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Minimum Aviation System Performance Standards: Required Navigation Performance for Area Navigation

Change 1

RTCA DO-236C, Change 1
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FOREWORD

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- 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 operational performance standards 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 and the International Telecommunication Union and other appropriate international organizations can be based.

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1. PURPOSE AND SCOPE

1.1 Introduction

The Minimum Aviation System Performance Standard (MASPS) DO-236C was published with the original Time of Arrival Control (TOAC) requirements from the prior MASPS version removed. This was due to the fact that in updating its TOAC requirements to ones better aligned to initial operational applications as well as 4D Trajectory Based Operations (TBO), the committee ran into difficulties defining minimum requirements that would ensure that alternatives to implementation were possible. Rather than leave the original and insufficient TOAC requirements in the document and create confusion for implementation by industry, they were removed to give the committee more time to decide on requirements and guidance that could be published as a minimum standard. Change 1 to DO-236C contains the updates to the original TOAC requirements and guidance material from DO-236B that the committee has determined will address the needs for initial operational applications as well as 4D TBO. Change 1 builds upon the requirements and guidance that were derived by EUROCAE WG-85 from projects in the European SESAR program.

In addition to the TOAC requirements, Change 1 contains requirements for runway position monitoring and alerting when such a capability is included in a system developed to the MASPS. As with the TOAC requirements, the committee decided that it could not include the material in DO-236C because of the extra time needed to ensure that the requirements would allow for alternatives in implementation.

The Change 1 requirements to the MASPS, when invoked by regulatory authorities along with DO-236C, are expected to provide the benefits of the listed applications in section 1.3.

Section 1.0 of this document describes operational goals, and applications needed to operate in RNP airspace where 4D TBO is implemented. It also includes the assumptions made within the MASPS for defining the airborne requirements.

Section 2.0 describes the minimum system performance requirements.

Section 3.0 describes minimum performance standards for each subsystem/function that is a required element of minimum system performance.

Section 4.0 describes an acceptable method for demonstrating system performance compliance and subsystem performance to meet the minimum standards in Section 2.0.

The appendices include a glossary of terms and acronyms (Appendix A), an example of system compliance analysis for Time Of Arrival Control (Appendix B) and a cross reference matrix for requirements correlation to the EUROCAE MASPS, ED-75D, that contains the contents of both DO-236C and this Change 1 document (Appendix C). Appendix D provides the patent letter for information.

1.2 Assumptions

The concept of RNP has been developed with the objective of defining all applicable requirements associated with navigation performance, including both airborne and external navigation elements. Airborne elements (e.g. engines, generators) other than those included as part of the navigation system are assumed to be functioning normally. This section states any assumptions that have been made within the MASPS for the purposes of defining the airborne requirements supporting Time Of Arrival Control and Runway Position Monitoring in RNP operations.

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