

# NASA TECH BRIEF

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### Standard Environmental Testing Practices

A manual on procedural requirements for performing certain environmental tests on space flight equipment has been issued by the Jet Propulsion Laboratory. Although the manual is intended for use by subcontractors and laboratory personnel, it provides useful information for designers of test equipment; it is of particular interest to quality-control and production engineers as well as manufacturers of components and systems for particular environments.

The first section of the manual indicates the applicability of a group of standard testing procedures and lists typical tests and test environments; reference to other pertinent specifications and publications are included in this section.

The second section systematically discusses requirements for test laboratory facilities, measurement and control, types and methods of testing, test fixtures, detailed test procedures, test consistency, and test abort decisions. Included in this section are detailed the procedural requirements for the following tests: 1) forced vibration; 2) acoustic reverberant; 3) shock; 4) static acceleration; 5) thermal-vacuum; 6) humidity; 7) package drop; 8) explosive atmosphere; 9) temperature. Each test is systematically described under typical headings such as: 1) test system requirements; 2) test levels and criteria; 3) test article mounting; 4) test article protection methods; 5) test tolerances; 6) tolerance of test conditions.

The third section gives details relating to test documentation; guidelines are listed for adequacy of reporting and describing test procedures, with special emphasis on the systematic presentation of all information relating to a test. For example, a list of 26 requirements is indicated as appropriate for description of a test procedure.

The final section lists procedural requirements for performance of the test within a given organization. Emphasis is placed on the recognition of hazards and the necessity for personnel safety as well as protection of the item under test; methods for control of the cleanliness of the test facility and test equipment are listed. An effective program for calibration of test equipment is mandatory.

#### **Note:**

Requests for further information may be directed to:

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