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Minimum Aviation System Performance Standards (MASPS) for Synthetic Vision Guidance Systems

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Prepared by: SC-213
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FOREWORD

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Version #	Description of Changes	Date
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1 PURPOSE AND SCOPE

1.1 Introduction

1.1.1 Purpose

This document contains Minimum Aviation System Performance Standards for a Synthetic Vision Guidance System. A Synthetic Vision Guidance System (SVGS) as defined in this MASPS is a new airborne guidance system designed to enable operations to a Missed Approach Point (MAP) as low as 150ft height above touchdown. Minimum visibility may be determined in part by the SVGS display modality, head down display (HDD) or head up display (HUD), as implemented in a particular design. The system will be used during published instrument approach procedures with operational minima that are less than the minima for current Category I. The SVGS missed approach point will be based on a published Decision Height (DH) or a combination of a Decision Altitude (DA) and a missed approach fix.

1.1.2 Structure of the Document

Section 1 provides an explanation of the scope and purpose of this document and introduces the Synthetic Vision Guidance System. It 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.

Section 2 describes the general requirements of the Synthetic Vision Guidance System and its subsystem components.

Section 3 describes the detailed system performance requirements for the Synthetic Vision Guidance System. The Section also contains the minimum performance standards for each subsystem/function that is a required element of minimum system performance. These standards specify the required performance under standard operational conditions. The Section also includes the key assumptions made for the Synthetic Vision Guidance System

Section 4 describes the minimum system test procedures to verify system/application performance (e.g., end-to-end performance verification) and that subsystem performance meets the minimum performance requirements in Section 3.

A baseline assumption for SVGS is that the system is equal to a CATII operation in terms of the safety design goal of the avionics.

1.2 Introduction to Synthetic Vision Guidance System

1.2.1 Synthetic Vision Guidance System Overview

SVGS is a combination of flight guidance display technology and high precision position assurance monitors. The SVGS flight instrument display provides a continuous, geo-spatially correct depiction of the external scene topography, including obstacles, augmented by the display of the runway of intended landing. The SVGS display may be implemented on a head down Primary Flight Display, and a head up display (HUD), designed to the guidance provided by AC25-11B for airplane certification under 14 CFR

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