



## Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 2: Class A/B Test Descriptions

iTeh STANDARD PREVIEW  
(standards.iteh.ai)  
Full standard/standard/ETSI TS 101 570-2 V1.2.1 (2020-02)  
<https://standards.iteh.ai/catalog/standards/etsi-ts-101-570-2-v1-2-1-2020-02>  
4f2d-9907-a9d3865d2ac4

---

**Reference**RTS/ERM-TGMAR-541-2

---

---

**Keywords**DSC, interoperability, maritime, TSS&TP

---

**ETSI**

---

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

---

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

---

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

---

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2020.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

**3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	5
3 Definition of terms, symbols and abbreviations.....	5
3.1 Terms.....	5
3.2 Symbols.....	6
3.3 Abbreviations .....	6
4 Test Configurations .....	6
5 Test Suite Structure (TSS).....	10
6 Test Descriptions (TD) VHF radios .....	11
6.1 Individual Calls .....	11
6.2 Group Calls .....	18
6.3 All Ships Calls.....	19
6.4 Sending Distress Alerts .....	20
6.4.0 General Operation.....	20
6.4.1 Distress alert sending priority .....	24
6.4.2 Ongoing distress alert priority .....	26
6.4.3 Manual termination after distress alert acknowledgement.....	29
6.5 Receiving Distress Alerts .....	34
6.6 Receiving Distress Alert from MOB devices .....	37
6.6.1 Verifying UTC time.....	37
6.6.2 Open loop automated procedures.....	38
6.6.3 Closed loop automated procedures .....	41
6.7 Sending Distress Relays and Acknowledgements.....	45
6.8 Other calls .....	46
6.9 Multiple automated procedures and parallel event handling .....	48
7 MF/HF radios .....	53
7.1 Individual Calls .....	53
7.2 Group Calls .....	62
7.3 Geographic Area Calls .....	64
7.4 Sending Distress Alerts .....	68
7.4.0 General Operation.....	68
7.4.1 Distress alert sending priority .....	73
7.4.2 Ongoing distress alert priority .....	74
7.4.3 Manual termination after distress alert acknowledgement.....	78
7.5 Receiving Distress Alerts .....	83
7.6 Sending Distress Relays and Acknowledgements.....	90
7.7 Other calls .....	92
7.8 Multiple automated procedures and parallel event handling .....	94
8 Interface and other functions, all radios .....	99
8.1 General Tests.....	99
8.2 Alarms in standby mode.....	100
8.3 Alarms when busy .....	107
8.4 Standby mode interface functions .....	108
8.5 Timeout interface functions.....	110
<b>Annex A (informative): Bibliography.....</b>	<b>113</b>
History .....	114

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Foreword

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

The present document is part 2 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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

# 1 Scope

The present document contains the Test Descriptions (TD) for interoperability testing of the class A/B 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 300 338-2: "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 2: Class A/B 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.

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) ConFfiguration
EUT	Equipment Under Test
GNSS	Global Navigation Satellite System
MOB	Man OverBoard
NACK	Negative ACKnowledgement
QE	Qualified Equipment (i.e. DSC standards compliant)
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/idle mode for the equipment.

An arrow connection between devices indicates that these devices are in communication range, i.e. in CF\_VHF\_6 EUT, QE1 and QE2 are all in the same communication range. However, QE3 is only in communication range with QE2.

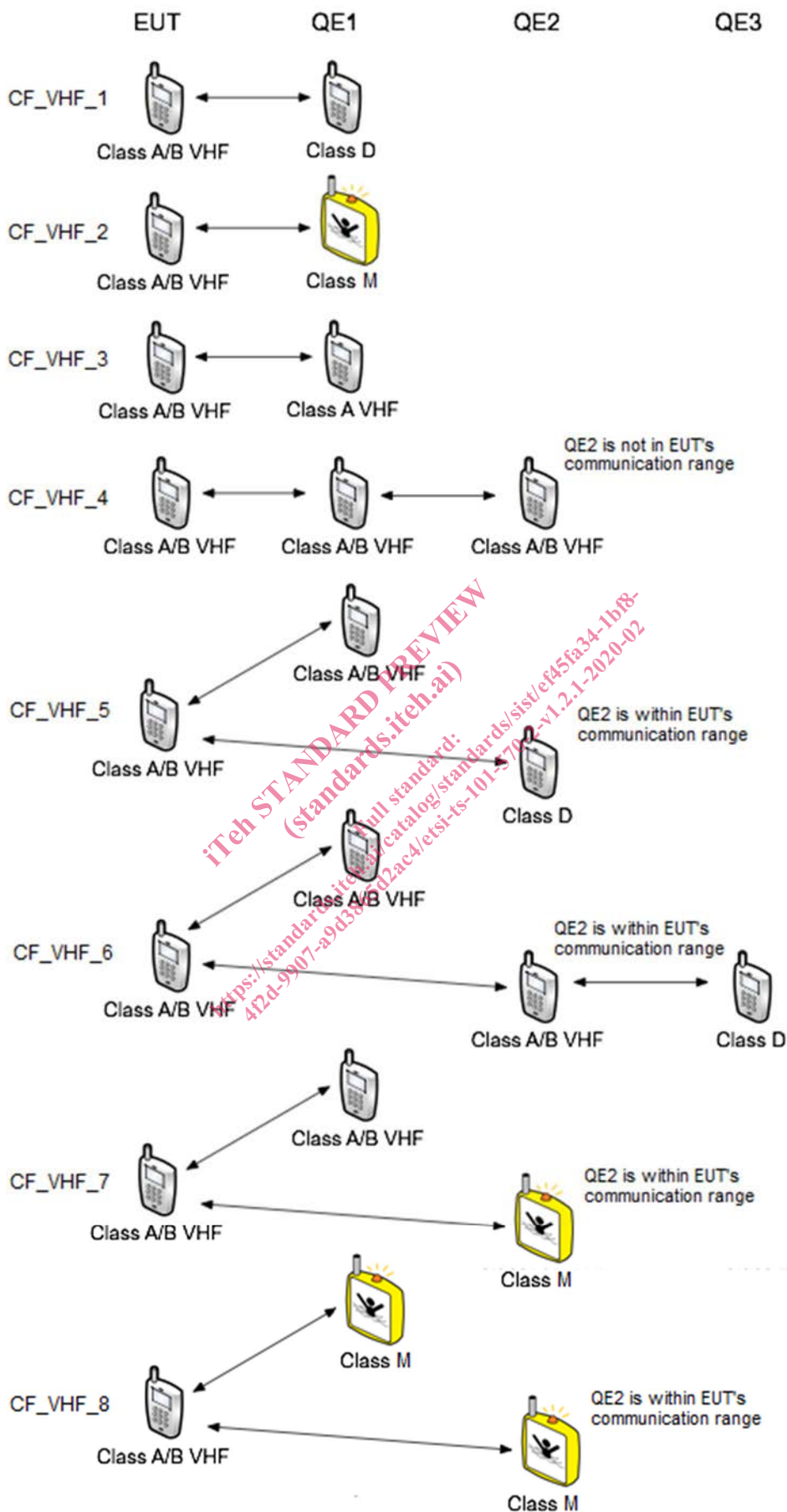


Figure 1: Configurations for VHF EUT

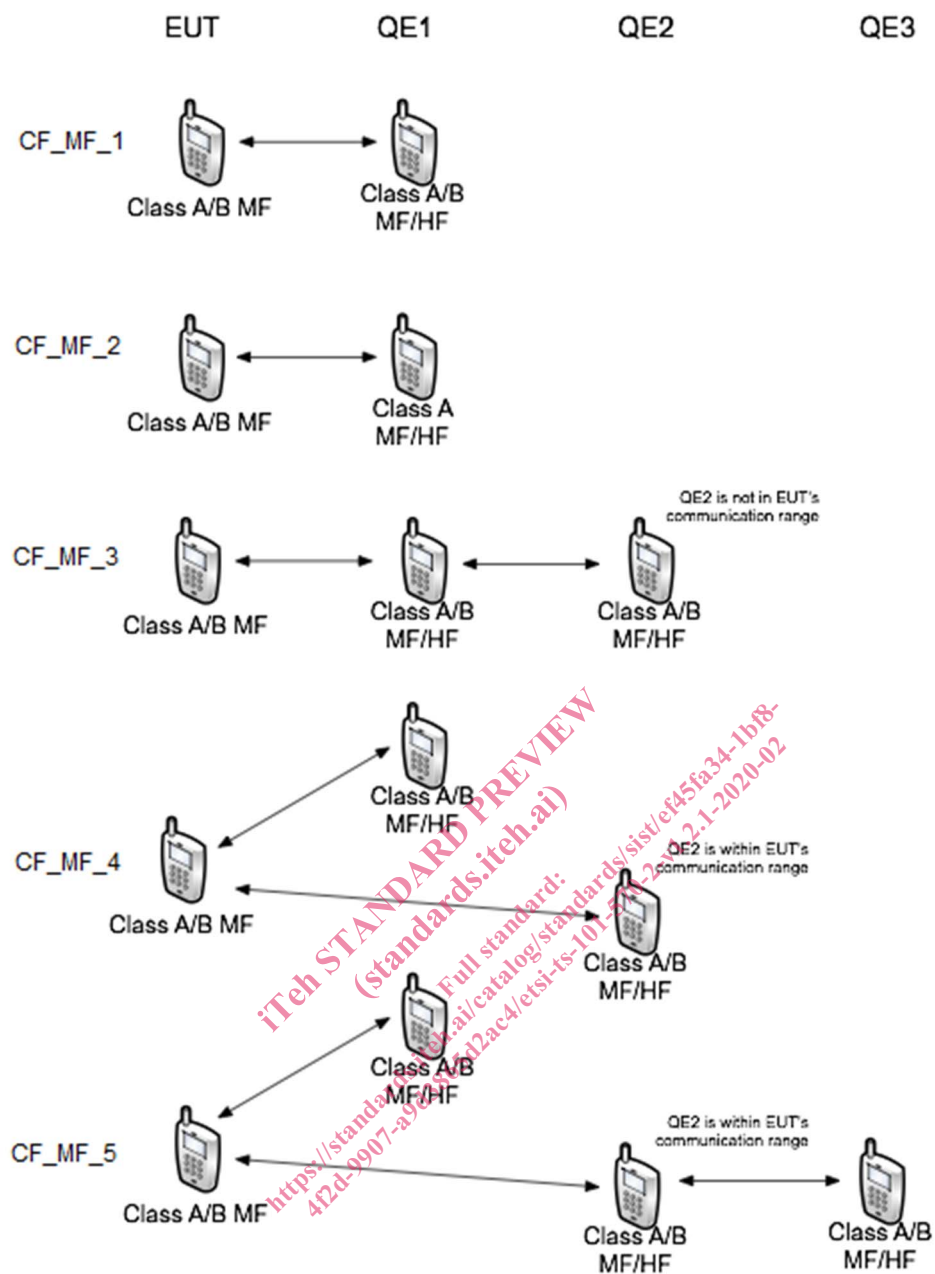
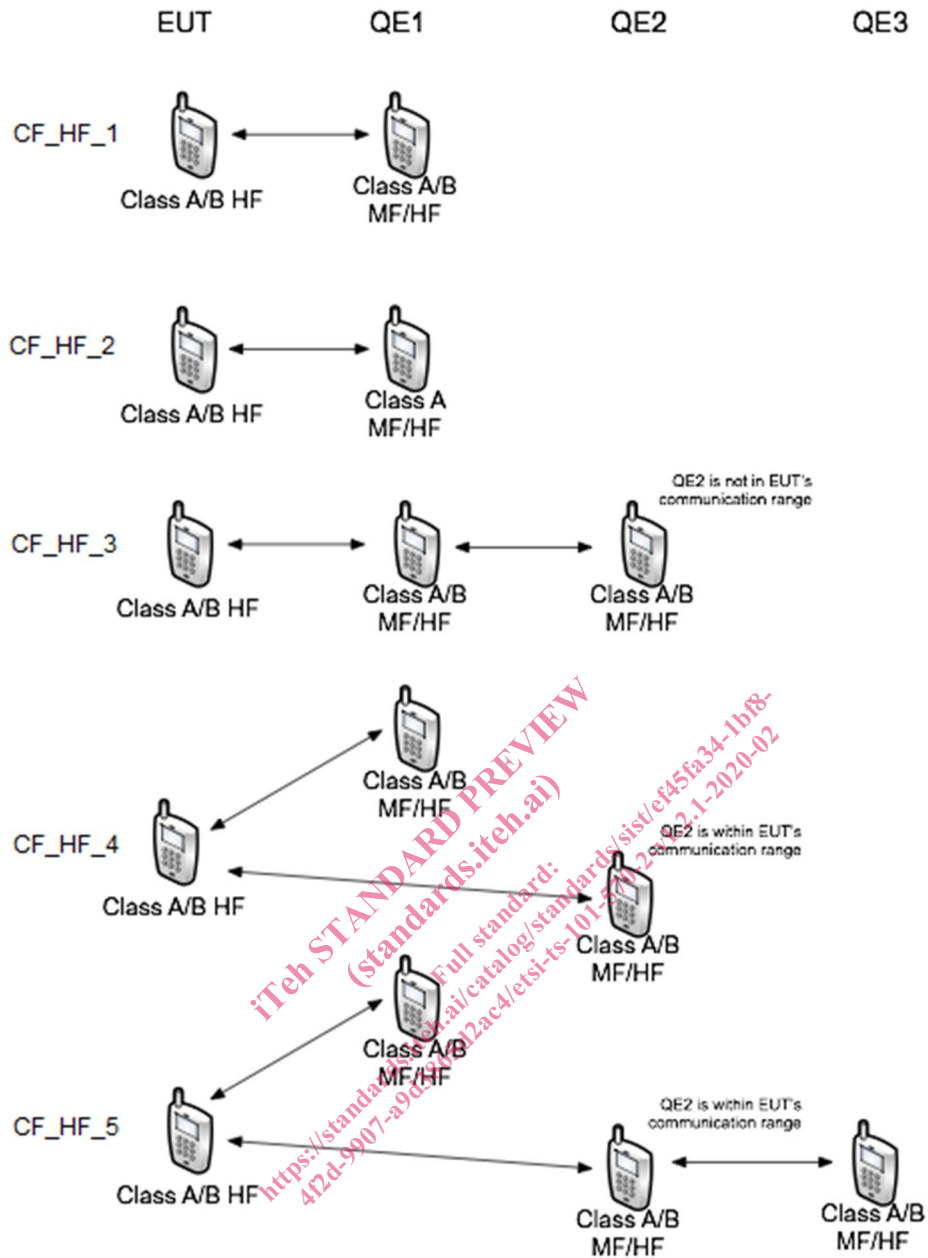


Figure 2: Configurations for MF EUT





NOTE: HF equipment within range receives DSC messages on every frequency band during interoperability testing, which is not always the case in real-life scenarios.

Figure 3: Configurations for HF EUT

## 5 Test Suite Structure (TSS)

The following table shows the Test Suite Structure contained in the present document. Each Test Sub-Group may contain more than one test.

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)
	Sending Distress Relays and Acknowledgements (SDRA)
	Other Calls (OC)
	Multiple automated procedures and parallel event handling (MAP)
MF/HF	Individual Calls (IC)
	Group Calls (GC)
	Geographic Area Calls (GAC)
	Sending Distress Alerts (SDA)
	Receiving Distress Alerts (RDA)
	Sending Distress Relays and Acknowledgements (SDRA)
	Other Calls (OC)
	Multiple automated procedures and parallel event handling (MAP)
Interface and other functions (IF)	General test (GEN)
	Alarms in standby mode (ASM)
	Alarms when busy (AWB)
	Standby mode interface functions (SMIF)
	Timeout interface functions (TIF)

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

Interoperability Test Description			
<b>Identifier:</b>	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		
<b>Summary:</b>	Short description of the test objective		
<b>Configuration:</b>	The relevant test configuration, referencing the test set configurations shown in figure 1		
<b>References:</b>	The reference indicates the clauses of the base standard specifications in which the related interoperability requirement is expressed		
<b>Pre-test conditions:</b>	Defines in which initial state the test equipment has to be to apply the actual test description		
<b>Step</b>	<b>Test Sequence</b>	<b>Verdict</b>	
		<b>Pass</b>	<b>Fail</b>
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	...		
<b>Final verdict:</b>			

## 6 Test Descriptions (TD) VHF radios

### 6.1 Individual Calls

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0001		
<b>Summary:</b>	'Sending Individual call - Routine'		
<b>Configuration:</b>	CF_VHF_1		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	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
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0002		
<b>Summary:</b>	'Sending Individual call with NACK - Routine'		
<b>Configuration:</b>	CF_VHF_1		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	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
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0003		
<b>Summary:</b>	'Sending Individual call to a coast station - Routine'		
<b>Configuration:</b>	CF_VHF_3		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	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
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0004		
<b>Summary:</b>	'Sending Individual call - Urgency'		
<b>Configuration:</b>	CF_VHF_3		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	QE1 and EUT in standby on CH:16		
Step	Test Sequence	Verdict	
		Pass	Fail
1	On EUT select 'Call' then select 'Individual - Urgency'		
2	Enter/select MMSI of QE1		
3	Set the proposed channel to CH:72		
4	Cause EUT to send the individual call to QE1		
5	Verify that QE1 receives the call and displays the proposed channel	Yes	No
6	Verify that QE1 sounds the Urgency alarm	Yes	No
7	Verify that QE1 displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause QE1 to send ACK to QE1		
10	Verify that EUT switches to CH:72	Yes	No
11	Verify voice communication on this channel	Yes	No
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0005		
<b>Summary:</b>	'Sending Individual call with NACK - Urgency'		
<b>Configuration:</b>	CF_VHF_3		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	QE1 and EUT in standby on CH:16		
Step	Test Sequence	Verdict	
		Pass	Fail
1	On EUT select 'Call' then select 'Individual - Urgency'		
2	Enter/select MMSI of QE1		
3	Set the proposed channel to CH:72		
4	Cause EUT to send the individual call to QE1		
5	Verify that QE1 receives the call and displays the proposed channel	Yes	No
6	Verify that QE1 sounds the Urgency alarm	Yes	No
7	Verify that QE1 displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause QE1 to send NACK to QE1		
10	Verify that EUT stays on CH:16	Yes	No
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0006		
<b>Summary:</b>	'Sending Individual call - Safety'		
<b>Configuration:</b>	CF_VHF_3		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	QE1 and EUT in standby on CH:16		
Step	Test Sequence	Verdict	
		Pass	Fail
1	On EUT select 'Call' then select 'Individual - Safety'		
2	Enter/select MMSI of QE1		
3	Set the proposed channel to CH:72		
4	Cause EUT to send the individual call to QE1		
5	Verify that QE1 receives the call and displays the proposed channel	Yes	No
6	Verify that QE1 sounds the Safety alarm	Yes	No
7	Verify that QE1 displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause QE1 to send ACK to QE1		
10	Verify that EUT switches to CH:72	Yes	No
11	Verify voice communication on this channel	Yes	No
<b>Final verdict:</b>			

Interoperability Test Description			
<b>Identifier:</b>	TD_DSC_VHF_IC_0007		
<b>Summary:</b>	'Sending Individual call with NACK - Safety'		
<b>Configuration:</b>	CF_VHF_3		
<b>References:</b>	ETSI EN 300 338-2 [1], clause 6.6.1 and annex C		
<b>Pre-test conditions:</b>	QE1 and EUT in standby on CH:16		
Step	Test Sequence	Verdict	
		Pass	Fail
1	On EUT select 'Call' then select 'Individual - Safety'		
2	Enter/select MMSI of QE1		
3	Set the proposed channel to CH:72		
4	Cause EUT to send the individual call to QE1		
5	Verify that QE1 receives the call and displays the proposed channel	Yes	No
6	Verify that QE1 sounds the Safety alarm	Yes	No
7	Verify that QE1 displays the MMSI of QE1	Yes	No
8	Verify that EUT is still on CH:16	Yes	No
9	Cause QE1 to send NACK to QE1		
10	Verify that EUT stays on CH:16	Yes	No
<b>Final verdict:</b>			