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Minimum Aviation System Performance Standards (MASPS) for Enhanced Vision Systems, Synthetic Vision Systems, Combined Vision Systems and Enhanced Flight Vision Systems

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FOREWORD

This document was prepared by RTCA Special Committee 213 (SC-213) and approved by the RTCA Program Management Committee (PMC) on June 22, 2011.

RTCA, Inc. 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, knowledge and practices in a manner that helps government and industry meet their mutual objectives and responsibilities.
- Analyzing and recommending solutions to 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.
- Assisting in developing the appropriate technical material upon which positions for the International Civil Aviation Organization, 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.

The RTCA is not an official agency of the U.S. 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

DO-315 addressed Enhanced Vision Systems (EVS), Synthetic Vision Systems (SVS), and Combined Vision Systems (CVS) technologies. Currently, only EVS technology incorporating an approved Head-Up Display (HUD) is eligible for operational credit under Title 14 US Code of Federal Regulations (CFR) §91.175 with the Federal Aviation Administration (FAA). An approved combination of EVS and HUD is termed an Enhanced Flight Vision System (EFVS) by the FAA. The European Aviation Safety Agency (EASA) uses the term "EVS" as equivalent to the FAA description of EFVS. While further definitions are in Appendix A, it is important to understand this distinction before reading this document. This document adds performance standards for operational credit to touchdown in visibility as low as 1000ft RVR (or 300M if applicable), by use of an approved EFVS. Performance standards for this new operational capability are delineated throughout this document in order to maintain the unique characteristics of DO-315 and DO-315A. Performance standards for EFVS to landing (DO-315A) include performance standards for EFVS approaches to 100 ft height above threshold elevation (THRE), formerly height above touchdown zone elevation (TDZE) (DO-315). See notes below regarding change in terms of reference in DO-315A.

The operational scenarios and concepts discussed in this document are written to describe the intended use of the proposed systems and from this context, associated minimum performance standards are derived. They do not define current or future operational regulations or limitations of these technologies.

Section 1 provides information needed to understand the rationale for system characteristics and requirements. This section also contains typical applications and envisioned operational goals and assumptions necessary to establish a basis for the subsequent sections. It describes typical applications and operational goals, as envisioned by members of RTCA Special Committee 213 and EUROCAE Work Group 79, and establishes the basis for the standards stated in Sections 2 through 4. Definitions and assumptions essential to proper understanding of this document are also provided in this section.

Section 2 describes minimum system performance requirements.

Section 3 contains the minimum performance standards and subsystem/function that is a required element of minimum system performance in Section 2.0. These standards specify the required performance under the standard environmental conditions described.

Section 4 discusses performance evaluations with applicable FAA and EASA regulations, describing the minimum system test procedures to verify system performance compliance (e.g., end-to-end performance verification).

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. The Minimum Aviation System Performance Standards (MASPS) may be implemented by one or more regulatory documents and/or advisory documents (e.g., certifications, authorizations, approvals, commissioning, orders, advisory circulars, and