1 **Pre-Test and During Test**

- OTD or analyst records the following:
  - Time when refueling equipment load begins and is complete (D0324/D0325)
  - Time when refueling equipment begins and is complete (D0338/D0339)
  - Qualitative assessment of JMPS user interface (D0014)
  - Mission plan upload from DTD to mission computer start/stop times (D0057/D0058)
  - DTD upload comments (Qualitative) (D0060)
  - CC assessment of refueling equipment load/configure process (D0326)
  - Maintenance assessment of MATS load/configuration process (Qualitative) (D0468)
  - CC assessment of refueling set up process (Qualitative) (D0327)
  - Pilot/CC assessment of refueling mission (Qualitative Comment) (D0332/D0334)
  - Problems/issues with capability to read downloaded VSLED data on CAMEO workstation (Qualitative) (D0162)
  - CC assessment of refueling breakdown process (Qualitative) (D0337)
  - CC assessment of MATS deconfigure and offload process (Qualitative) (D0340)
  - Maintenance assessment of MATS deconfigure and offload process (Qualitative)
  - Receiver assessment of refueling mission (Qualitative) (D412)
  - Time when refueling system is set up and ready to give fuel (D0317)

- Refueling fuel transfer ready/start/complete times (D0317/D0318/D0328)
- Stop time of fuel flow to last refueling receiver (D0335)
- Receiver aircraft fuel before/after (pounds) (D0329/D0330)
- Refueling configuration (Refueling/E-Refueling) (D0392)
- CC Assessment of refueling equipment use for refuel of P-2V (Qualitative) (D0316)

- Pilot records the following:
  - DTD export start/complete times (D0006/D0007)
  - Mission planning start time (D0012)
  - Time mission planning completed (D0013)
  - Number of DTD upload attempts/Number of successful mission plan loads (D0059/D0061)
  - Number of DTD burn attempts (D0451)
  - Number of export attempts from JMPS to DTD from JMPS laptop (D0461)
  - Event date (DD/MM/YY) (D0025)
  - P-2V side numbers (D0026)
  - Aircraft landing time (D0029)
  - Detachment location (D0377)
  - Number of DTD upload attempts/number of successful mission plan loads (D0059/D0061)
  - Time ready to launch from REFUELING site (D0336)
  - P-2V fuel state before/after REFUELING operations (pounds) (D0410/D0411)
- Maintenance personnel record the following:
  - Maintenance data download start/stop times (D0160/D0161)
  - Number of maintenance download attempts (Number) (D0163)
  - Number of successful (15 minutes or less) maintenance download attempts (Number) (D0164)

C.1.5.8.2 **Post-Test**

- Lead analyst ensures the interviews and data sheets have been collected.
- TIMS analyst downloads and verifies CAMEO/NALCOMIS data.