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 Reference documents. 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 General. 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 Content. 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 Page2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

7. APPLICATION/INTERRELATIONSHIP (Cont'd)

7.4 This DID supersedes DI-R-7035.

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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.

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.

TEST LOG AND DATA RECORD

TEST TYPE _____

EQUIPMENT TYPE _____ SERIAL NO. _____ DATE TEST INITIATED _____

LINE NO.	DATE	TIME	TIME METER READING	PARAMETERS			REMARKS	TECH INITIALS	GOVT. INSPECT. INITIALS
				ENVIRONMENTAL	INPUT	PERFORMANCE			
				TITLE COLUMNS AS APPROPRIATE	TITLE COLUMNS AS APPROPRIATE	TITLE COLUMNS AS APPROPRIATE			

FIGURE 1. Sample test log and data record

10. PREPARATION INSTRUCTIONS (Cont'd)

TYPE TEST _____ TEST POSITION _____

EQUIPMENT TYPE _____ DATE TEST INITIATED _____

UNIT SERIAL NO. _____

LINE NO.	FAILURE REPORT NO.	REMOVAL FOR REPAIR		RETURNED TO TEST		DESCRIPTION OF FAILURE	TECH INITIALS
		TIME/DATE	TIME METER READING	TIME/DATE	TIME METER READING		

FIGURE 2. Sample equipment failure record

10. PREPARATION INSTRUCTIONS (Cont'd)

FAILURE SUMMARY RECORD

TEST TYPE _____ DATE TEST INITIATED _____

EQUIPMENT TYPE _____

DATE	FAILURE REPORT NO.	UNIT SERIAL NO.	UNIT TIME METER READING	DESCRIPTION OF FAILURE	TEST STATUS - ALL UNITS			TECH. INITIALS
					CUMULATIVE FAILURES	CUMULATIVE TEST HOURS	MTBF	

FIGURE 3. Sample failure summary record

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

SYSTEM _____ ASSEMBLY _____ SUBASSEMBLY _____ PART NO. _____

COMPONENT _____ SERIAL NO. _____ DATE _____ TIME _____

TOTAL UNIT TEST TIME _____ REPORT NO. _____

TEST TYPE _____ TEST REFERENCE _____

TEST AND ENVIRONMENTAL CONDITIONS:	IDENTIFICATION OF TEST EQUIP:

FAILURE SYMPTOMS: _____

ADJUSTMENT REQUIRED: _____

OTHER EQUIP. FAILURES OBSERVED SIMULTANEOUSLY WITH SUBJECT FAILURE: _____

TEST OPERATOR SIGNATURE _____

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

FAILURE CONFIRMATION AND REPAIR

FAILURE REPORT NO. _____
PART B

SYSTEM _____ ASSEMBLY _____ SUBASSEMBLY _____ PART NO. _____

COMPONENT _____ SERIAL NO. _____ DATE _____ TIME _____

FAILURE SYMPTOM _____ REPAIR PERSONNEL _____

_____ TIME METER READING _____

TEST TYPE _____ TEST REFERENCE _____

TEST EQUIP USED	SERIAL NO.	DEFINE TEST PERFORMED	DATE BEFORE 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. _____ MFG. _____

Use copy of this form for each failure at this time-check _____ Check ☐ if more than one failure found

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

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)

FAILURE REPORT NO._____
PART D

FAILURE ANALYSIS AND
CORRECTIVE ACTION

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)