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MINIMUM OPERATIONAL PERFORMANCE STANDARDS (MOPS) FOR AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) AVIONICS

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Prepared by SC-162
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Foreword

This report was prepared by Special Committee (SC-162) and approved by the RTCA Technical Management Committee (TMC) on July 29, 1997.

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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1. PURPOSE AND SCOPE

1.1 INTRODUCTION

The international aviation community is planning to use distributed data applications to:

1. deliver Air Traffic Services (ATS) to aircraft,
2. exchange air traffic management information between fixed-based ATS facilities on the ground, and
3. control the movement of aircraft and vehicles operating on airport surfaces.

Such capabilities are to be realized as separate application processes (APs) resident in computers installed in aircraft, in fixed-based facilities, and in other mobile vehicles. Additional applications such as Aeronautical Operational Control (AOC) and Airline Administrative Communication (AAC) may be distributed to applications using an Aeronautical Telecommunication Network (ATN) router. These applications are permitted as long as they do not adversely affect the satisfaction of requirements for applications involving safety and regularity of flight.

To maximize the opportunities for interoperability between such a diverse collection of computers and resident APs, it is necessary to base their interactions on a family of standard data communication protocols and application specific standards. The family of protocols selected for this purpose have come from a much larger library of standards administered by the International Organization for Standardization (ISO). The profiling of these standards for use by the various civil aviation authorities worldwide was initiated jointly by the Airlines Electronic Engineering Committee (AEEC), RTCA, Inc. and other bodies for civil aviation. Many of the responsibilities of these organizations with regard to defining standards concerning the delivery of Air Traffic Services (ATS) and Flight Information Services (FIS) have since been assumed by the International Civil Aviation Organization (ICAO).

The resulting data communications architecture is designed to facilitate the gradual implementation of a worldwide network referred to as the Aeronautical Telecommunication Network (ATN).

1.2 Purpose

The purpose of this document is to provide MOPS for ATN functions for aircraft systems and equipment to show that the function performs as intended and not produce unacceptable risks through their various failure modes. These standards are in the form of:

1. Performance requirements for ATN functions.
2. Qualification criteria for demonstrating those performance requirements
3. Descriptions of the evidence that indicate that the performance objectives have been satisfied.

1.3 Scope

The scope of this MOPS concentrates on ATN communications services embedded in systems and equipment used on aircraft, as specified in the ATN SARPs. This document does not provide MOPS for subnetworks, ATN application entities, or for other parts of the data network that are external to the aircraft. Figure 1-1 shows sections of the ATN SARPSs, illustrating the relationship of the ATN communications services to the remainder of the ATN.

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