

DATA ITEM DESCRIPTION			Form Approved OMB No. 0704-0188	
2. TITLE		1. IDENTIFICATION NUMBER		
Installation Test Procedures		DI-QCIC-80511		
3. DESCRIPTION / PURPOSE				
3.1 The test procedures provide detailed installation testing information for individual ground communications-electronic (C-E) equipment and facilities that will be integrated into a subsystem/system.				
3.2 The installation test activity uses this data item to perform detailed testing of the installed equipment and to demonstrate the adequacy of each facility installation.				
4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC REQUIRED	6b. GIDEP REQUIRED	
880121	F/AFCC/1842EEG			
7. APPLICATION / INTERRELATIONSHIP				
7.1 This DID contains the format and content preparation instructions for the data generated by the specific and discrete task requirement as delineated in the contract.				
7.2 Test Reports may be obtained under DID DI-QCIC-80512.				
7.3 This DID supersedes DI-T-3712A.				
8. APPROVAL LIMITATION		9a. APPLICABLE FORMS		9b. AMSC NUMBER
				F4298
10. PREPARATION INSTRUCTIONS				
10.1 <u>General</u> . Installation Test Procedures are used to ensure that all equipment is physically and functionally checked out and to demonstrate the adequacy of each facility installation. Information for this document will be obtained from such sources as specifications, test documentation used in the development test program, and relevant technical documentation from any agency concerned with the installation testing.				
10.2 <u>Content</u> . The test procedures shall contain preshakedown tests, shakedown tests, operational tests, and an installation test documentation section.				
NOTE: When the preshakedown, shakedown, and operational test information is contained in other approved Air Force publications or commercial data, the test procedures may reference the appropriate document by publication title and number, chapter or section, and lowest-order sidehead title or paragraph number which contains the required information related to the pertinent test step. If, however, the proposed reference does not contain all pertinent data related to the test step or if the data is contained only as a portion of the referenced test procedure, the complete test step shall be included in the test procedures.				
10.2.1 <u>Preshakedown Tests</u> . This portion shall contain instructions for ensuring that the installation is properly completed. The preshakedown test will include the following:				
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11. DISTRIBUTION STATEMENT				
<u>DISTRIBUTION STATEMENT A</u> : Approved for public release; distribution is unlimited.				

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Block 10, Preparation Instructions (Continued)

a. Physical inspection to:

- (1) Determine the completeness of the installation.
- (2) Check the condition of the equipment.
- (3) Verify the specified placement of the equipment.
- (4) Ensure that the installation meets required safety standards.

b. Mechanical and electrical preliminary measurements to verify the proper mounting of equipment and to confirm the adequacy and stability of the voltage, frequency, and other characteristics of the primary power.

c. Preliminary C-E equipment adjustments made upon confirmation of compliance with the installation specifications and before the shakedown and operational tests are run.

10.2.2 Shakedown Tests. This portion shall include instructions for determining whether the equipment meets performance specifications in the installed environment, and to detect and eliminate marginal parts and material before the operational test. The required duration of the shakedown test should be stated. Data sheets will be prepared to record the results of the technical performance determined during the shakedown test period. The data sheets include the name of the test performance specification, and observed indication. Additional general guidance follows:

a. The shakedown will consist of a preliminary test and running time for each electronic part of an equipment functioning under real or simulated operating conditions. The length of the shakedown test should be selected to assure the elimination of parts and material that are faulty and whose failure during the operational test could negate the test run.

b. The shakedown test need not be accomplished in a single continuous time period. The only creditable time is when normal functioning voltage, current, temperature, stability, and other operational parameters are observed.

c. Final facility alignment and adjustments should be accomplished during this period, and a record of all replaced parts should be made.

d. The technical performance of the installed equipment will be measured during this period to determine if they meet specifications.

10.2.3 Operational Tests. This portion shall include instructions for performing the tests required to demonstrate that all equipment, computer programs, or facilities are properly installed and are capable of performing their operational mission up to the prescribed interfaces with other portions of the subsystem/system. A block diagram of the facility clearly defining signal waveforms, voltage levels, digital message formats, tolerance, etc., at all interfaces shall be provided. The types and purpose of tests which

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## Block 10, Preparation Instructions (Continued)

comprise the overall operational test -- such as group tests, equipment tests, basic facility tests, simulated tests, computer program tests (including site adaptation), live tests, flight tests, etc., -- should be described in sequential order. Additional general guidance follows:

- a. Operational tests are not to prove the design of the equipment.
- b. Normally, the tests prescribed should not require the utilization of any tools or test equipment not listed as part of the aerospace ground equipment (AGE), Government furnished equipment (GFE), or contractor furnished equipment (CFE).
- c. The requirement for flight and live tests should be held to an absolute minimum.
- d. A simulated environment may be used to verify the adequacy of the computer program installation.
- e. The test duration, based on the length of time necessary to sufficiently demonstrate the installed capability, should be stated.
- f. Operational tests normally begin within 72 hours following the completion of the shakedown tests and run for a period of 24 hours.
- g. Each channel of dual channel equipment should be tested during the operational test.
- h. For radiating equipment, each channel should be terminated on the antenna during an equal portion of the test period.
- i. Operational tests on multifrequency sets should be performed with the test time equally divided between a representative sampling of the preset channels.
- j. At the completion of the operational test period it must be demonstrated that the technical performance determined during the shakedown test has not deteriorated below established performance standards.
- k. The maximum acceptable parts failure rate for each piece of equipment during the operational test should be stated.

10.2.3.1 Operational Test Tables. Step-by-step procedures for prescribed operational tests shall be provided in tabular form. Column headings and contents should be as follows:

- a. Step. This column of the table shall list the individual steps of the test procedures in numerical sequence.

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## Block 10, Preparation Instructions (Continued)

b. Test Setup. This column of the table shall provide all information pertaining to switch and control settings of the facility, test equipment, and external C-E equipment, special intercabling and other data related to the implementation of the step, except the actions contained in the "Action" column.

c. Action. This column of the table shall identify the point of test or display and state the action or actions to provide the response described under the "Normal Indication" column.

d. Normal Indication. This column of the table shall describe the normal indication to be observed (such as dc and ac voltage and currents, waveforms, etc.) at the point of test or display identified in the "Action" column. Acceptable tolerances shall be provided, with all indications. When the indication is a waveform other than a continuous sine wave, the waveforms shall be depicted by a legible photograph or line drawing prepared from the photograph or observation. Pertinent amplitudes, pulse widths, rise and fall times, etc., (with acceptable tolerances) shall be derived from the implementation and test equipment control setting information provided in the "Test Setup" column.

e. Authority. This column shall contain the authority for the value or description of the normal indication. It should be specified by document name or number, and paragraph.

f. Notes. Explanatory notes, cautions, etc., shall be inserted in the table, as appropriate. Data and illustrations which cannot be included in the table shall be provided and referenced as appropriate.

10.2.3.2 Operational Test Log. A columnar log entitled, "Operational Test Log", which shall be used during the operational testing, shall be provided in the following format:

a. Title (Operational Testing).

b. Test Step (from the Operational Test Table).

c. Test (Short Title).

d. Results Obtained. A blank column shall be provided, following sufficient space to record all test results related to the steps performed.

10.2.4 Installation Test Documentation. This portion shall state, verbatim, the following: Appropriate test documentation shall be prepared and maintained throughout the installation testing period. These records shall include failure and unsatisfactory reports and listings of parts and components replaced during each phase of installation testing; an operational test log with chronological listing of significant events; and all equipment/facility reactions, meter readings, etc., obtained during the operational test; and copies of all recorded or photographed test data.

10.3 Format. The contractor's format is acceptable.