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Minimum Operational Performance Standards (MOPS) for the Aeronautical Mobile Airport Communication System (AeroMACS)

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Prepared by: SC-223

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FOREWORD

This report was prepared by RTCA Special Committee 223 (SC-203) and approved by the RTCA Program Management Committee (PMC) on February 20, 2014.

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 functions as a Federal advisory committee, and 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.

The organization's recommendations are often used as the basis for government and private sector decisions as well as the foundation for many Federal Aviation Administration Technical Standard Orders and several advisory circulars.

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1 PURPOSE AND SCOPE

1.1 Introduction

This document contains Minimum Operational Performance Standards for both the Airborne Component and Ground Based base station of the Aeronautical Mobile Airport Communication System (AeroMACS).

Compliance with these standards is recommended as one means of assuring that the equipment will perform its intended function(s) satisfactorily under all conditions normally encountered in routine aeronautical operation. Any regulatory application of this document is the sole responsibility of appropriate governmental agencies. These standards specify system characteristics that should be useful to designers, manufacturers, installers and users of the equipment.

Section 1 of this document provides information needed to understand the rationale for equipment characteristics and requirements stated in the remaining sections. It describes typical equipment operations and operational goals, as envisioned by the members of Special Committee 223 and Working Group 82, and establishes the basis for the standards stated in Sections 2 through 3. Definitions and assumptions essential to proper understanding of this document are also provided in this section.

Section 2 contains the Minimum Performance Standards for the equipment. These standards specify the required performance under standard environmental conditions. Also included are recommended bench test procedures necessary to demonstrate equipment compliance with the stated minimum requirements.

Section 3 describes the performance required for installed equipment. Tests for the installed equipment are included when performance cannot be adequately determined through bench testing.

Section 4 describes the operational performance characteristics for equipment installations and defines conditions that will assure the equipment user that operations can be conducted safely and reliably in the expected operational environment.

Appendix A - List of abbreviations and acronyms

Appendix B – Requirement Applicability

Appendix C – Example receiver sensitivity calculation

This document considers an equipment configuration consisting of AeroMACS radio and modem from antenna interface to the network interface. This MOPS addresses both Airborne Mobile Station and Ground Base Station components of the AeroMACS system.

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1.2 System Overview – AeroMACS

This section provides an overview of Aeronautical Mobile Airport Communications System (AeroMACS) broadband communications system. AeroMACS is based on a specific commercial WiMax Forum profile, which is based on the IEEE 802.16 standard.