RTCA, Inc.
1828 L Street, NW, Suite 805
Washington, DC 20036-5133 USA

Minimum Aviation System Performance Standards for Aircraft Surveillance Applications (ASA)

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Prepared by: SC-186

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RTCA, Inc.

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

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Foreword

This report was prepared by Special Committee 186 (SC-186) and approved by the RTCA Program Management Committee (PMC) on December 9, 2003.

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.

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1 Purpose and Scope

1.1 Introduction

This document contains Minimum Aviation System Performance Standards (MASPS) for Aircraft Surveillance Applications (ASA). This document is intended to:

- Specify requirements for and describe assumptions for all sub-systems supporting the operational application of ASA, e.g., Surveillance Transmit Processing (STP), Automatic Dependent Surveillance - Broadcast (ADS-B), Airborne Surveillance and Separation Assurance Processing (ASSAP), and Cockpit Display of Traffic Information (CDTI).
- Describe in detail specific operational applications of ASA.

These standards specify characteristics that should be useful to designers, installers, manufacturers, service providers and users for systems intended for operational use within the United States National Airspace System (NAS). Where systems are global in nature, the system may have international applications that are taken into consideration.

Compliance with these standards is recommended as one means of assuring that the system and each subsystem will perform its intended function(s) satisfactorily under conditions normally encountered in routine aeronautical operations for the environments intended. This MASPS may be implemented by one or more regulatory documents or advisory documents (e.g., certifications, authorizations, approvals, commissioning, advisory circulars, notices, etc.) and may be implemented in part or in total. Any regulatory application of this document is the sole responsibility of the appropriate governmental agencies.

Chapter 1 of this document describes the Aircraft Surveillance Applications system and provides information needed to understand the rationale for function characteristics and requirements. The ASA sub-functions consist of a Surveillance Transmit Processing (STP) function, a surveillance function, a surveillance data processing function, and a display function. This section describes typical applications and operational goals, as envisioned by members of RTCA Special Committee 186, and establishes the basis for the standards stated in Chapters 2 and 3, including the use of Transmit Quality Level (TQL) and ASA Capability Level (ACL). Definitions and assumptions essential to the proper understanding of this document are also provided in this section. Additional definitions are provided in Appendix AA.

Chapter 2 describes minimum system performance requirements for the ASA applications under standard operating and environmental conditions. ASA functional requirements and associated performance requirements are provided. ASA Capability Levels are identified and specified.

Chapter 3 contains the minimum performance standards for each sub-subsystem that is a required element of the minimum system performance specified in Chapter 2, as well as the interface requirements between these sub-functions. Assumptions about expected standards for systems external to ASA are also documented.