RTCA, Incorporated
1140 Connecticut Avenue, N.W., Suite 1020
Washington, DC 20036-4001 USA

STANDARDS FOR PROCESSING AERONAUTICAL DATA

September 28, 1998
RTCA/DO-200A

Prepared by SC-181

Copies of this document may be obtained from

RTCA, Inc.
1140 Connecticut Avenue, NW, Suite 1020
Washington, DC 20036-4001 USA

Telephone: 202-833-9339
Facsimile: 202-833-9434
Internet: www.rtca.org

Please call RTCA for price and ordering information.

Foreword

This report was prepared by Special Committee 181 (SC-181) and approved by the RTCA Program Management Committee (PMC) on September 28, 1998.

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.

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.

This page intentionally left blank.

EXECUTIVE SUMMARY

The RTCA Technical Management Committee established Special Committee 181 (SC-181) with the following terms of reference.

- Special Committee 181 shall investigate the processes involved in the processing, control and loading of aeronautical databases, and produce guidance to ensure that:

    a) The integrity of the civil aviation authority and the flight management system created source data is not degraded.

    b) The databases are compatible with the type of equipment that will use them.

    c) The databases are updated in ways that ensure that a) and b) remain current and valid.

- Special Committee 181 shall review current practices used in defining aeronautical data and recommend any changes needed to provide improved operational effectiveness of airborne navigation systems that use stored databases.

- Special Committee 181 shall co-ordinate its work with the European Organisation for Civil Aviation Equipment, Working Group 13 (EUROCAE WG 13). The results will be the combined effort of these two organisations, RTCA SC 181/EUROCAE WG 13.

After reviewing the previous efforts of SC-157 and the documents that were published as a result of that effort, it was determined that the basic information contained in RTCA DO-200, "Preparation, Verification, and Distribution of User-Selectable Navigation Data Bases" and RTCA DO-201, "User Recommendations for Aeronautical Information Services" was still applicable but needed updating to support new technology and the expanding scope of aeronautical data covered by this document. It was agreed that the guidelines covering the production of the aeronautical databases (RTCA DO-200) should be expanded to provide a more structured approach to the extremely important issues of data quality and data integrity management. It was also agreed that aeronautical information needed to support the efficient operation of computer-based systems had now become a requirement rather than a recommendation. The work of RTCA SC-181/EUROCAE WG13 has resulted in two new documents:

a) DO-200A/ED-76, "Standards for Processing Aeronautical Data"; and,

b) DO-201A/ED-77, "Industry Requirements for Aeronautical Information"

These documents are submitted to the aviation community as a collection of disciplines necessary to provide assurance that the production of aeronautical databases meets the high integrity required for safe flight.

This document provides a recommended minimum standard for the processing of aeronautical data. It is applicable to all phases of the aeronautical data process, from origination through

acceptance and application by the end-user. It is intended to be used by organisations seeking approval of the method(s) they use to process or manipulate data. As a result, the document is structured in a manner, which will assist the organisation to:

1) relate material obtained from the relevant regulatory authority to the requirements set forth herein; and

2) determine if its processing method(s) meets the requirements.

The document is divided as follows:

Section 1 -- is an introductory section which provides:

- information on the purpose and scope of the document;
- an explanation of how to use and apply the document;
- a list of baseline documents used in the development of the document;
- an explanation of the concept that the end-user of the data has the ultimate responsibility for defining requirements and ensuring that requirements are met; and,
- an explanation of the concepts of data quality characteristics, required data quality, assuring quality through quality management, Aeronautical Data Chains and the functional links in those chains.

Section 2 – defines the requirements. It establishes the users' responsibility for defining their data quality requirements. It provides requirements for aeronautical data processing and quality management, as it pertains to the aeronautical data process. Organisations intending to demonstrate compliance with this document will need to review this section to ensure that they meet all requirements relevant to their data processing activities.

Section 3 -- describes a method, but not the only method, that can be used to demonstrate compliance with the requirements. States or approval authorities may determine that an application for approval using alternative methods of demonstrating compliance may also be acceptable.

Appendix A - a glossary of terms and abbreviations used in the document;
Appendix B - provides guidance on defining data quality requirements in support of those requirements expressed in Section 2; and
Appendix C - provides guidance and further details on the methods available to demonstrate compliance.

TABLE OF CONTENTS

Table of Figures

Table of Tables

This page intentionally left blank.

1 Purpose and Scope

1.1 Introduction

This document provides the minimum standards and guidance for the processing of aeronautical data that are used for navigation, flight planning, terrain awareness, flight simulators and for other applications. Such data would be passed on to the user as a database. The standard provides requirements that should be used to develop, assess change, and support implementation of data processing quality assurance and data quality management. When applied, the standard will provide the user with assurance of the level of quality that can be associated with the processed data, e.g. aeronautical database.

1.2 How to Use this Document

This document represents a consensus that has been reached within the aviation community. It has been written so that it may be applied by the regulatory authorities as an acceptable means of ensuring that aeronautical data maintains the required data quality and supports its intended application. It does not, in itself, have any authority over organisations responsible for processing aeronautical data.

This document is intended to address the specific issues of the aeronautical data process. It assumes that those organisations have in place an acceptable quality management system and does not attempt to specify requirements other than those associated with the aeronautical data process.

This document uses the term "shall" to identify requirements within this standard, which can be traced to particular aspects of the aeronautical data process. The term "should" is used where a procedure is recommended as an improvement to the aeronautical data process or to support demonstration of compliance, over and above the minimum requirements specified in this standard.

Section 1 is informative, and defines the basic concepts associated with the aeronautical data process, including that of suppliers, users, and aeronautical data chains. Section 1 also describes some of the unique aspects of aeronautical data chains and examples are given as they apply to navigation and terrain data. This information is not intended to limit the potential application of this standard to other types of aeronautical data.

Section 2 contains the requirements for the aeronautical data process. In support of this section, Appendix B provides guidance on defining the data quality requirements. Appendix C provides guidance for demonstrating compliance with the requirements of Section 2 of this standard.