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Safety, Performance, and Interoperability Requirements Document for Enhanced Traffic Situational Awareness During Flight Operations (ATSA-AIRB)

RTCA DO-319
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FOREWORD

This document was prepared by the "ADS-B Requirements Focus Group" (RFG). The RFG was established through the EUROCONTROL/FAA Memorandum of Cooperation. The RFG operates as a joint RTCA Special Committee 186 (SC-186) and EUROCAE Working Group 51 (WG51) activity. This document was approved by the RTCA Program Management Committee (PMC) on March 17, 2010:

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 objectives include, but are not limited to:

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- 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.

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CHAPTER 1 INTRODUCTION

This document provides the minimum operational, Safety and Performance Requirements (SPR) and Interoperability Requirements (INTEROP) for the implementation of Airborne Traffic Situational Awareness (ATSAW) for "Enhanced Traffic Situational Awareness during flight operations" (ATSA-AIRB). The ATSA-AIRB application is fully defined in the Operational Services and Environment Definition (OSED) found in Annex A.

All material in this document was developed jointly by EUROCAE Working Group 51 and RTCA Special Committee 186 within the group commonly referred to as the "ADS-B Requirements Focus Group" (RFG).

This document was developed based on the criteria for SPR and INTEROP documents set forth in RTCA DO-264/EUROCAE ED-78A, "Guidelines for Approval of the Provision and Use of Air Traffic Services Supported by Data Communications." [9]. It provides the minimum ATSA-AIRB requirements - and allocations thereof - based on the results of a coordinated requirements determination process.

The requirements contained in this document are necessary to provide adequate assurance that the appropriate aspects of the relevant Communication Navigation Surveillance and Air Traffic Management (CNS/ATM) system, when operating together, will perform their intended function in an acceptably safe manner for the operations defined in the OSED.

Whilst all detailed SPR related assessments are found in Annexes to this document, Chapter 3 presents the outcome of the reconciliation process of all of these results into a single set of underlying Safety and Performance Requirements. This process retains the most stringent requirement for those attributes or parameters commonly treated by both the safety and performance assessments. Traceability of those requirements back to the corresponding assessment(s) is provided.

1.1 PURPOSE OF THE DOCUMENT

This document defines and allocates the set of minimum requirements for the end-to-end operational, safety, performance and interoperability aspects for implementations of the ATSA-AIRB application. Allocation of these requirements is done by this SPR/INTEROP to the necessary domains of the CNS/ATM system, i.e. at aircraft and ground domain level.

These requirements can be used as a component for approval processes including aircraft type design approval, aircraft operator operational approval and Air Traffic Services (ATS) provider operational approval. This SPR/INTEROP document is also written to support system specific standards (e.g. MOPS, TSOs) which will be required for many airspace regulators.

Note: Requirements for EVAcq (Enhanced Visual Acquisition) in DO-317 [17], which is an application similar to ATSA-AIRB, are different than those for ATSA-AIRB. A Change Proposal will be developed to harmonize the ASAS MOPS with this SPR by advocating changes to make a DO-317 revision consistent with ATSA-AIRB SPR/INTEROP.