

DATA ITEM DESCRIPTION			Form Approved OMB No. 0704-0188	
2. TITLE		1. IDENTIFICATION NUMBER		
Reliability Test Procedures		DI-RELI-80251		
3. DESCRIPTION / PURPOSE				
3.1 These procedures provide detailed technical directions for implementing the approved Reliability Test Plan. The procedures contain step-by-step instructions of how the equipment involved will be utilized during the reliability tests. The data will be used by the procuring activity for review and approval of the contractor's procedures for conducting reliability tests and in the subsequent surveillance of the tests and evaluation of the results.				
4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE	
861017	EC			
7. APPLICATION / INTERRELATIONSHIP				
7.1 This DID contains the format and content preparation instructions for Reliability Test Procedures required by Tasks 102, 202, 301, 302, and 401 of MIL-STD-781D.				
7.2 This DID is applicable to all contracts which require reliability development/growth, qualification or production acceptance tests. These documents are generally used by the procuring activity for review and approval of the contractor's procedures for conducting reliability tests, and in the subsequent surveillance of the tests and evaluation of the results.				
7.3 This DID is related to DI-RELI-80250, Reliability Test Plan, DI-RELI-80252, Reliability Test Report, and DI-RELI-80249, Environmental Stress Screening Report. (Continued on Page 2)				
8. APPROVAL LIMITATION		9a. APPLICABLE FORMS		9b. AMSC NUMBER
				N3983
10. PREPARATION INSTRUCTIONS				
10.1 <u>Reference documents</u> . The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments and revisions, shall be as reflected in the contract.				
10.2 <u>General</u> . The test procedures shall conform to the technical requirements of MIL-STD-781 as specified by the contract. The detail requirements for the content of reliability qualification and acceptance test procedures are listed below.				
10.3 <u>Content</u> . The procedures may be prepared in contractor selected format and shall specifically contain:				
a. A list and brief description of all units comprising the equipment and a specific listing of those units which will be placed on test and the up-to-date configuration (drawing list including approved changes, waivers and deviations.).				
b. Test and monitoring equipment to be used, including manufacturer and model number and time meter requirements.				
c. Graphical presentation of the required thermal survey of the equipment made prior to start of testing, with narrative and analysis leading to establishment of monitored temperature stabilization points (if available when the test procedures are prepared).				
d. Environmental Stress Screening requirements and environment to which equipment will be exposed prior to test.				
(Continued on Page 2)				
11. DISTRIBUTION STATEMENT				
DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.				

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7. APPLICATION/INTERRELATIONSHIP (Cont'd)

7.4 This DID supersedes DI-R-7035.

10. PREPARATION INSTRUCTIONS (Cont'd)

- e. 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.
- f. Allowable adjustments and normal checkout procedures for the equipment under test.
- g. Preventive maintenance measures to be performed during the test, if such maintenance is permitted by the detailed equipment specification.
- h. Performance parameters to be measured, frequency of measurement and the method used.
- i. Environmental conditions during performance parameter measurement.
- j. Performance parameter limits used to determine failure occurrence.
- k. Types of failures classified as nonrelevant.
- l. Data to be recorded during tests and samples of report or log forms to be used. (See 10.4)
- m. Identification of computer software to be used in the test.
- n. List of any Government Furnished Equipment to be used during test.
- o. Action to be taken if a reject decision is reached, including corrective action plan and retest provisions.
- p. Interconnecting cable diagrams of complete test set-up including equipment under test and test monitoring equipment.

10.4 Test Records. The procedures shall include a description of the contractor's proposed formats for the test records indicated in 10.4.1 through 10.4.5. Figures 1 through 5 are provided as suggested formats.

10.4.1 Test Log and Data Record. The test log and data record is a complete record of required test data for each unit under test to be maintained throughout the test. Figure 1 may be used as a guide for the test log sheet and data record.

10.4.2 Equipment Failure Record. The failure record for each equipment is designed to permit the entire test history of each tested equipment to be recorded on a single sheet. The failure record may be organized as in Figure 2.

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10. PREPARATION INSTRUCTIONS (Cont'd)

10.4.3 Failure Summary Record. The failure summary record is intended to contain all the information needed to reach an accept/reject decision on the test sample. The failure summary record may be organized as in Figure 3.

10.4.4 Failure Tag. Figure 4 is a sample of the failure tag that is required to be attached to each failed unit.

10.4.5 Failure Report. Examples of report forms for recording data associated with each equipment failure, failure analysis, and corrective action are presented in Figure 5, sheets 1 through 4.

10. PREPARATION INSTRUCTIONS (Cont'd)

[illegible]

FIGURE 1. Sample test log and data record

FAILURE SUMMARY RECORD

DATE TEST INITIATED_____

[illegible]

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10. PREPARATION INSTRUCTIONS (Cont'd)

FRONT

FAILURE TAG	
DATE _____	TEST TITLE _____
EQUIPMENT TYPE _____	SERIAL NO. _____
FAILURE _____	
DATA SHEET PAGE NO. _____	LINE NO. _____
FAILURE REPORT NO(S) ASSIGNED _____	

REPAIR(S) PERFORMED:	_____
_____	_____
_____	_____
_____	_____
REPAIR CONFIRMATION (SIGNATURE) _____	

BACK

FIGURE 4. Sample failure tag

FAILURE REPORT NO. _____
PART A

FAILURE IDENTIFICATION

[illegible]

FIGURE 5. Sample failure report (Sheet 1 of 4)

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10. PREPARATION INSTRUCTIONS (Cont'd)

FAILURE CONFIRMATION AND REPAIR

SYSTEM _____ ASSEMBLY _____ SUBASSEMBLY _____ PART NO. _____
 COMPONENT _____ SERIAL NO. _____ DATE _____ TIME _____
 FAILURE SYMPTOM _____ REPAIR PERSONNEL _____
 _____ TIME METER READING _____
 TEST TYPE _____ TEST REFERENCE _____

FAILURE REPORT NO. _____
PART B

TEST EQUIP USED	SERIAL NO.	DEFINE TEST PERFORMED	DATE DEFECT REPAIR

CONFIRMATION OF SYSTEMS REPORTED

REASON FOR PART FAILURE

TEST EQUIP USED	SERIAL NO.	DEFINE PART TEST USED TO ESTABLISH PART FAILURE	DATE ON DEFECTIVE PART

DEFECTIVE PART _____ SCHEM. REF. DESIGNATION NO. _____ PART NO. _____ HFG. _____
 Use copy of this form for each failure at this time-check ☐ If more than one failure found

FIGURE 5. Sample failure report (Sheet 2 of 4)

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10. PREPARATION INSTRUCTIONS (Cont'd)

FAILURE REPORT NO. _____
PART C

FAILURE CONFIRMATION AND REPAIR

SYSTEM _____ ASSEMBLY _____ SUBASSEMBLY _____ PART NO. _____
COMPONENT _____ SERIAL NO. _____ REFERENCE REPORT NO. _____
TEST TYPE _____ TIME METER READING _____ REPAIR PERSONNEL _____

MULTIPLE PART FAILURE

IDENTIFICATION DEPENDENT FAILURES

PARTS FAILING

(1) _____ (4) _____
(2) _____ (5) _____
(3) _____ (6) _____

CAUSE OF MULTIPLE FAILURES

IDENTIFICATION OF INDEPENDENT FAILURES

PARTS FAILING

(1) _____
(2) _____
(3) _____

FIGURE 5. Sample failure report (Sheet 3 of 4)

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10. PREPARATION INSTRUCTIONS (Cont'd)

FAILURE ANALYSIS AND CORRECTIVE ACTION		FAILURE REPORT NO. _____ PART D	
SYSTEM _____	ASSEMBLY _____	SUBASSEMBLY _____	PART NO. _____
COMPONENT _____	SERIAL NO. _____	DATE _____	REPORT NO. _____
TEST TYPE _____	TEST REFERENCE _____		
COMPONENT ANALYSIS _____			

DESIGN ANALYSIS _____			

RECOMMENDATIONS FOR CORRECTIVE ACTION _____			

CORRECTIVE ACTION IMPLEMENTATION			
EFFECTIVE DATE _____	EQUIP. SER. NO. _____	SIGNATURE _____	TITLE _____
REVIEW SIGNATURE _____		RELIABILITY ENGINEER _____	

FIGURE 5. Sample failure report (Sheet 4 of 4)