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Minimum Operational Performance Standards (MOPS) for GPS Local Area Augmentation System (LAAS) Airborne Equipment

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Foreword

This document was prepared by RTCA Special Committee 159 (SC-159) and approved by the RTCA Program Management Committee (PMC) on June 26, 2007.

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 Operation Performance Standards (MOPS) 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 (ICAO) and the International Telecommunication Union (ITU) and other appropriate international organizations can be based.

The recommendations of RTCA 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 (TSO).

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 PURPOSE AND SCOPE

1.1 Introduction

This document contains minimum operational performance standards (MOPS) for airborne navigation equipment using the Global Positioning System (GPS) augmented by the Local Area Augmentation System (LAAS). These standards are derived from the requirements specified in RTCA DO-245(), *Minimum Aviation System Performance Standards (MASPS) for the Local Area Augmentation System (LAAS)*. Throughout this document, the term "LAAS" is used as a generic reference to ground-based augmentation systems (GBAS) as defined by the International Civil Aviation Organization (ICAO), as the requirements in this standard are intended to comply with the ICAO Standards and Recommended Practices (SARPs) for the GBAS aircraft element.

The standards in this document define minimum performance requirements, functions and features for LAAS airborne equipment to support Category I (CAT I) precision approach operations. This standard also covers the computation and output of position, velocity, and time (PVT) to support area navigation and other applications.

Note: The requirements for area navigation systems continue to evolve. Applicable standards include RTCA/DO-236(), RTCA/DO-229(), RTCA/DO-187() [as amended by TSO-C115()] and RTCA/DO-208() [as amended by TSO-C129()].

Compliance with these standards by manufacturers, installers and users is recommended as a means of assuring that the equipment will satisfactorily perform its intended functions under conditions encountered in routine aeronautical operations.

The regulatory application of these standards is the responsibility of appropriate government agencies. In the United States, the Federal Aviation Administration (FAA) has to published two Technical Standard Orders (TSO) for GPS/LAAS equipment, one for the LAAS VHF Data Broadcast (VDB) receiver function (TSO-C162) and another for the LAAS Position And Navigation (PAN) function (TSO-C161). The FAA plans to update these TSOs.

The word "equipment", as used in this document, includes all components or units necessary (as determined by the equipment manufacturer or installer) to properly perform its intended function.

In this document, the term "shall" is used to indicate requirements. An approved design would comply with every requirement, which can be assured by inspection, test, analysis, or demonstration. The term "must" is used to identify items which are important but are either duplicated somewhere else in the document as a "shall", or are considered to be outside the scope of this document. The term "should" is used to denote a recommendation that would improve the LAAS equipment, but does not constitute a minimum requirement.

This document facilitates traceability by identifying each specific requirement with a requirement designator. The notation "*[LAAS-xxx]*", where xxx is a three-digit number, identifies each specific requirement for traceability purposes.