

RTCA, Inc.  
1828 L Street, NW, Suite 805  
Washington, DC 20036-5133 USA

**Minimum Operational Performance Standards  
for Aircraft VDL Mode 3 Transceiver Operating  
in the Frequency Range 117.975 - 137.000 MHz**

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Supersedes DO-271B  
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Telephone: 202-333-9439

Facsimile: 202-333-4434

Internet: [www.rtca.org](http://www.rtca.org)

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## FOREWORD

This document was prepared by RTCA Special Committee 172 (SC-172) and approved by the RTCA Program Management Committee on November 8, 2005.

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The physical layer material of this document is based on the Physical Layer MOPS for Airborne VDL Mode 2 (EUROCAE Working Group 47 document, ED-92, dated March 2000), since the physical layer is largely in common to both VDL Mode 2 and VDL Mode 3. Development of this document and ED-92 were coordinated with EUROCAE Working Group 47.

Appendix B is a Normative Appendix.

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## TABLE OF CONTENTS

<b>1</b>	<b>PURPOSE AND SCOPE .....</b>	<b>1</b>
1.1	Introduction .....	1
1.2	System Overview.....	1
1.3	Aircraft Equipment Architectures .....	4
1.3.1	Integrated Equipment Archhitecture .....	4
1.3.1.1	Voice and Data Capable.....	4
1.3.1.2	Voice Capable Only .....	5
1.3.2	Separated Equipment Architectures .....	5
1.4	Operational Applications.....	6
1.5	Operational Goals.....	6
1.6	Equipment Performance Verification.....	6
1.6.1	Bench Tests .....	7
1.6.2	Environmental Tests.....	7
1.6.3	Installed Equipment Tests .....	7
1.6.4	Operational Tests.....	7
1.7	Definitions of Terms.....	8
1.7.1	Adjacent Channel .....	8
1.7.2	Adjacent Channel Power.....	8
1.7.3	Adjacent Channel Rejection (ACR).....	8
1.7.4	Bit Error Rate (BER).....	8
1.7.5	Co-channel Interference (CCI).....	8
1.7.6	Error Vector Magnitude (EVM).....	8
1.7.7	Reference Signal Level .....	9
1.7.8	Transmitter Reference Burst Sequence .....	9
1.7.9	Undesired VDL Mode 3 Test Signal .....	9
1.7.10	Basic Voice Service.....	9
1.7.11	Enhanced Voice Service.....	9
1.7.12	Enhanced Voice and Data Service .....	10
1.8	Reference Documents.....	10
1.9	Assumptions .....	10
<b>2</b>	<b>MINIMUM PERFORMANCE STANDARDS FOR EQUIPMENT.....</b>	<b>11</b>
2.1	General Design Requirements.....	11
2.1.1	Airworthiness .....	11
2.1.2	Intended Function.....	11
2.1.3	ITC and FCC Rules and Regulations .....	11
2.1.4	Fire Protection.....	11
2.1.5	Operation of Controls.....	11
2.1.6	Accessibility of Controls.....	11
2.1.7	Effects of Test .....	12
2.1.8	Equipment Classes .....	12
2.1.8.1	Receivers.....	12
2.1.8.2	Transmitters.....	12
2.1.9	VDL Mode 3 Avionics Equipment Classes.....	12
2.1.10	Software Management.....	14

2.2	Minimum Performance Requirements - Standard Conditions.....	14
2.2.1	VDL Mode 3 Subnetwork Physical Layer Requirements .....	14
2.2.1.1	Transceiver Requirements.....	15
2.2.1.1.1	Tuning Range and Channel Increments .....	15
2.2.1.1.2	Modulation.....	15
2.2.1.1.3	Tuning Time .....	15
2.2.1.1.4	Receive to Transmit Turnaround Time.....	15
2.2.1.1.5	Transmit to Receive Turnaround Time.....	16
2.2.1.1.6	Uplink Voice Delay Requirement.....	16
2.2.1.1.7	Downlink Voice Delay Requirement.....	16
2.2.1.2	Receiver Requirements .....	16
2.2.1.2.1	Sensitivity .....	16
2.2.1.2.2	Adjacent Channel Rejection (ACR).....	17
2.2.1.2.3	Receiver Performance in the Presence of Strong Signals Within the VHF Aeronautical Communications Band.....	17
2.2.1.2.4	Receiver Performance in the Presence of Strong Signals Outside the VHF Aeronautical Communications Band.....	17
2.2.1.2.5	Desired Signal Dynamic Range.....	17
2.2.1.2.6	Symbol Rate Capture Range.....	18
2.2.1.2.7	Frequency Capture Range.....	18
2.2.1.2.8	Phase Acceleration.....	18
2.2.1.2.9	Co-channel Interference (CCI) .....	18
2.2.1.2.10	Conducted Spurious Emission .....	18
2.2.1.2.11	FM Broadcast Intermodulation .....	19
2.2.1.2.12	In-band Intermodulation .....	19
2.2.1.3	Transmitter Requirements .....	19
2.2.1.3.1	Channel Bit Rate.....	19
2.2.1.3.2	RF Output Power .....	20
2.2.1.3.3	RF Power Rise Time.....	20
2.2.1.3.4	RF Power Release Time.....	20
2.2.1.3.5	Symbol Cancellation Error .....	21
2.2.1.3.6	Spurious Emissions.....	21
2.2.1.3.7	Adjacent Channel Power .....	22
2.2.1.3.8	RESERVED.....	23
2.2.1.3.9	Load Power Capability .....	23
2.2.1.3.10	Frequency Tolerance.....	23
2.2.1.4	RESERVED.....	23
2.2.2	Link Layer Requirements .....	23
2.2.3	Subnetwork Layer Requirements .....	23
2.2.3.1	Subnetwork Interface Support.....	23
2.2.3.1.1	Aircraft Subnetwork Interface Support.....	23
2.2.3.1.2	Ground Station Subnetwork Interface Support.....	24
2.2.3.2	RESERVED .....	24
2.2.4	Voice Unit Requirements .....	24
2.2.4.1	Avionics Radio Voice Quality Requirements .....	24
2.2.4.1.1	Ground-to-Air Voice Quality Requirement.....	24
2.2.4.1.2	Air-to-Ground Voice Quality Requirement.....	25
2.2.5	Requirements for Format and Usage of the System Data and Header Segment .....	25
2.2.6	Data/Management Interface .....	26
2.3	Minimum Performance Requirements - Environmental Conditions .....	26

2.3.1	Introduction .....	26
2.3.2	Receiver.....	26
2.3.3	Transmitter .....	27
2.4	Equipment Test Procedures .....	33
2.4.1	Definition of Terms and Conditions of Tests .....	33
2.4.1.1	Warm-up and Stabilization of Test Equipment/Equipment Under Test.....	33
2.4.1.2	Alignment, Adjustment and Calibration for Equipment Under Test .....	33
2.4.1.3	Equipment Termination.....	33
2.4.1.4	Test Equipment Calibration and Replacement .....	33
2.4.1.5	Failure of the Equipment Under Test .....	33
2.4.1.6	Measurement Error Due to Test Equipment and Test Setup.....	33
2.4.1.7	Default RF Signal Level for Avionics Testing.....	34
2.4.1.8	Transmitter Reference Burst Sequence .....	34
2.4.2	Special Test Mode and Test Equipment for Physical Layer Tests .....	34
2.4.2.1	BER Mode.....	35
2.4.2.2	VHF Signal Generators .....	35
2.4.2.3	Undesired Signal Source .....	35
2.4.2.4	External BER Test Fixture .....	35
2.4.2.5	Test Payload .....	36
2.4.2.6	Unmodulated Carrier Mode .....	36
2.4.3	VDL Mode 3 Test Set .....	36
2.4.3.1	Upper Tester (UT) Configuration.....	38
2.4.3.1.1	Upper Data/Management Interface Test Tool (UDMITT) .....	38
2.4.3.2	Lower Tester (LT) Configuration.....	39
2.4.3.2.1	Lower Data/Management Interface Test Tool (LDMITT) .....	39
2.4.3.2.2	RF Bridge.....	40
2.4.3.2.3	Ground Station Emulator (GSE).....	40
2.4.3.2.4	Aircraft Station Emulator (ASE) .....	41
2.4.3.2.5	ATN Capability .....	41
2.4.3.3	Test Set Peripheral Functions .....	42
2.4.3.3.1	Message Generator Processor.....	42
2.4.3.3.1.1	Voice Message Generation and Processing .....	42
2.4.3.3.1.2	Data Message Generation and Processing .....	43
2.4.3.3.2	Monitoring Facility .....	43
2.4.3.4	Standard Test Set Configurations.....	44
2.4.3.4.1	Standard Test Set Configuration 1 for Class IB0/IV0/Class ID* Equipment.....	44
2.4.3.4.2	Standard Test Set Configuration 2 for Class SLO Equipment .....	45
2.4.3.4.3	Standard Test Set Configuration 3 for Class SU* Equipment.....	46
2.4.4	Physical Layer Tests.....	47
2.4.4.1	Receiver Test Procedures .....	47
2.4.4.1.1	Sensitivity (Section 2.2.1.2.1).....	48
2.4.4.1.2	Adjacent Channel Rejection (Section 2.2.1.2.2).....	49
2.4.4.1.3	Rejection of Signals Within the VHF Aeronautical Communications Band (Section 2.2.1.2.3).....	50
2.4.4.1.4	Rejection of Signals Outside the VHF Aeronautical Communications Band (Section 2.2.1.2.4).....	51
2.4.4.1.5	Desired Signal Dynamic Range (Section 2.2.1.2.5) .....	52
2.4.4.1.6	Symbol Rate Capture Range (Section 2.2.1.2.6) .....	52
2.4.4.1.7	Frequency Capture Range (Section 2.2.1.2.7) .....	53
2.4.4.1.8	Phase Acceleration (Section 2.2.1.2.8) .....	54

2.4.4.1.9	Co-Channel Interference (Section 2.2.1.2.9)	55
2.4.4.1.10	Conducted Spurious Emission (Section 2.2.1.2.10)	55
2.4.4.1.11	FM Broadcast Intermodulation (Section 2.2.1.2.11)	56
2.4.4.1.12	In-Band Intermodulation/Desense (Section 2.2.1.2.12)	57
2.4.4.2	Transmitter Test Procedures	58
2.4.4.2.1	Bit Rate (Section 2.2.1.3.1)	58
2.4.4.2.2	RF Output Power (Section 2.2.1.3.2)	59
2.4.4.2.3	RF Power Rise Time (Section 2.2.1.3.3)	59
2.4.4.2.4	RF Power Release Time (Section 2.2.1.3.4)	61
2.4.4.2.5	Symbol Constellation Error (Section 2.2.1.3.5)	62
2.4.4.2.6	Spurious Emissions (Section 2.2.1.3.6 and Section 2.2.1.3.9)	62
2.4.4.2.7	Adjacent Channel Power (Section 2.2.1.3.7)	64
2.4.4.2.8	RESERVED	70
2.4.4.2.9	Load VSWR Capability – RF Output Power (Section 2.2.1.3.9)	70
2.4.4.2.10	Frequency Tolerance (Section 2.2.1.3.10)	71
2.4.4.3	Physical Layer System Level Test Procedures	72
2.4.4.3.1	Receive to Transmit Turnaround Time (Section 2.2.1.1.4)	72
2.4.4.3.2	Transmit to Receive Turnaround Time (Section 2.2.1.1.5)	73
2.4.4.3.3	Tuning Time (Section 2.2.1.1.3)	74
2.4.4.3.4	Notification Services	74
2.4.5	Test for Protocols above Physical Layer	74
2.4.5.1	Test Set Configuration	74
2.4.5.2	Test Case Definition and Organization	75
2.4.5.3	Test Group 1 -- Link Management Functionality Test	76
2.4.5.3.1	Test 1-1 -- Net Initialization and Dummy Poll Response	76
2.4.5.3.2	Link Establishment	78
2.4.5.3.2.1	Test 1-2a -- Net Entry	78
2.4.5.3.2.2	Test 1-2b -- Initial Link Negotiation	79
2.4.5.3.2.3	Test 1-2c -- Poll/Poll Response and Implicit Link Release	81
2.4.5.3.2.4	Test 1-2d -- Radio Identifier Unavailable Test	82
2.4.5.3.3	Test 1-3 -- Net Entry Request Retransmission and Delayed Net Entry	82
2.4.5.3.4	Test 1-4 -- Initial Link Negotiation - Exceptional Cases	84
2.4.5.3.5	Test 1-5 -- Ground Initiated Addressed Link Parameter Modification	86
2.4.5.3.6	Test 1-6 -- Aircraft Recovery	87
2.4.5.3.7	Test 1-7 -- Recovery for System Configurations that Support Data Link	88
2.4.5.3.8	Test 1-8 -- Recovery for Voice-Only Nets that Support Discrete Addressing	89
2.4.5.3.9	Test 1-9 -- Link Release and Handoff	90
2.4.5.3.10	Test 1-10 -- System Configuration Mismatch	91
2.4.5.3.11	Test 1-11 -- Addressing in 2V2D and 2V1D	92
2.4.5.3.12	Test 1-12 -- Link Handoff	93
2.4.5.3.13	Test 1-13 -- Link Authentication	93
2.4.5.4	Test Group 2 -- Voice Operation - Normal Conditions	95
2.4.5.4.1	Test 2-1 -- Receiver Operating Logic	95
2.4.5.4.2	Test 2-2 -- Transmitter PTT Operating Logic	96
2.4.5.4.3	Test 2-3 -- Step-on	97
2.4.5.4.4	Test 2-4 -- RESERVED	98
2.4.5.4.5	Test 2-5 -- Communications Relay by a Second Aircraft Station	98
2.4.5.4.6	Test 2-6 -- Burst Timing	99
2.4.5.4.7	Test 2-7 -- Voice Delay	99
2.4.5.4.8	Avionics Radio Voice Quality Tests	102

2.4.5.4.8.1	Test 2-8 -- Voice Quality Test of the Ground-to-Air Link .....	102
2.4.5.4.8.2	Test 2-9 -- Voice Quality Test of the Air-to-Ground Link .....	103
2.4.5.4.9	Test 2-10 -- Urgent Downlink Request (UDR).....	103
2.4.5.4.10	Test 2-11 -- Vocoder Output.....	105
2.4.5.4.11	Test 2-12 -- Voice Synthesis.....	105
2.4.5.5	Test Group 3 -- Voice Operation - Special Timing Conditions .....	106
2.4.5.5.1	Test 3-1 -- Aircraft VDL Mode 3 Timing Maintenance .....	107
2.4.5.5.2	Test 3-2 -- Aircraft Validity Window Test .....	108
2.4.5.5.3	Test 3-3 -- Receipt/Process of Beacon Information From a Distant Station.....	109
2.4.5.5.4	Test 3-4 -- Timing State Transition and Air-to-Air Communications .....	110
2.4.5.5.5	Test 3-5 -- Abnormal Link Initialization .....	115
2.4.5.5.6	Test 3-6 -- Invalid Alternate Timing.....	117
2.4.5.6	Test Group 4 -- Data Operation.....	117
2.4.5.6.1	Test 4-1 -- Simultaneous Voice and Data Accesses .....	117
2.4.5.6.2	Test 4-2 -- Burst Timing .....	118
2.4.5.6.3	Test 4-3 -- Reservation Request Via Random Access .....	119
2.4.5.6.4	Test 4-4 -- Reservation Request Via Poll Response .....	120
2.4.5.6.5	Test 4-5 -- Downlink Data Transmission.....	121
2.4.5.6.6	Test 4-6 -- Uplink Data Reception.....	123
2.4.5.6.7	Test 4-7 -- Priority Processing (1) .....	123
2.4.5.6.8	Test 4-8 -- Priority Processing (2) .....	124
2.4.5.6.9	Test 4-9 -- Priority Processing (3) .....	125
2.4.5.6.10	Test 4-10 -- Broadcast Message Reception .....	126
2.4.5.6.11	Test 4-11 -- Data Access and Timing States.....	126
2.4.5.6.12	Test 4-12 -- Preservation of Acknowledged Frames in Downlink Data Retransmission (for radios implementing frame grouping only).....	127
2.4.5.6.13	Test 4-13 -- Radio Identifier Test .....	128
2.4.5.6.14	Test 4-14 -- Net Termination .....	129
2.4.5.7	Test Group 5 -- System Configuration - 3T (If applicable).....	130
2.4.5.7.1	Test 5-1 -- Voice and Data Accesses .....	130
2.4.5.7.2	Test 5-2 -- Automated Ground Station Handoff .....	131
2.4.5.7.3	Test 5-3 -- Voice Operation Under Abnormal Timing Conditions.....	132
2.4.5.7.4	Test 5-4 -- Timing of 3T System Configuration .....	133
2.4.5.8	Test Group 6 -- System Configuration - 3S .....	134
2.4.5.8.1	Test 6-1 -- Automatic Selection of Master Ground Stations .....	134
2.4.5.8.2	Test 6-2 -- Timing of 3S System Configuration .....	135
2.4.5.9	Test Group 7 -- System Configurations 1V3D and 1V2D .....	136
2.4.5.9.1	Test 7-1 -- Access of Downlink M Bursts .....	136
2.4.5.9.2	Test 7-2a -- Local IDs and Use of Proper Time Slots for Voice Bursts .....	137
2.4.5.9.3	Test 7-2b -- Use of Proper Time Slots for Data Bursts.....	138
2.4.5.10	Test Group 8 -- CLNP Subnetwork Interface Test Procedures .....	139
2.4.5.10.1	Point-to-Point Compression Subnetwork Tests .....	139
2.4.5.10.1.1	Test 8-1 -- Subnetwork Initialization.....	139
2.4.5.10.1.2	Test 8-2 -- ATN Packet Compression.....	140
2.4.5.10.1.3	Test 8-3 -- CLNP Packet Compression.....	140
2.4.5.10.1.4	Test 8-4 -- CLNP Packet Decompressing .....	141
2.4.5.10.1.5	Test 8-5 -- Compression Bypass .....	141
2.4.5.10.1.6	Test 8-6 -- Index Idle .....	141
2.4.5.10.1.7	Test 8-7 -- Compression Initialization .....	142
2.4.5.10.2	Multicast Compression Subnetwork Tests.....	142

2.4.5.10.2.1	Test 8-8 -- Predefined Multicast Decompression .....	142
2.4.5.11	Test Group 9 -- ISO 8208 Subnetwork Interface Test Procedures.....	143
2.4.5.11.1	8208 Compressor Initialization.....	145
2.4.5.11.1.1	Test 9-1 -- 8208 Compressor Initialization.....	145
2.4.5.11.2	8208 Compressor Virtual Call Setup.....	145
2.4.5.11.2.1	Test 9-2 -- 8208 Compressor Virtual Call Setup, Ground-Initiated, High-Priority .....	146
2.4.5.11.2.2	Test 9-3 -- 8208 Compressor Virtual Call Setup, Aircraft-Initiated, Low-Priority .....	147
2.4.5.11.3	8208 Compressor Data Transfer and Flow Control.....	147
2.4.5.11.3.1	Test 9-4 -- 8208 Compressor Data Transfer Bi-Directional Transfer.....	147
2.4.5.11.3.2	Test 9-5 -- 8208 Compressor Unidirectional Data Transfer with Window Rotation.....	148
2.4.5.11.3.3	Test 9-6 -- 8208 Compressor Data Transfer Duplicate Suppression.....	149
2.4.5.11.3.4	Test 9-7 -- 8208 Compressor Data Transfer Reject Procedure.....	149
2.4.5.11.3.5	Test 9-8 -- 8208 Compressor Data Transfer Mbits Segmentation.....	150
2.4.5.11.3.6	Test 9-9 -- 8208 Compressor Data Transfer Mbits Reassembly.....	150
2.4.5.11.3.7	Test 9-10 -- 8208 Compressor Data Transfer Reset Initialization Procedure.....	151
2.4.5.11.3.8	Test 9-11 -- 8208 Compressor Data Transfer Responder Procedure.....	151
2.4.5.11.3.9	Test 9-12 -- 8208 Compressor Data Transfer -- Generating a Multiplexed Packet.....	152
2.4.5.11.3.10	Test 9-13 -- 8208 Compressor Data Transfer--De-Multiplexing.....	152
2.4.5.11.3.11	Test 9-14 -- 8208 Compressor Flow Control Receipt of RECEIVE NOT READY.....	153
2.4.5.11.3.12	Test 9-15 -- RESERVED.....	153
2.4.5.11.4	8208 Compressor Virtual Circuit Termination Procedures.....	153
2.4.5.11.4.1	Test 9-16 -- 8208 Compressor Ground-Initiated CLEAR Procedure.....	154
2.4.5.11.5	Channel State Test Procedures--Error Recovery Procedures.....	154
2.4.5.11.5.1	Test 9-17 -- DCE Call Setup and Clearing States.....	155
2.4.5.11.5.2	Test 9-18 -- ADCE Call Setup and Clearing States.....	160
2.4.5.11.5.3	Test 9-19 -- DCE Restart States.....	162
2.4.5.11.5.4	Test 9-20 -- DCE Reset States.....	163
2.4.5.11.5.5	Test 9-21 -- ADCE Reset States.....	165
2.4.5.11.5.6	Test 9-22 -- ADCE Flow Control Transfer States.....	166
2.4.5.11.5.7	Test 9-23 -- DCE Flow Control Transfer States.....	169
2.4.5.11.5.8	Test 9-24 -- RESERVED.....	171
2.4.5.11.5.9	Test 9-25 -- RESERVED.....	171
2.4.5.11.5.10	Test 9-26 -- VDL Mode 3 Subnetwork Error Processing for ISO 8208 Packets.....	171
2.4.5.12	Test Group 10 -- Make-before-Break (MbB) Operation.....	172
2.4.5.12.1	Test 10-1 -- MbB Initialization.....	172
2.4.5.12.2	Test 10-2 -- Leave Event Processing.....	173
2.4.5.12.3	Test 10-3 -- Subnetwork Packet Processing Using MbB.....	174
2.4.5.13	Test Group 11 -- RESERVED.....	175
2.4.5.14	Test Group 12 -- User Notification.....	175
2.4.5.14.1	Test 12-1 -- User Notification.....	176
2.4.5.15	Test Group 13 -- Basic Voice-only Radio Tests.....	177
2.4.5.15.1	Test 13-1 -- Link Management Functionality Test.....	177
2.4.5.15.1.1	Test 13-1a -- Net Initialization and Dummy Poll Response.....	177
2.4.5.15.1.2	Test 13-1b Aircraft Recovery -- Aircraft Recovery.....	177

2.4.5.15.1.3	Test 13-1c -- System Configuration Mismatch .....	178
2.4.5.15.2	Test 13-2 Voice Operation -- Normal Conditions .....	178
2.4.5.15.2.1	Test 13-2a -- Receiver Operating Logic .....	178
2.4.5.15.2.2	Test 13-2b -- Transmitter PTT Operating Logic.....	178
2.4.5.15.2.3	Test 13-2c -- Step-on .....	178
2.4.5.15.2.4	Test 13-2d -- RESERVED.....	178
2.4.5.15.2.5	Test 13-2e -- Communications Relay by a Second Aircraft Station.....	178
2.4.5.15.2.6	Test 13-2f -- Burst Timing.....	179
2.4.5.15.2.7	Test 13-2g -- Voice Delay .....	179
2.4.5.15.2.8	Test 13-2h -- Voice Quality Test of the Ground-to-Air Link .....	179
2.4.5.15.2.9	Test 13-2i -- Voice Quality Test of the Air-to-Ground Link .....	179
2.4.5.15.2.10	Test 13-2j -- Vocoder Output.....	179
2.4.5.15.2.11	Test 13-2k -- Voice Synthesis .....	179
2.4.5.15.3	Test 13-3 Voice Operation -- Special Timing Conditions .....	179
2.4.5.15.3.1	Test 13-3a -- Aircraft VDL Mode 3 Timing Maintenance .....	179
2.4.5.15.3.2	Test 13-3b -- Aircraft Validity Window Test .....	179
2.4.5.15.3.3	Test 13-3c -- Receipt/Process of Beacon Information From a Distant Station	180
2.4.5.15.3.4	Test 13-3d -- Timing State Transition and Air-to-Air Communications .....	180
2.4.5.15.3.5	Test 13-3e -- Abnormal Link Initialization.....	180
2.4.5.15.3.6	Test 13-3f -- Invalid Alternate Timing .....	180
2.4.5.15.4	Test 13-4 System Configuration -- 3S for Basic Voice-only Avionics Radio	180
2.4.5.15.4.1	Test 13-4a -- Automatic Selection of Master Ground Stations .....	180
2.4.5.15.4.2	Test 13-4b -- Timing of 3S System Configuration.....	180
2.4.5.15.5	Test 13-5 -- User Notification .....	180
<b>3.0</b>	<b>INSTALLED EQUIPMENT PERFORMANCE .....</b>	<b>181</b>
3.1	Equipment Installation.....	181
3.1.1	Accessibility .....	181
3.1.2	Aircraft Environment .....	181
3.1.3	Display Visibility .....	181
3.1.4	Dynamic response .....	181
3.1.5	Failure Protection .....	181
3.1.6	Inadvertent Turnoff .....	181
3.1.7	Aircraft Power Source .....	181
3.2	Installed Equipment Performance Requirements .....	181
3.2.1	Dynamic Response .....	182
3.2.2	Interference Effects .....	182
3.3	Conditions of Test .....	184
3.3.1	Power Input .....	184
3.3.2	Associated Equipment or Systems .....	184
3.3.3	Environment .....	184
3.4	Test Procedures for Installed Equipment Performance .....	184
3.4.1	Procedures .....	184
3.4.1.1	Conformity Inspection.....	184
3.4.1.2	Equipment Function .....	184
3.4.1.3	Equipment Accessibility .....	185
3.4.1.4	Interference Effects .....	185
3.4.1.5	Power Supply Fluctuations.....	185
3.4.1.6	Reception.....	185

3.4.1.7	Transmission .....	185
<b>4</b>	<b>EQUIPMENT OPERATIONAL PERFORMANCE CHARACTERISTICS.....</b>	<b>187</b>
4.1	Operational Performance Requirements.....	187
4.1.1	Power Input .....	187
4.1.2	Equipment Operating Functions.....	187
4.1.3	Communication Controls .....	187
4.1.4	Communications Displays.....	187
4.1.5	System Operational Indication .....	187
4.1.6	Equipment Operating Limitations .....	187
4.2	Test Procedures for Operational Performance Requirements .....	187
4.2.1	Power Input .....	188
4.2.2	Equipment Functional Tests .....	188
4.2.2.1	Voice Test .....	188
4.2.2.2	Data Link Test.....	188
4.2.3	Communications Controls.....	188
4.2.4	Communications Displays.....	188
4.2.5	System Operational Indication .....	188
4.2.6	Equipment Operating Limitations .....	188
	Membership.....	189

## **APPENDICES**

Appendix A	Acronyms.....	A-1
Appendix B	VDL Mode 3 MOPS Tests and DO-224B MASPS Requirements Correlation Matrices .....	B-1
Appendix C	Functional Partitioning for Separated Equipment Architecture.....	C-1
Appendix D	Functional Requirements for the Data/Management Interface .....	D-1
D.1	Data/Management Interface .....	D-1
D.2	Data/Control Message Exchange.....	D-1
Appendix E	Audio Test Vectors .....	E-1
E.1	Introduction .....	E-1
E.2	Test Vector for Setting Audio Levels.....	E-1
E.2.1	Compressed Test Vector (CTV) Description.....	E-1
E.2.2	Applications .....	E-4
E.2.3	Summary .....	E-4
E.3	Compressed Silence Test Vector.....	E-4
E.3.1	Compressed Silence Test Vector (CSV) Description .....	E-4
E.3.2	Summary .....	E-7

## LIST OF FIGURES

	<u>Page</u>
<u>Figure 1-1</u> : VDL Mode 3 Protocol Layers Using ATN/OSI Nomenclature .....	3
<u>Figure 1-2a</u> : VDL Mode 3 Functions in Integrated Equipment Architecture (Voice and Data).....	4
<u>Figure 1-2b</u> : VDL Mode 3 Functions in Integrated Equipment Architecture (Voice Only).....	5
<u>Figure 1-3</u> : VDL Mode 3 Functions in Separated Equipment Architecture .....	6
<u>Figure 2-1</u> : Ground-to-Air Reference Link Voice Quality Measurement.....	25
<u>Figure 2-2</u> : Air-to-Ground Reference Link Voice Quality Measurement.....	25
<u>Figure 2-3</u> : Transmitter Reference Test Sequence (One Period of 24 Shown).....	34
<u>Figure 2-4</u> : ISO 9646 Test Configuration .....	37
<u>Figure 2-5</u> : Upper Tester Functional Block Diagram .....	38
<u>Figure 2-6</u> : Lower Tester Functional Block Diagram.....	39
<u>Figure 2-7</u> : Standard Test Set Configuration 1 - for Class IB0, Class IV0, and Class ID* Equipment.....	45
<u>Figure 2-8</u> : Standard Test Set Configuration 2 - for Class SL0 Equipment .....	46
<u>Figure 2-9</u> : Standard Test Set Configuration 3 - for Class SU* Equipment .....	47
<u>Figure 2-10</u> : Receiver BER Measurement .....	48
<u>Figure 2-10a</u> : Frequency Modulated VDL Mode 3 Source .....	54
<u>Figure 2-11</u> : Intermodulation Measurement .....	57
<u>Figure 2-12</u> : Output Power Measurement.....	59
<u>Figure 2-13</u> : RF Power Rise and Release Time Measurement Also Suitable for Symbol Constellation Error .....	60
<u>Figure 2-14</u> : Ramp Up and Beginning of VDL Mode 3 Burst with Synchronization Sequence $S_2$ (Illustrating RF Rise Time).....	61
<u>Figure 2-15</u> : Spurious Emissions Measurement .....	64
<u>Figure 2-15a</u> : Spurious Emissions Measurement Under VSWR Load.....	64
<u>Figure 2-16</u> : First Adjacent Channel Power Measurement.....	65
<u>Figure 2-17</u> : Second, Third, and Fourth Adjacent Channel Power Measurement .....	67
<u>Figure 2-18</u> : Power Measurement Beyond the Fourth Adjacent Channel .....	69
<u>Figure 2-19</u> : Load VSWR Capability .....	71
<u>Figure 2-20</u> : Frequency Tolerance Test Setup.....	72
<u>Figure E-1</u> : VDL Mode 3 Receive Signal Flow with CTV .....	E-1
<u>Figure E-2</u> : CTV Waveform (400 Hz).....	E-2
<u>Figure E-3</u> : CTV Frequency Domain View (FULL) .....	E-3
<u>Figure E-4</u> : CTV Frequency Domain View (ZOOM).....	E-3
<u>Figure E-5</u> : VDL Mode 3 Receive Signal Flow using CSV .....	E-5
<u>Figure E-6</u> : Single Frame (SF-CSV) Frequency Domain View .....	E-6
<u>Figure E-7</u> : Multiple Frame (MF-CSV) Frequency Domain View.....	E-6

## LIST OF TABLES

<u>Table 1-1</u> : Reference Documents.....	10
<u>Table 2-1</u> : Equipment Architecture Class for VDL Mode 3 Avionics Radio.....	14
<u>Table 2-2</u> : Receiver Environmental Test Conditions Matrix.....	28
<u>Table 2-3</u> : Transmitter Environmental Test Conditions Matrix.....	30
<u>Table 2-4</u> : Example of Test Set Configuration Table.....	75
<u>Table 2-5</u> : Test Group Definition.....	76
<u>Table 2-6</u> : Test 1-1 Test Set Configuration.....	77
<u>Table 2-7a</u> : Test 1-2a Test Set Configuration.....	78
<u>Table 2-7b</u> : Test 1-2b Test Set Configuration.....	79
<u>Table 2-7c</u> : Test 1-2c Test Set Configuration.....	81
<u>Table 2-7d</u> : Test 1-2d Test Set Configuration.....	82
<u>Table 2-8</u> : Test 1-3 Test Set Configuration.....	83
<u>Table 2-9</u> : Test 1-4 Test Set Configuration.....	84
<u>Table 2-10</u> : Test 1-5 Test Set Configuration.....	86
<u>Table 2-11</u> : Test 1-6 Test Set Configuration.....	87
<u>Table 2-12</u> : Test 1-7 Test Set Configuration.....	88
<u>Table 2-13</u> : Test 1-8 Test Set Configuration.....	89
<u>Table 2-14</u> : Test 1-9 Test Set Configuration.....	90
<u>Table 2-14a</u> : Test 1-10 Test Set Configuration.....	91
<u>Table 2-14b</u> : Test 1-11 Test Set Configuration.....	92
<u>Table 2-14c</u> : Test 1-12 Test Set Configuration.....	93
<u>Table 2-14d</u> : Test 1-13 Test Set Configuration.....	94
<u>Table 2-15</u> : Test 2-1 Test Set Configuration.....	95
<u>Table 2-16</u> : Test 2-2 Test Set Configuration.....	96
<u>Table 2-17</u> : Test 2-3 Test Set Configuration.....	97
<u>Table 2-18</u> : RESERVED.....	98
<u>Table 2-19</u> : Test 2-5 Test Set Configuration.....	98
<u>Table 2-20</u> : Test 2-6 Test Set Configuration.....	99
<u>Table 2-21</u> : Test 2-7 Test Set Configuration.....	100
<u>Table 2-22</u> : Test 2-10 Test Set Configuration.....	104
<u>Table 2-22a</u> : Test 2-12 Test Set Configuration.....	105
<u>Table 2-23</u> : Test 3-1 Test Set Configuration.....	107
<u>Table 2-24</u> : Test 3-2 Test Set Configuration.....	108
<u>Table 2-25</u> : Test 3-3 Test Set Configuration.....	109
<u>Table 2-26</u> : Test 3-4 Test Set Configuration.....	111
<u>Table 2-27</u> : Test 3-5 Test Set Configuration.....	116
<u>Table 2-27a</u> : Test 3-6 Test Set Configuration.....	117
<u>Table 2-28</u> : Test 4-1 Test Set Configuration.....	117

## LIST OF TABLES

<u>Table 2-29</u> : Test 4-2 Test Set Configuration .....	118
<u>Table 2-30</u> : Test 4-3 Test Set Configuration .....	119
<u>Table 2-31</u> : Test 4-4 Test Set Configuration .....	120
<u>Table 2-32</u> : Test 4-5 Test Set Configuration .....	121
<u>Table 2-33</u> : Test 4-6 Test Set Configuration .....	123
<u>Table 2-34</u> : Test 4-7 Test Set Configuration .....	124
<u>Table 2-35</u> : Test 4-8 Test Set Configuration .....	124
<u>Table 2-36</u> : Test 4-9 Test Set Configuration .....	125
<u>Table 2-37</u> : Test 4-10 Test Set Configuration .....	126
<u>Table 2-38</u> : Test 4-11 Test Set Configuration .....	127
<u>Table 2-38a</u> : Test 4-12 Test Set Configuration.....	127
<u>Table 2-38b</u> : Test 4-13 Test Set Configuration .....	128
<u>Table 2-38c</u> : Test 4-14 Test Set Configuration.....	129
<u>Table 2-39</u> : Test 5-1 Test Set Configuration .....	130
<u>Table 2-40</u> : Test 5-2 Test Set Configuration .....	131
<u>Table 2-41</u> : Test 5-3 Test Set Configuration .....	133
<u>Table 2-42</u> : Test 5-4 Test Set Configuration .....	133
<u>Table 2-43</u> : Test 6-1 Test Set Configuration .....	134
<u>Table 2-44</u> : Test 6-2 Test Set Configuration .....	135
<u>Table 2-45</u> : Test 7-1 Test Set Configuration .....	136
<u>Table 2-46a</u> : Test 7-2a Test Set Configuration.....	137
<u>Table 2-46b</u> : Test 7-2b Test Set Configuration .....	138
<u>Table 2-47</u> : Test 8-1 Test Set Configuration .....	139
<u>Table 2-48</u> : 8208 Compressor Subnetwork Test Summary .....	144
<u>Table 2-49</u> : Test 9-1 Test Set Configuration .....	145
<u>Table 2-50</u> : ISO 8208 and VDL Mode 3 ANI Packet Transactions for Error Recovery Testing .....	155
<u>Table 2-51</u> : Test 10-1 Test Set Configuration .....	173
<u>Table 2-52</u> : Test 10-2 Test Set Configuration .....	174
<u>Table 2-53</u> : Test 10-3 Test Set Configuration .....	175
<u>Table 2-54</u> : RESERVED .....	175
<u>Table 2-55</u> : RESERVED .....	175
<u>Table 2-56</u> : Test 12-1 Test Set Configuration .....	176
<u>Table 3-1</u> : Example of Interference Protection for GNSS and AMSS .....	183
<u>Table B-1</u> : Traceability Matrix For Environmental Conditions .....	B-3
<u>Table B-2</u> : Traceability Matrix For Standard Conditions .....	B-16
<u>Table C-1</u> : VDL Mode 3 Functional Partitioning Between the VDR and CMU .....	C-2
<u>Table D-1</u> : Data/Control Messages.....	D-1

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## 1 PURPOSE AND SCOPE

### 1.1 Introduction

This document contains the minimum operational performance standards (MOPS) and verification procedures for an aircraft Very High Frequency (VHF) Digital Link (VDL) Mode 3 transceiver, intended to be used for air-ground (A/G) voice and data communications. The document is designed so that equipment certified to its standards will be compatible with the VDL Mode 3 Minimum Aviation System Performance Standards (MASPS) in RTCA DO-224B.

Compliance with these standards is one means of assuring that VDL Mode 3 equipment will function satisfactorily under all conditions normally encountered in air traffic control (ATC) A/G operations and that data formats will be compatible with the Aeronautical Telecommunications Network (ATN). These standards specify characteristics useful to designers, manufacturers, installers, and users of the VDL Mode 3 A/G communications system equipment.

This document is organized in four major technical sections and appendices as follows:

- Section 1** describes the purpose and scope.
- Section 2** contains minimum performance requirements under both standard and environmental test conditions with equipment performance verification procedures.
- Section 3** describes installed equipment performance tests.
- Section 4** describes operational performance tests.
- Appendix A** contains a list of acronyms used in this document.
- Appendix B** contains matrices that cross reference requirements to verification testing and equipment architecture classes under environmental conditions and for standard conditions. This appendix is normative in the sense that it specifically identifies which requirements make up the minimum set for the standard classes of equipment.
- Appendix C** defines the assumed functional partitioning of VDL Mode 3 protocol functions for the separated equipment architecture.
- Appendix D** provides an example of the Data/Management Interface for the separated equipment architecture. This example is described at a high level. No protocol details (e.g., bit definition, data rate, physical layer details, etc.) for the Data/Management Interface are given.
- Appendix E** defines test vectors for evaluation of the vocoder audio levels and a silence test vector for BER testing.

### 1.2 System Overview

The VDL Mode 3 A/G communications system provides functionally simultaneous voice and data communications between aircraft and ground-based users. The VDL Mode 3 A/G communications system architecture is defined to provide coverage similar to