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**Safety, Performance and Interoperability
Requirements Document
for
Enhanced Air Traffic Services in Radar-
Controlled Areas Using ADS-B Surveillance
(ADS-B-RAD)**

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Prepared by: SC-186
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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 EUROCAE and RTCA Special Committee 186 (SC-186) activity. This document was approved by the RTCA Program Management Committee (PMC) on September 9, 2009.

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1 INTRODUCTION

This standard provides the minimum operational, safety, and performance requirements (SPR) and interoperability requirements (INTEROP) for the implementation of the Automatic Dependent Surveillance–Broadcast (ADS-B) application, “Enhanced Air Traffic Services in Radar-Controlled Areas using ADS-B surveillance” (ADS-B-RAD). This application is fully defined in the Operational Services and Environment Definition (OSED) found in Annex A.

This document was developed based on guidance for SPR and INTEROP standards contained in RTCA DO-264 / EUROCAE ED-78A, “Guidelines for Approval of the Provision and Use of Air Traffic Services Supported by Data Communications” [22]. This document provides the minimum ADS-B-RAD 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 elements of the relevant Communication, Navigation, and 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. This system includes ground and airborne elements.

This requirements definition is based on the results of a requirements determination process performed by the “ADS-B Requirements Focus Group” (RFG). The RFG was established through the Eurocontrol/FAA Memorandum of Cooperation. It operates as a joint EUROCAE and RTCA activity assuming the responsibility for the SPR and INTEROP standard material contained in this document^{1,2}.

While all detailed SPR-related assessments are found in Annexes to this document, Section 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

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 ADS-B-RAD application. Requirements are allocated 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 of approval processes including aircraft type design approval, aircraft operator operational approval, and Air Traffic Services (ATS) provider operational approval, but this SPR/INTEROP specification is also written to feed system-specific standards (e.g., MOPS, TSOs, etc.) which will be required for many airspace regulators to support approvals, along with system-specific data.

¹ More specifically, the work was conducted under the Terms of Reference of RTCA SC-186 and EUROCAE WG-51.

² The Eurocontrol CASCADE Program acted as the European Reporting Authority for the OSED part of this document.