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USA

Environmental Conditions and Test Procedures for Ground Based Equipment

RTCA DO-380
June 11, 2020

Prepared by: SC-135

FOREWORD

This document was prepared by Special Committee 135 (SC-135) and approved by the RTCA Program Management Committee (PMC) on June 11, 2020.

RTCA, Incorporated is a not-for-profit corporation formed to advance the art and science of aviation and aviation electronic systems for the benefit of the public. The organization develops consensus-based recommendations on contemporary aviation issues. RTCA's objectives include but are not limited to:

- coalescing aviation system user and provider technical requirements in a manner that helps government and industry meet their mutual objectives and responsibilities;
- analyzing and recommending solutions to the system technical issues that aviation faces as it continues to pursue increased safety, system capacity and efficiency;
- developing consensus on the application of pertinent technology to fulfill user and provider requirements, including development of minimum operational performance standards for electronic systems and equipment that support aviation; and
- assisting in developing the appropriate technical material upon which positions for the International Civil Aviation Organization and the International Telecommunication Union and other appropriate international organizations can be based.

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1 PURPOSE AND APPLICABILITY

1.1 Scope

This document defines a series of minimum standard environmental test conditions (categories) and applicable test procedures for ground based equipment. In this document ground based equipment includes stationary ground, mobile/portable ground, or sea-based equipment. The purpose of these tests is to provide a laboratory means of determining the performance characteristics of ground based equipment in environmental conditions representative of those which may be encountered in ground based operation of the equipment.

1.2 Purpose of the Procedures

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

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:

1. EUROCAE Minimum Operational Performance Specifications (formerly Requirements) (MOPS/MOPR).
2. RTCA Minimum Performance Standards (MPS) and/or RTCA Minimum Operational Performance Standards (MOPS).
3. SAE Minimum Performance Standards (MPS).
4. The manufacturers equipment specification(s), where applicable.

Some of the environmental conditions and test procedures contained in this document are not necessarily applicable to all ground based 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 ground based equipment.

Notes:

1. *There are several additional environmental conditions (categories), that specific ground based equipment may need to be evaluated against, that have not been included in this document. These include but are not limited to: electromagnetic pulse (EMP), atmospheric radiation, or projectile impact.*
2. *The procedures for testing ground based equipment for special environmental conditions that are usually uniquely related to that specific type of ground based equipment, should be the responsibility of the writer (author) of the performance standard for that specific equipment.*
3. *The International System of Units (SI) is usually used throughout this document as the primary values. In certain instances, however, when the primary values were derived in US units, these units are used as the primary values.*
4. *Subject to the provisions of Subsection 3.3, it is permissible to use more than one test article.*

