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Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data

RTCA DO-291B
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Prepared by: SC-217

Foreword

This report was prepared by RTCA Special Committee 217 (SC-217) and EUROCAE Working Group 44 (WG-44) and approved by the RTCA Program Management Committee (PMC) on September 28, 2011.

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 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.

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.

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EXECUTIVE SUMMARY

A common database interchange standard for terrain, obstacle, and aerodrome databases is a key success factor for the implementation of digital functions in the aviation domain. It will enable a common interchange between data originators, data integrators, and system designers. It increases efficiency and safety.

The RTCA/EUROCAE documents DO-272C/ED-99C and DO-276B/ED-98B specify the user requirements for terrain, obstacle, and aerodrome database content and quality.

This document sets guidelines and requirements to develop a data interchange format for terrain, obstacle, and aerodrome data generated in compliance to RTCA DO-272C/EUROCAE ED-99C and RTCA DO-276B/EUROCAE ED-98B.

This interchange standard was generated on the basis of the ISO 19100 (geographic information) series of standards as applied to terrain, obstacle, and aerodrome mapping databases used in aviation. The list of relevant ISO documents is given in Section 1.2. It is recommended that users of this document review these ISO standards. They are available from ISO at:

1, Rue de Varembé, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 749 01 11
URL: www.iso.org
E-mail: central@iso.org

This standard contains ISO compliant data product specifications for terrain, obstacle, and aerodrome databases that are to be interchanged. These specifications consist of scope, identification, metadata, content information, reference system, data quality information, data capture information, and maintenance information requirements. These requirements will establish a basis that can be used by data originators, data integrators, and system designers to implement a physical interchange format. Interoperability among different physical formats can be facilitated by complying with this standard.

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1 INTRODUCTION

Improved common situational awareness and applications such as Terrain Awareness and Warning Systems (TAWS), advanced navigation displays, taxi situational awareness displays, Runway Incursion Prevention Systems (RIPS), and Synthetic Vision Systems (SVS) will enhance the safety and efficiency of aircraft operations in-flight, during approach/take-off, and on the aerodrome surface. These developments are information-dependent and must use accurate, reliable, and up-to-date terrain, obstacle, and aerodrome mapping data. This implies an interchange process between data originators, integrators, and users based on common agreed-upon information interchange standards. These standards will constitute a foundation upon which the tailored end-user applications may be built.

This interchange standard includes data product specifications (DPSs) for the exchange of database content generated/surveyed within the scope of RTCA DO-272C/EUROCAE ED-99C: "User Requirements for Aerodrome Mapping Information" and RTCA DO-276B/EUROCAE ED-98B: "User Requirements for Terrain and Obstacle Data". Compliance with this interchange standard will ensure that RTCA DO-272C/EUROCAE ED-99C and RTCA DO-276B/EUROCAE ED-98B requirements are met.

This interchange standard is compliant with the ISO 19100 (geographic information) series of standards.

This standard specifies requirements for scope, identification, metadata, content, reference system, quality, capture, and maintenance information. These requirements establish a basis that can be used by data originators, data integrators, and system designers to implement a physical interchange format that supports the required data flow (Figure 1-1). Interoperability among different physical formats can be facilitated by complying with this standard.

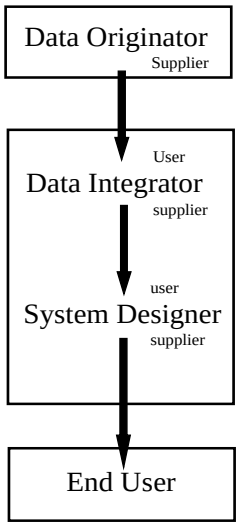

Figure 1-1 Data flow from originator to end user