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Guidance on VDL Mode 2 Air / Ground Interoperability

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Prepared by: SC-214

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FOREWORD

This document was prepared by Special Committee 214 (SC-214) jointly with EUROCAE WG-92 and approved by the RTCA Program Management Committee (PMC) and the EUROCAE Council on September 10, 2020.

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 Standards Development Organization 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.

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1 INTRODUCTION

1.1 Purpose

In the VDLM2 environment where the protocol and infrastructure are a challenge in terms of interoperability, it is important to provide recommendations about how the ground systems are expected to behave and what is the expected avionics answer.

This document aims at defining a coordinated understanding of the ground behaviors in addition to the MOPS which are more related to avionics systems. In particular some out of sync cases have been identified in operations, showing a need for interoperability improvement.

1.2 Scope

This document supplements DO-224 MASPS applicable to ground systems, and the requirements in MASPS still apply. For airworthiness and TSO/E-TSO approval the MASPS have precedence over this document and avionics requirements are defined in the MASPS.

The main focus of the document is VDLM2, but it also addresses specific issues above VDLM2 when they are related to the VDLM2 operations.

1.3 Structure of the Document

The document is composed of the following sections:

1. Chapter 1: Introduction,
2. Chapter 2: Air-Ground Interoperability,
3. Chapter 3: Routing and Neighbor Discovery.

In potential next revisions of the document, additional chapters may be added to cover additional guidance.

1.4 Relationship to ICAO Documents

This document supplements the document ICAO 9776 which defines VDL M2. The information provided in the current document does not supersede the ICAO definition but provides guidance on how the system should behave in compliance with the ICAO standards.

1.5 References

The following documents are used as reference:

Document	Description
ICAO Doc 9776	ICAO Manual on VHF Digital Link (VDL) Mode 2 Part II, Edition 2 published in 2015
ICAO Doc 9705	Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN), Second Edition published in 1999

