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# Next Generation Air/Ground Communications (NEXCOM) VDL Mode 3 Interoperability

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## FOREWORD

This report was prepared by RTCA Special 198 and approved by the RTCA Program Management Committee (PMC) on April 10, 2003.

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 INTRODUCTION

This document will identify Next Generations Air/Ground Communications (NEXCOM) Very High Frequency (VFH) Digital Link (VDL) Mode 3 interoperability requirements for air traffic services supported by digital voice and data communications in the U.S. National Airspace System (NAS). It is prepared in accordance with the guidance as described in applicable portions of RTCA DO-264, *Guidelines for Approval of the Provision and Use of Air Traffic Services supported by Data Communications.* The document applies material being developed by RTCA SC-189 in Initial Continental Safety and Performance Requirements.

This interoperability document presents technical and functional requirements that provide the basis for ensuring compatibility among the various elements of the Communications Navigation Surveillance/Air Traffic Management (CNS/ATM) system using digital voice and data services. These digital voice and data services are outlined in RTCA DO-279*, NEXCOM Principles of Operation VDL Mode 3 Operational Services and Environmental Definition (OSED) Section 3.7.6*, and described in RTCA DO-284, *NEXCOM System Safety and Performance Requirements (SPR).*

## 1.1 Purpose

The purpose of this document is to provide the interoperability requirements for Air Traffic Services (ATS) supported by NEXCOM VDL Mode 3.

Interoperability requirements are the minimum technical and functional requirements that provide the basis for ensuring compatibility among the various elements of the CNS/ATM system using a specific technology.

These CNS/ATM elements comprise the aircraft system, the ATS Provider system, and the operator's provisions to use the air traffic services. The ATS provider system and the operator's provisions may include third party or contracted communication services.

This document is compliant with the Aeronautical Telecommunications Network (ATN) Standards and Recommended Practices (SARPs), henceforth referred to as the ATN SARPs, as defined in published versions of the International Civil Aviation Organisation (ICAO) *Manual of Technical Provisions for the ATN* (ICAO Doc.9705-AN/956) and the ICAO *Manual Of ATS Datalink Applications* (ICAO Doc.9694-AN/955).

This document:

1. Defines interoperability requirements for the communication services indicated in Table 1-1.
2. Defines interoperability requirements of the VDL Mode 3 subnetwork for the ATS applications; and
3. Allocates the interoperability requirements to communications elements of the CNS/ATM system.