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Safety, Performance and Interoperability Requirements Document for ATSA-SURF Application

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FOREWORD

The document was prepared by RTCA Special Committee 186 (SC-186), in the framework of the Requirements Focus Group (RFG), and was approved by the RTCA Program Management Committee (PMC) on December 8, 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'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 Telecommunication 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 INTRODUCTION

This document provides the minimum operational, safety, and performance requirements (SPR) and interoperability requirements (INTEROP) for the implementation of enhanced Airborne Traffic Situational Awareness (ATSA) for Surface (SURF) Operations. The ATSA-SURF 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.[25]. It provides the minimum ATSA-SURF requirements - and allocations thereof - based on the results of a coordinated requirements determination process.

The requirements specified 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. The system here includes airborne and, optionally, ground elements.

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 is provided back to the corresponding assessment(s).

1.1 Purpose of This 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-SURF 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 for approval processes including aircraft type design approval, aircraft operator operational approval, and (should they be provided) Air Traffic Services (ATS) provider operational approval. Section 1.1.2 below provides more information on the use of this document for approvals.

In addition, this document also provides guidance to determine the levels of design assurance and performance that are needed for each element (aircraft, opera-