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# Minimum Aviation System Performance Standards (MASPS) for the Interoperability of Airborne Collision Avoidance Systems (CAS)

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# 1 PURPOSE AND SCOPE

## 1.1 INTRODUCTION

This document presents high level requirements (i.e. Minimum Aviation System Performance Standards (MASPS)) for the interoperability of airborne Collision Avoidance Systems (CAS). Its main objective is to ensure that new CAS do not degrade the operation of existing CAS. It specifies system characteristics that should be useful to designers, manufacturers, installers and users of the equipment. When some requirements cannot be fully defined, explanatory text is included to describe the basis on which requirements are to be developed.

Compliance with these MASPS does not ensure that the equipment will be approved for operation. These MASPS do not address the functionality or performance of CAS beyond the requirement of interoperability between CAS. Minimum Operational Performance Standards (MOPS) address safety and operational suitability performance criteria. Any MOPS that are developed for a future CAS should use these MASPS as guidance for its interoperability with existing CAS. Regulatory application of this document is the sole responsibility of the appropriate regulatory authority.

This document considers equipment configurations consisting of a CAS with an Automatic Dependent Surveillance-Broadcast (ADS-B) transmitter/receiver, with or without a Mode S transponder and with or without a 1030 MHz transmitter.

The word "equipment" as used in this document includes all components and units necessary for the system to properly perform its intended function. For example, the equipment may include a Traffic Alert and Collision Avoidance System (TCAS[1]) unit coupled to a Mode S transponder. In this example, all the foregoing components and units comprise the equipment. It should not be inferred from this example that each CAS design will necessarily include all the foregoing components or units. This will depend on the specific design chosen by the manufacturer.

Chapter 2 of this document provides information needed to understand the rationale for equipment characteristics and requirements stated in the remaining sections. It describes typical equipment operations and operation goals, as envisioned by the members of EUROCAE WG75 ("TCAS") and RTCA SC 147 ("TCAS") and establishes the basis for the standards stated in chapters 3 to 8. Chapter 9 contains references.

All CAS are expected to include a computer software package, therefore the guidelines contained in RTCA DO-178C/ EUROCAE ED-12C [1], [2] (or the most current published revision) should be considered in addition to DO-254/ ED-80 [3], [4].

Requirements are stated using the word shall (Rm.nn) followed by chapter number and a number unique within the chapter.

## 1.2 BACKGROUND

The airborne CAS TCAS has been in service since 1990, during which time it has been the only system that generates Resolution Advisories (RAs). There are other systems that track

[1] By default, in this document, the term TCAS is an abbreviation for TCAS II

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