RTCA, Inc.
1150 18th Street, NW, Suite 910
Washington, DC 20036, USA

Minimum Operational Performance Standards (MOPS) for Universal Access Transceiver (UAT) Automatic Dependent Surveillance - Broadcast (ADS-B)

(Corrigendum 1, Appendix T, integrated and highlighted)

RTCA DO-282B
December 2, 2009
Supersedes RTCA DO-282A, including Change 1
Corrigendum 1 (Included)
December 13, 2011

Prepared by: SC-186

Copies of this document may be obtained from

RTCA, Inc.

Telephone: 202-833-9339
Facsimile: 202-833-9434
Internet: www.rtca.org

Please visit the RTCA Online Store for document pricing and ordering information.

FOREWORD

This report was prepared by Special Committee 186 (SC-186) and approved by the RTCA Program Management Committee (PMC) on December 13, 2011.

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 Telecommunications 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.

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 U.S. government organization or agency having statutory jurisdiction over any matters to which the recommendations relate.

This Page Intentionally Left Blank

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 PURPOSE AND SCOPE

1.1 Introduction

This document contains Minimum Operational Performance Standards for airborne equipment to support Automatic Dependent Surveillance - Broadcast (ADS-B) utilizing the Universal Access Transceiver (UAT). ADS-B is a system by which aircraft and certain equipped surface vehicles can share position, velocity, and other information with one another (and also with ground-based facilities/fixed locations such as air traffic services) via radio broadcast techniques. UAT is a multi-purpose aeronautical data link intended to support not only ADS-B, but also Flight Information Service - Broadcast (FIS-B), Traffic Information Service - Broadcast (TIS-B), and, if required in the future, supplementary ranging and positioning capabilities. While UAT has been expressly designed as a multi-purpose data link for surveillance-related applications, the focus of this document is on its support of ADS-B and basic ground uplink capabilities.

The standards contained in this document specify desired system characteristics that should prove useful to designers, manufacturers, installers and users of UAT equipment. Compliance with these standards is recommended as one means of ensuring that the equipment will satisfactorily perform its intended functions under conditions normally encountered in routine aeronautical operations. Some or all of these standards could be referenced by appropriate government agencies for certification and operational approval. Such regulatory application of any part of this document is solely the responsibility of appropriate government agencies. This version of these MOPS (RTCA DO-282B) reflects additional operational experience with UAT, lessons learned in certification of UAT equipment, and further inputs from the International aviation community during the development of International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs) for UAT.

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.*

Since the basic equipment implementation includes computer processing, RTCA DO-178B, *Software Considerations in Airborne Systems and Equipment Certification*, should be considered. Application of the software requirements of RTCA DO-178B should take into account the level of criticality of supported functions, consequences of equipment failure, and the presence and effectiveness of back-up and fault-monitoring features.

Section 1 of this document provides information and assumptions needed to understand the rationale for the equipment characteristics and requirements in this document. A high-level technical description of ADS-B and the UAT data link is provided, including the ability of UAT to support FIS-B, TIS-B, and independent ranging. The section also describes operational goals for ADS-B as envisioned by members of RTCA Special Committee SC-186 and the RTCA Free Flight Select Committee. This section, along with RTCA DO-242A, *Minimum Aviation System Performance Standards (MASPS) for ADS-B*, forms the basis for the standards stated in Sections 2 through 4.

Section 2 contains the minimum operational performance standards for the equipment. These standards define required performance under standard operating conditions, as well as under stressed physical environmental conditions. Also included are recommended bench test procedures to demonstrate equipment compliance with the stated minimum requirements. While the emphasis in this document is on UAT's support of ADS-B,