

## DATA ITEM DESCRIPTION

**Title:** RELIABILITY TEST PROCEDURE

**Number:** DI-SESS-81629A

**AMSC Number:** N9591

**DTIC Applicable:** Yes

Defense Technical Information Center

ATTN: DTIC-

8725 John J. Kingman Road, Suite 0944

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**Preparing Activity:** AS

**Applicable Forms:** N/A

**Approval Date:** 20151001

**Limitation:** No

**GIDEP Applicable:** Yes

GIDEP Operations Center

Naval Warfare Assessment Center

P. O. Box 8000

Corona, CA 91718-8000

**Project Number:** SESS-2015-081

### Use/relationship:

The Reliability Test Procedure provides detailed technical directions for implementing an individual reliability test (e.g. conventional reliability growth test, highly accelerated life test, accelerated life test, environmental stress screening, reliability qualification test, production reliability acceptance test) at the equipment, subsystem, and system levels during the integrated test program. The procedure contains step-by-step instructions of how the equipment, including software, will be utilized during the reliability test. This document will be used by the procuring activity for review and approval of the contractor's procedure for conducting the reliability test and in the subsequent surveillance of the test and evaluation of the results.

This Data Item Description (DID) contains the format, intended use information, and content preparation instructions for the data product generated by the specific and discrete task described in the solicitation, and should be tailored appropriately.

### Requirements:

1. Format. The Reliability Test Procedure shall be in contractor's format.
2. Content. The Reliability Test Procedure shall contain:
  - a. Description, date, and location of the test to be performed
  - b. Test objectives and requirements to be demonstrated, including specific references to the applicable sections of the solicitation or contract.
  - c. Description of the test team roles and responsibilities.
  - d. Test article identification and description of test articles to be utilized including hardware and software test item version/configuration and quantity to be tested.
  - e. Deviations from the configuration specified in the test plan and the reason for each deviation.
  - f. List of test and monitoring equipment, calibration status (due date), facility descriptions and requirements, test software, and provisions for power, temperature, humidity and vibration.

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- g. When applicable, Environmental Stress Screening (ESS) requirements and environment to which equipment will be exposed prior to test.
- h. Statistical reliability test design criteria, as appropriate.
- i. The levels and tolerances for time, temperature, and other details of the combined stress environmental cycle, including the duty cycle, moisture, vibration stress and duration, and input voltage.
- j. Test sequence, test condition combination, and any pre and post conditioning.
- k. Allowable adjustments and normal checkout procedures for the equipment under test.
- l. Preventive maintenance measures to be performed during the test, if such maintenance is permitted by the detailed equipment specification.
- m. Diagrams of complete test setup including equipment under test, test monitoring equipment, and interconnecting cables.
- n. Test methods and mode(s) of operation of the items, including software, under test, including configuration and mission requirements.
- o. Performance parameters to be measured, frequency of measurement and the method used.
- p. Test duration and conditions, including the duty cycle, environmental, operational, and performance profiles during performance parameter measurement.
- q. Performance parameter limits used to determine failure occurrence.
- r. List of government furnished equipment, property or material to be used during the test.
- s. Failure recurrence control system to be used to ensure corrective action.
- t. Definition of items termed replaceable at failure and reason for each proposed deviation.
- u. Test conduct ground rules, decision (failure and accept) criteria, and interface boundaries.
- v. Action to be taken if a reject decision is reached, including corrective action plan and retest provisions.
- w. Data analysis methods, analytical procedures to be employed, data reduction routines, and reliability growth techniques used to assess demonstrated and projected reliability.
- x. List of data to be recorded during tests and samples of report or log forms to be used. Attach preliminary applicable data collection sheets and scoring and evaluation criteria. Sample data elements for the test log/data record include:
  - i. Test type, equipment type, serial number, and date test initiated
  - ii. Date
  - iii. Time
  - iv. Elapsed time of test
  - v. Environmental, Input, and Performance parameters
  - vi. Remarks
  - vii. Tech initials
  - viii. Government inspector initials
 Sample equipment failure record data elements include:
  - ix. Type of test, equipment type, unit serial number, test position, date test initiated
  - x. Failure report number
  - xi. Removal for repair- time/date, elapsed time of test

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- xii. Returned to test- time/date, elapsed time of test
- xiii. Description of failure
- xiv. Technician initials

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