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Environmental Conditions and Test Procedures for Airborne Equipment

RTCA DO-160C
Supersedes RTCA DO-160B
December 4, 1989
Includes Changes 1, 2, and 3

Prepared by: SC-135
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F O R E W O R D

This document was prepared by Special Committee 135 of the Radio Technical Commission for Aeronautics (RTCA). It was approved by RTCA on December 4, 1989, and supersedes RTCA Document DO-160B dated July 20, 1984.

The objective of Special Committee 135 was to review and update RTCA Document DO-160B, "Environmental Conditions and Test Procedures for Airborne Equipment."

RTCA is an association of aeronautical organizations of the United States from both government and industry. Dedicated to the advancement of aeronautics, RTCA seeks sound technical solutions to problems involving the application of electronics and telecommunications to aeronautical operations. Its objective is the resolution of such problems by mutual agreement of its member organizations.

The findings of RTCA are in the nature of recommendations to all organizations concerned. RTCA is not an official agency of the United States government and its recommendations may not be regarded as statements of official government policy unless so enunciated by the government organization or agency having statutory jurisdiction over any matters to which the recommendations relate.

These standards were coordinated by RTCA SC-135 with the European Organisation for Civil Aviation Electronics (EUROCAE) Working Groups (WGs) 14, 31 and 33, and the International Organization for Standardization Technical Committee 20, Subcommittees 1 and 5 (ISO/TC 20/SC 1 and ISO/TC 20/SC 5).

EUROCAE concurs with RTCA on the environmental conditions and test procedures set forth herein. When approved by EUROCAE, this document will be identified jointly as RTCA DO-160C/EUROCAE ED-14C. Also, the RTCA/EUROCAE document is under consideration for endorsement by the International Organization for Standardization (ISO) as a de facto International Standard to supersede ISO Standard 7137: 1987 (E).

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CHANGE RECORDING PAGE 1/

Change No.	Date	Applicable Section	Revision No.	Remarks

1/ Changes will be numbered sequentially and be in the form of an ERRATA or REVISION. ERRATA will be used only for editorial (non-substantive) corrections. REVISIONS will be numbered sequentially by section and used for all substantive additions, deletions and/or corrections. REVISIONS will result in the affected section(s) being reprinted and identified with the revision number (Rev. "#") and date. This information will appear on the section title page of the reprint below the date of issue. When a revised test procedure (section) is used in conducting a test, the Environmental Qualification Form, Figure A-1 of Appendix A, shall reflect which version was used.

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RTCA/DO-160C

**ENVIRONMENTAL CONDITIONS AND TEST
PROCEDURES FOR AIRBORNE EQUIPMENT**

SECTION 1

PURPOSE AND APPLICABILITY

SECTION 2

DEFINITIONS OF TERMS - GENERAL

SECTION 3

CONDITIONS OF TESTS

IMPORTANT NOTICE

Information contained in these sections is pertinent to all test procedures described in the other sections of this document. Further, Appendix A is applicable for identifying environmental tests performed.

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PURPOSE AND APPLICABILITY

This document defines a series of standard environmental test conditions (categories) and applicable test procedures for airborne equipment. The purpose of these tests is to provide a laboratory means of determining the performance characteristics of airborne equipment in environmental conditions representative of those which may be encountered in airborne operation of the equipment.

The standard environmental test conditions and applicable test procedures contained herein may be used as a minimum performance specification under environmental conditions, which can assure a sufficient degree of confidence in performance during operations.

NOTE: In each of the test procedures contained herein, the following phrase will be seen several times:

"DETERMINE COMPLIANCE WITH APPLICABLE EQUIPMENT PERFORMANCE STANDARDS."

The "applicable equipment performance standards" referred to are either:

- a. EUROCAE Minimum Performance Specifications (MPS) and/or EUROCAE Minimum Operational Performance Requirements (MOPR).
- b. RTCA Minimum Performance Standards (MPS) and/or RTCA Minimum Operational Performance Standards (MOPS).
- c. The manufacturer's equipment specification(s), where applicable.

Some of the environmental conditions and test procedures contained in this document are not necessarily applicable to all airborne equipment. The selection of the appropriate and/or additional environmental conditions and test procedures is the responsibility of the writers (authors) of the performance standards for the specific airborne equipment.

NOTE 1: There are several additional environmental conditions (categories), that specific airborne equipment may be subjected to, that have not been included in this document. These include, but are not limited to: hail, acceleration and acoustic vibration.

NOTE 2: The procedures for testing airborne equipment for special environmental conditions that are usually uniquely related to that specific type of airborne equipment, should be the responsibility of the writer (author) of the performance standard for that specific equipment.

NOTE 3: The International System of Units (SI) is usually used throughout this document as the primary values. In certain instances, however, when the derived data was determined in English units, these units are used as the primary values.

NOTE 4: Subject to the provisions of Subsection 3.2, it is permissible to use more than one test article.

The words "airborne equipment," as used within this document, have direct applicability to most airborne equipment. It is the responsibility of those who wish to apply the test conditions and procedures contained in this document to determine the applicability of these test conditions and procedures to a specific equipment intended for installation on, or within, a specific or general class or type of aircraft.