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Minimum Operational Performance Standards (MOPS) for Air Traffic Control Radar Beacon System (ATCRBS) Airborne Equipment

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Prepared by: SC-209

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FOREWORD

These Minimum Operational Performance Standards (MOPS) were prepared by RTCA Special Committee 209 (SC-209) and approved by the RTCA Program Management Committee (PMC) on October 2, 2008. This document represents the consolidated performance requirements from two sources; RTCA/DO-144, "*Minimum Operational Characteristics for Airborne ATC Transponder Systems,"* dated March 12, 1970, plus Change 1 to DO-144, posted as RTCA Paper No. 232-70/EC-643, dated November 5, 1970, and the performance standards referred to in paragraph (a)(1) of Federal Aviation Administration (FAA) Technical Standard Order (TSO) -C74c, dated February 20, 1973.

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 (MOPS) 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 (ICAO) and the International Telecommunication Union (ITU) and other appropriate international organizations can be based.

The recommendations of RTCA are often used as the basis for government and private sector decisions as well as the foundation for new FAA Technical Standard Orders.

Since RTCA is not an official agency of the United States Government, its recommendations may not be regarded as statements of official government policy unless so enunciated by the United States Government organization or agency having statutory jurisdiction over any matters to which the recommendations relate.

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TABLE OF CONTENTS

List of Tables

List of Figures

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1 PURPOSE AND SCOPE

1.1 Introduction

This document sets forth Minimum Operational Performance Standards (MOPS) for Air Traffic Control Radar Beacon System (ATCRBS) airborne equipment. Incorporated within these standards are system characteristics that will be useful to users of the system as well as designers, manufacturers and installers. These performance standards represent a consolidation of performance requirements from two sources; RTCA/DO-144, "*Minimum Operational Characteristics for Airborne ATC Transponder Systems,"* dated March 12, 1970, plus Change 1 to DO-144, posted as RTCA Paper No. 232-70/EC-643, dated November 5, 1970, and the performance standards referred to in paragraph (a)(1) of Federal Aviation Administration (FAA) Technical Standard Order (TSO)-C74c, dated February 20, 1973.

Compliance with these MOPS is required to achieve at least that minimum performance, on which control and separation of aircraft is based, and to insure against derogation of service to other users of aviation navigation and communication services. These MOPS are applicable to all users of airborne ATC transponder systems who are required by regulation to participate in the ATC system, or who voluntarily choose to do so.

Note: *The use of "**shall**" in the body of this document indicates a requirement. The use of "**should**" indicates a characteristic that is highly recommended, but is not required.*

It is recognized that any regulatory application of these standards is the responsibility of appropriate government agencies.

Because the measured values of equipment performance characteristics may be a function of the measurement method, standard test conditions and methods of test are recommended in this document.

This document considers an equipment configuration consisting of: transponder, control panel, antenna and interconnecting cables. It should not be inferred that all ATCRBS airborne equipment will necessarily include all of the foregoing components as separate units; this will depend on the design configuration chosen by the manufacturer.

If the equipment implementation includes a computer software package, the guidelines contained in the most current issue of RTCA/DO-178, Software Considerations in Airborne Systems and Equipment Certification, should be considered.

1.1.1 International Standards

The performance standards of this document also reflect current International Civil Aviation Organization (ICAO) Annex 10, Volume IV, Amendment 82, Chapter 3 requirements for airborne systems having only Mode A and Mode C capabilities.