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Design Guidelines and Recommended Standards for the Implementation and Use of AMS(R)S Voice Services in a Data Link Environment

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Foreword

This report was prepared by Special Committee (SC-165) and approved by the RTCA Technical Management Committee (TMC) on March 13, 1996.

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.

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Preface

This document embodies a consensus representative of the insight of those who are concerned with the integration of an evolving communications tool, i.e., satellite voice communications, into a future data link environment also in its early stages of evolution. As a consequence of the early evolutionary state of voice communication services in general as they apply to a data link oriented environment, it was not possible for SC-165 to define firm requirements for the implementation and use of satellite voice. Therefore, this document, as indicated by its title, contains *guidelines* and *recommendations* rather than actual requirements. However, those responsible for this document felt it important for the reader to be aware of the relative degrees of importance attached to the various recommendations contained herein. To that end this document has been written using the traditional language of a *requirements* document. However, the reader should regard its contents as recommendations upon which subsequent standards can be based. The development of such standards, including a MASPS for the end-to-end satellite voice service and a MOPS for a new data link end-system application to support satellite voice operation, is envisioned to commence within SC-165 in early 1996.

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1.0 Introduction

1.1 Purpose and Scope

This document contains functional and interface requirements for the implementation and use of Aeronautical Mobile Satellite Service (AMSS) voice communications in an environment where satellite voice is a required capability. The information contained herein describes satellite voice services in the Air Traffic Management (ATM) and Aeronautical Operational Control (AOC) environments -- including requirements for aircraft installations, satellite services, ground interconnection facilities, and Air Traffic Service facility capabilities. The scope of this document is focused primarily on the use of satellite voice in Oceanic and Remote airspace areas. However, there may be use of satellite voice in Domestic Enroute airspace; and its use in low-density Terminal airspace might prove useful in certain situations.

The objective of this document is to facilitate the certification and use of satellite voice communication systems as a required capability. Inherent in this capability is the notion that all satellite voice communications, both air- and ground-originated, will be accomplished with automatic call processing on an end-to-end basis so as to provide rapid, direct communication between the air and ground user

Compliance with these requirements is a means of assuring that the AMSS voice service will perform its intended functions at an expected performance level. Any regulatory application of this document is the sole responsibility of the appropriate authority.

NOTE:

1. *This document takes a long-term perspective of the end-to-end satellite voice service, circa 1996 and beyond. It defines the end-to-end system characteristics needed to facilitate the development, implementation, certification, and operational use of satellite voice in an environment where satellite voice communication is a required capability. The primary orientation of this document focuses on the use of satellite voice services in a CNS/ATM environment where the primary means of ATS communication is via data link. However, provisions are also made for environments where data-link services are either less than fully implemented or are unavailable due to an outage.*

2. *The standards contained in this document do not presuppose a specific data network standard such as the Aeronautical*