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**Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios;
Part 3: Class D Test Descriptions**

Reference

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Keywords

DSC, interoperability, maritime, TSS&TP

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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.1].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1 Scope

The present document contains the Test Descriptions (TD) for interoperability testing of the class D DSC radio equipment.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 300 338-3: "Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 3: Class D DSC".

[2] Recommendation ITU-R M.585-8: "Assignment and use of identities in the maritime mobile service".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity. ETSI EN 300 338-3 [1],

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TS 101 570-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 1: Requirements catalogue".

[i.2] ETSI EN 300 338-1: "Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 1: Common requirements".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

class M: specific class of DSC functionality for use by man overboard devices

closed loop: class M individual transmission to own vessel

leap second: second which is occasionally inserted into the atomic scale of reckoning time in order to bring it into line with solar time

open loop: class M transmitting to all ships (broadcast) 'using All ships call types'

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 300 338-1 [i.2] and the following apply:

AIS	Automatic Identification System
CF	(Test) ConFiguration
EUT	Equipment Under Test
MOB	Man Overboard
TD	Test Description
TP	Test Purpose
TSS	Test Suite Structure
UTC	Universal Time Co-ordinated

4 Test Configurations

This clause defines all test configurations used. Each test description refers to one or multiple test configurations. It is assumed that the initial state of all the equipment involved in the test configuration is 'standby' for DSC radios or 'deactivated' for MOB devices, i.e. unless stated otherwise the pre-test conditions of each test description assume standby mode for the equipment.

An arrow connection between devices indicates that these devices are in communication range, i.e. in CF_6 EUT, QE1 and QE2 are all in the same communication range. However, QE3 is only in communication range with QE2.

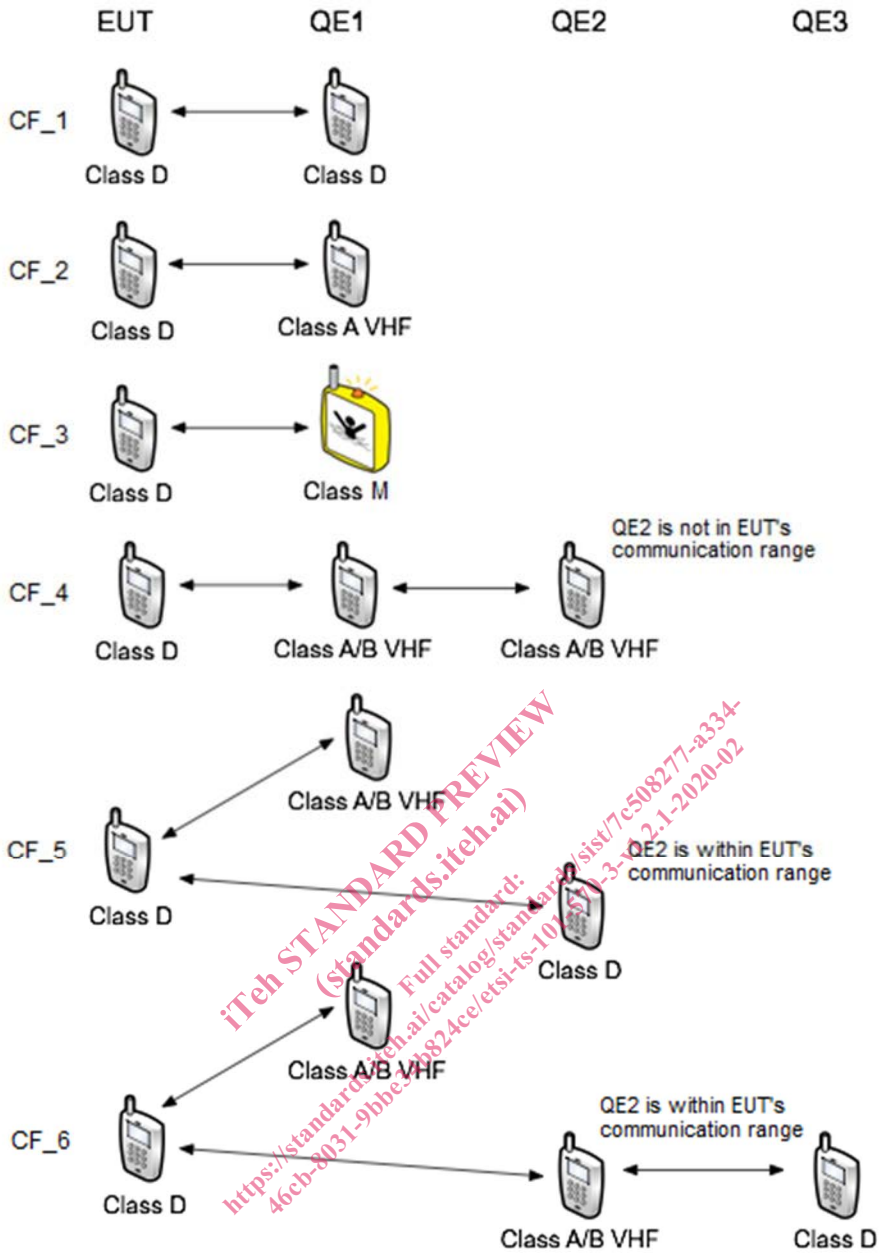

Figure 1: Configurations for Class D EUT

5 Test Suite Structure (TSS)

The following table shows the Test Suite Structure contained in the present document.

Test Group	Test Sub-Group (sub-group ID)
VHF	
	Individual Calls (IC)
	Group Calls (GC)
	All Ships Calls (ASC)
	Sending Distress Alerts (SDA)
	Receiving Distress Alerts (RDA)
	Non Distress Automated Procedures (NDAP)
	Other Calls (OC)
Interface and Other Functions (IOF)	
	General test (GEN)
	Alarms in standby mode (ASM)
	Alarms when busy (AWB)
	Standby mode interface functions (SMIF)

Each test description is described through a tabular format conforming to the following convention:

Interoperability Test Description			
Identifier:	A unique identifier. The test description identifiers are conforming to the TD_DSC_<GR>_<SGR>_<SN> naming convention, where: <GR> is the Test Group ID (VHF/MFHF) <SGR> is the Test Sub-Group ID <SN> is the sequential number within the test sub-group		
Summary:	Short description of the test objective		
Configuration:	The relevant test configuration, referencing the test set configurations shown in figure 1		
References:	The reference indicates the clauses of the base standard specifications in which the related interoperability requirement is expressed		
Pre-test conditions:	Defines in which initial state the test equipment has to be to apply the actual test description		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	The description of the individual condition to verify or action to perform	Yes/No criteria of the outcome of this verification step (if applicable)	Yes/No criteria of the outcome of this verification step (if applicable)
2	…		
Final verdict:			

6 Test Descriptions (TD)

6.1 Individual Calls

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0001		
Summary:	'Sending Individual call - Routine'		
Configuration:	CF_1		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.6.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 QE1 programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On EUT select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of QE1		
3	Verify that menu proposes an Inter-ship Channel	Yes	No
4	Verify if the proposed channel can be changed	Yes	No
5	Cause EUT to send the individual call to QE1		
6	Verify that QE1 receives the call	Yes	No
7	Verify that EUT is still on CH:16	Yes	No
8	Cause QE1 to send ACK to EUT		
9	Verify that EUT switches to the selected channel in step 4	Yes	No
10	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0002		
Summary:	'Sending Individual call with NACK - Routine'		
Configuration:	CF_1		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.6.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 QE1 programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On EUT select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of QE1		
3	Verify that menu proposes an Intership Channel	Yes	No
4	Verify if the proposed channel can be changed	Yes	No
5	Cause EUT to send the individual call to QE1		
6	Verify that QE1 receives the call	Yes	No
7	Verify that EUT is still on CH:16	Yes	No
8	Cause QE1 to send NACK to EUT		
9	Verify that EUT does not switch to the selected channel in step 4	Yes	No
10	Verify that EUT indicates 'call failed' or similar	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0003		
Summary:	'Sending Individual call to a coast station - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.6.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 QE1 programmed with a Coast Station MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On EUT select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of QE1		
3	Verify that menu does not propose a working channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0008		
Summary:	'Receiving Individual call - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT displays the MMSI of QE1	Yes	No
7	Verify that EUT is still on CH:16	Yes	No
8	Cause EUT to send ACK to QE1		
9	Verify that EUT switches to CH:72	Yes	No
10	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0009		
Summary:	'Receiving Individual call with NACK - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT displays the MMSI of QE1	Yes	No
7	Verify that EUT is still on CH:16	Yes	No
8	Cause EUT to send NACK to QE1		
9	Verify that EUT is still on CH:16	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0010		
Summary:	'Receiving Individual call when busy - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in individual call on CH:72 QE2 programmed with an individual MMSI of EUT		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE2 select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of EUT		
3	Cause QE2 to send the individual call to EUT		
4	Verify that EUT sounds a self-terminating alarm	Yes	No
5	Verify that EUT is still on CH:72	Yes	No
6	Cause EUT to terminate the individual call		
7	Verify that EUT displays 'unread messages'	Yes	No
8	On EUT select 'Call' then 'Received Calls' and Verify that the call from QE2 is logged	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0011		
Summary:	'Receiving Individual call - Urgency'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Urgency'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT sounds the Urgency alarm	Yes	No
7	Verify that EUT displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause EUT to send ACK to QE1		
10	Verify that EUT switches to CH:72	Yes	No
11	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0012		
Summary:	'Receiving Individual call with NACK - Urgency'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Urgency'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT sounds the Urgency alarm	Yes	No
7	Verify that EUT displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause EUT to send NACK to QE1		
10	Verify that EUT returns to standby on CH:16	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0013		
Summary:	'Receiving Individual call - Safety'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Safety'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call, sounds the Safety alarm and displays the proposed channel	Yes	No
6	Verify that EUT displays the MMSI of QE1	Yes	No
7	Verify that EUT is still on CH:16	Yes	No
8	Cause EUT to send ACK to QE1		
9	Verify that EUT switches to CH:72	Yes	No
10	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0014		
Summary:	'Receiving Individual call with NACK - Safety'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Individual - Safety'		
2	Enter/select MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the individual call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT sounds the Safety alarm	Yes	No
7	Verify that EUT displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause EUT to send NACK to QE1		
10	Verify that EUT returns to standby on CH:16	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_IC_0015		
Summary:	'Sending Individual call on a Distress channel'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clauses 5.2.2 and 6.6.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 QE1 programmed with an individual MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On EUT select 'Call' then select 'Individual - Routine'		
2	Enter/select MMSI of QE1		
3	Verify that menu proposes an Intership Channel	Yes	No
4	Enter a distress channel as working channel		
5	Cause EUT to send the individual call to QE1		
6	Verify that EUT does not send the call and indicates a channel selection error	Yes	No
Final verdict:			

6.2 Group Calls

Interoperability Test Description			
Identifier:	TD_DSC_VHF_GC_0001		
Summary:	'Sending group call - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clause 6.6.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 QE1 programmed with a group MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On EUT select 'Call' then select 'Group'		
2	Enter/select group MMSI of QE1		
3	Verify that menu proposes an Intership Channel	Yes	No
4	Verify if the proposed channel can be changed	Yes	No
5	Cause EUT to send the group call to QE1		
6	Verify that QE1 receives the call	Yes	No
7	Verify that EUT switches to the selected channel in step 4	Yes	No
8	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_GC_0002		
Summary:	'Receiving group call - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clause 6.7.1		
Pre-test conditions:	QE1 and EUT in standby on CH:16 EUT programmed with a group MMSI		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE1 select 'Call' then select 'Group'		
2	Enter/select group MMSI of EUT		
3	Set the proposed channel to CH:72		
4	Cause QE1 to send the group call to EUT		
5	Verify that EUT receives the call and displays the proposed channel	Yes	No
6	Verify that EUT displays the MMSI of QE1	Yes	No
7	Verify that EUT switches to CH:72	Yes	No
8	Verify voice communication on this channel	Yes	No
Final verdict:			

Interoperability Test Description			
Identifier:	TD_DSC_VHF_GC_0003		
Summary:	'Receiving Group call when busy - Routine'		
Configuration:	CF_2		
References:	ETSI EN 300 338-3 [1], clause 6.7.1		
Pre-test conditions:	QE1 and EUT in group call on CH:72 QE2 programmed with a group MMSI of EUT		
Step	**Test Sequence**	**Verdict**	
		Pass	**Fail**
1	On QE2 select 'Call' then select 'Group'		
2	Enter/select group MMSI of EUT		
3	Cause QE2 to send the group call to EUT		
4	Verify that EUT sounds a self-terminating alarm	Yes	No
5	Verify that EUT is still on CH:72	Yes	No
6	Cause EUT to terminate the individual call		
7	Verify that EUT displays 'unread messages'	Yes	No
8	On EUT select 'Call' then 'Received Calls' and Verify that the call from QE2 is logged	Yes	No
Final verdict:			