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**MINIMUM AVIATION SYSTEM PERFORMANCE STANDARDS
FOR THE
LOCAL AREA AUGMENTATION SYSTEM (LAAS)**

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Prepared By: SC-159
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This report was prepared by Special Committee 159 (SC-159) and approved by the RTCA Program Management Committee (PMC) on December 9, 2004.

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1. Purpose and Scope

1.1 Introduction

This document contains the Minimum Aviation System Performance Standards (MASPS) for the Local Area Augmentation System (LAAS), a system developed to support precision approach and landing operations and other navigation and surveillance applications within a local area including and surrounding an airport. These standards should be useful to equipment designers, installers, manufacturers, service providers and users for systems intended for operational use within the United States (US) National Airspace System (NAS). As the LAAS has global application as a Ground-Based Augmentation System (GBAS) to the Global Navigation Satellite System (GNSS), many of the standards in this document have been harmonized with those being developed by the International Civil Aviation Organization (ICAO) and The European Organization for Civil Aviation Equipment (EUROCAE). Additionally, the standards in the document have been developed to be consistent with ongoing worldwide harmonization of advisory circulars and regulatory documents pertinent to precision approach equipment and operations. The harmonization efforts are intended to continue as standards developed by these organizations mature, and this document will be updated as appropriate.

Within this document, the terms “LAAS” and “GBAS” are not synonymous. “LAAS” refers to the system being proposed for use and further development by RTCA to meet the operational objectives for the US NAS as documented in this MASPS and DO-253A. This system may also be suitable for implementation in other areas. “GBAS” refers to any system compliant with the existing ICAO standards (through and including Amendment 79 to Annex 10).

Use of the term “LAAS” instead of “GBAS” is intended to highlight two facts:

1. Within this document, certain options allowed by the existing ICAO GBAS standards have been chosen for LAAS implementation including, for example, the positioning service and the ephemeris error bound.
2. This document also contains proposed requirements that have not yet been standardized by ICAO. In many cases, these requirements have not yet been harmonized with the international community. Examples include the requirements to support Category II/III approach and landings such as the alert limits, navigation system accuracy requirements, and the spectral content of the positioning errors.

Expanding on item #1 above, LAAS implements both the GBAS CAT I approach service and the positioning service based on GPS and, optionally, visible SBAS/WAAS geostationary satellites. The GBAS approach service currently only supports approaches to Category I minima and has an optional broadcast of ephemeris error bound parameters. The GBAS positioning service requires the broadcast of the ephemeris error bound parameters. LAAS requires the broadcast of the additional ephemeris bound parameters to support the approach service as well as the positioning service.

Expanding on item #2 above, additional broadcast features have been added for LAAS that have been identified as beneficial by some operators but have not yet been harmonized or standardized internationally. Optional requirements for the broadcast of a subset of DO-236B-compatible terminal area path (TAP) data to provide additional support for terminal area operations have been added. The TAP broadcast development was intended to be compatible with the GBAS CAT I approach and positioning services and future CAT II/III services, but further development may be needed. RTCA has