

# ETSI TS 101 570-6 V1.1.1 (2020-01)



TECHNICAL SPECIFICATION

## **Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 6: VHF Class M Test Descriptions**

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**Reference**

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DTS/ERM-TGMAR-541-6

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**Keywords**

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

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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

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# 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).....                     | 7         |
| 6 Test Descriptions (TD).....                         | 8         |
| 6.1 Accidental activation, non activation .....       | 8         |
| 6.2 Open loop activation .....                        | 9         |
| 6.3 Closed loop activation.....                       | 11        |
| 6.3.1 Applicability .....                             | 11        |
| 6.3.2 Closed loop operation .....                     | 11        |
| 6.3.3 Open loop operation.....                        | 14        |
| 6.4 Test mode .....                                   | 14        |
| <b>Annex A (informative): Bibliography.....</b>       | <b>17</b> |
| History .....   | 18        |

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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 6 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.1].

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# 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 DSC MOB devices (class M) DSC radio equipment.

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## 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 300 338-6: "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 6: Class M DSC".

### 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".

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## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

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

**acknowledged:** automated procedure it indicates that the objective of the initial DSC message has been achieved

**activation:** initial triggering of the MoB device i.e. both parts of the two step procedure are performed

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

**closed loop:** class M individual transmission to own vessel

**distress alert:** name given to the single distress DSC message with the format symbol 112

**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              |
| DSC  | Digital Selective Calling          |
| EUT  | Equipment Under Test               |
| GNSS | Global Navigation Satellite System |
| MOB  | Man OverBoard                      |
| MMSI | Maritime Mobile Service Identity   |
| TD   | Test Description                   |
| TP   | Test Purpose                       |
| TSS  | Test Suite Structure               |
| UTC  | Universal Time Co-ordinated        |

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# 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.

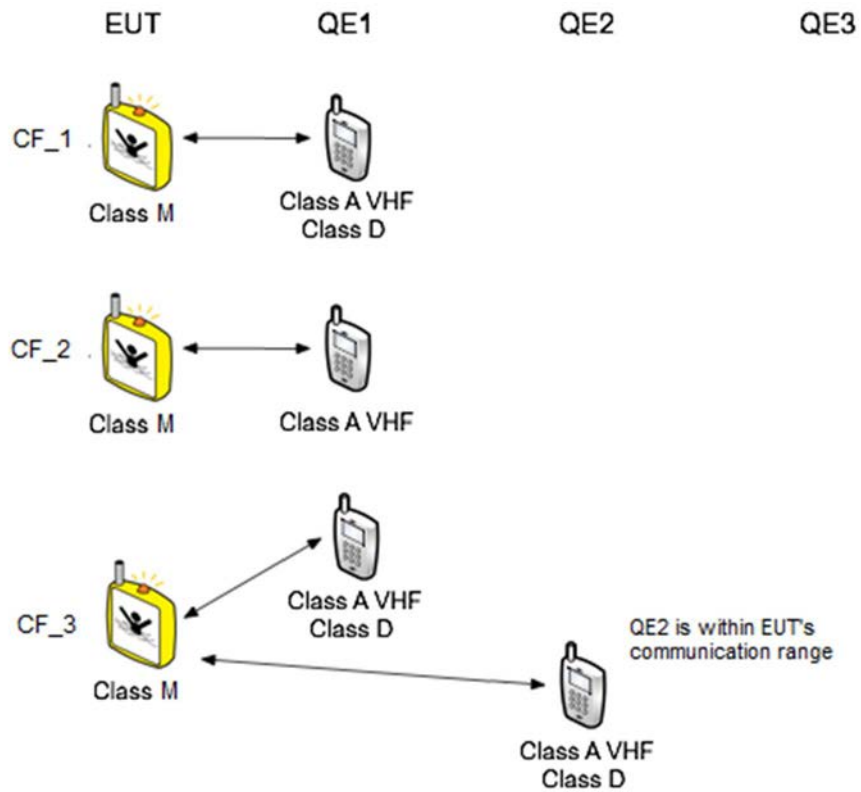


Figure 1: Configurations for Handheld Class M EUT

## 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                                 |   |
|                                     | Sending Distress Alerts (SDA)                       |
|                                     | Sending Distress Relays and Acknowledgements (SDRA) |
|                                     | Other Calls (OC)                                    |
| Interface and other functions (IOF) |   |
|                                     | General test (GEN)                                  |

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

| <b>Interoperability Test Description</b> |   |  |  |
|--|---|--|--|
| <b>Identifier:</b>                       | A unique identifier. The test description identifiers are conforming to the TD_DSC__VHF_MOB_<SN> naming convention, where:<br><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 listed in the Annex  |  |  |
| <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)

### 6.1 Accidental activation, non activation

| <b>Interoperability Test Description</b> |   |                |             |
|--|---|----------------|-------------|
| <b>Identifier:</b>                       | TD_DSC_VHF_MOB_0001   |                |             |
| <b>Summary:</b>                          | Test that none of the EUT's controls can activate the device on its own   |                |             |
| <b>Configuration:</b>                    | CF_1  |                |             |
| <b>References:</b>                       | ETSI EN 300 338-6 [1], clause 4.4   |                |             |
| <b>Pre-test conditions:</b>              | QE1 in standby and EUT deactivated/idle.<br>If the EUT is marked DSC-MOB-C make sure its 'own vessel' MMSI is preprogrammed with the MMSI of QE1. |                |             |
| <b>Step</b>                              | <b>Test Sequence</b>  | <b>Verdict</b> |             |
|  |   | <b>Pass</b>    | <b>Fail</b> |
| 1  | Operate the EUT's first mechanical action alone   |                |             |
| 2  | Verify the EUT is not activated (no MOB event is triggered)   | Yes            | No          |
| 3  | Return the EUT's first mechanical action to its original position   |                |             |
| 4  | Operate the EUT's second mechanical action alone (see note)   |                |             |
| 5  | Verify the EUT is not activated (no MOB event is triggered)   | Yes            | No          |
| <b>Final verdict:</b>                    |   |                |             |
| <b>NOTE:</b>                             | Where the second action is replaced by an immersion sensor then immerse the EUT in sea water.   |                |             |



| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0001   |         |      |
| <b>Summary:</b>                   | Test of self cancellation before a MOB distress procedure is triggered  |         |      |
| <b>Configuration:</b>             | CF_1  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.0 and 4.5  |         |      |
| <b>Pre-test conditions:</b>       | QE1 in standby and EUT deactivated/idle.<br>If the EUT is marked DSC-MOB-C make sure its 'own vessel' MMSI is preprogrammed with the MMSI of QE1. |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)  |         |      |
| 2                                 | Verify audible (see note) and visual indication of EUT activation   | Yes     | No   |
| 3                                 | Deactivate the EUT within 10 seconds of activation  |         |      |
| 4                                 | Verify the EUT's audible (see note) indication ceases and the EUT displays the correct visual indication for local deactivation                   | Yes     | No   |
| 5                                 | Verify that QE1 remains in standby and no distress alert or distress alert relay message is received  | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |
| <b>NOTE:</b>                      | Intrinsically safe MOB devices may not necessarily give an audible warning.   |         |      |

## 6.2 Open loop activation

The tests in this clause apply only to MOB devices that start in open loop. These devices are marked DSC-MOB-O. Tests for devices marked DSC-MOB-C continue from clause 6.3.

| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0002   |         |      |
| <b>Summary:</b>                   | Test of initial activation and self cancellation before a GNSS position fix is obtained   |         |      |
| <b>Configuration:</b>             | CF_1  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.2, 5.2.1.3, 4.5 and 4.8  |         |      |
| <b>Pre-test conditions:</b>       | QE1 in standby and EUT deactivated/idle. Inhibit EUT from being able to obtain a GNSS fix throughout the duration of the test   |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)  |         |      |
| 2                                 | Verify audible (see note) and visual indication of EUT activation   | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation  |         |      |
| 4                                 | Verify that QE1 receives a distress alert message of type man overboard without time or position                                | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI   | Yes     | No   |
| 6                                 | Deactivate the EUT  |         |      |
| 7                                 | Verify the EUT's audible (see note) indication ceases and the EUT displays the correct visual indication for local deactivation | Yes     | No   |
| 8                                 | Verify that QE1 received the EUT's acknowledgement and at top level the procedure stage is displayed as 'Cancelled'             | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |
| <b>NOTE:</b>                      | Intrinsically safe MOB devices may not necessarily give an audible warning.   |         |      |

| <b>Interoperability Test Description</b> |   |                |             |
|--|---|----------------|-------------|
| <b>Identifier:</b>                       | TD_DSC_VHF_MOB_0003   |                |             |
| <b>Summary:</b>                          | Test of the correct signalling of the MOB position and the correct timing of the sending of subsequent signalling and that the EUT switches off its DSC receiver to conserve its battery.   |                |             |
| <b>Configuration:</b>                    | CF_2  |                |             |
| <b>References:</b>                       | ETSI EN 300 338-6 [1], clauses 5.2.1.2 and 4.5.2  |                |             |
| <b>Pre-test conditions:</b>              | QE1 shall be a class A DSC radio and in standby and EUT deactivated/idle.<br>The EUT shall be able to obtain a GNSS fix so its GNSS antenna shall be able to receive GNSS satellite signals during the test.<br>An independent timer is needed for the test such as a stop watch. |                |             |
| <b>Step</b>                              | <b>Test Sequence</b>  | <b>Verdict</b> |             |
|  |   | <b>Pass</b>    | <b>Fail</b> |
| 1  | Activate EUT (trigger a MOB event)  |                |             |
| 2  | Wait for 30 seconds after activation  |                |             |
| 3  | Verify that QE1 receives a distress alert message of type man overboard   | Yes            | No          |
| 4  | Verify that QE1 correctly displays the EUT's 'self ID' MMSI   | Yes            | No          |
| 5  | Wait for the EUT to obtain a GNSS position fix  |                |             |
| 6  | Verify that QE1 sounds a self-terminating alarm upon the reception of a second distress alert message from the EUT. At this point start an independent timer  | Yes            | No          |
| 7  | Verify that QE1 received the second distress alert within 5 minutes of the start of the test  | Yes            | No          |
| 8  | Verify that QE1 displays the MOB's correct position in the distress information   | Yes            | No          |
| 9  | Change the position of the EUT and wait until it sends a further distress alert message   |                |             |
| 10                                       | Verify that QE1 sounds a self-terminating alarm upon the reception of a third distress alert message from the EUT. At this point check the independent timer and verify that the time is between 4,9 and 5,1 minutes  | Yes            | No          |
| 11                                       | Verify that QE1 displays the MOB's correct, updated position in the distress information  | Yes            | No          |
| 12                                       | Continue to move the EUT for the next 25 minutes  |                |             |
| 13                                       | Verify that QE1 sounds a self-terminating alarm upon the reception of subsequent distress alert messages from the EUT and verify that the time for each subsequent message is between 4,9 and 5,1 minutes   | Yes            | No          |
| 14                                       | Verify that QE1 displays the MOB's correct, updated position in the distress information each time a subsequent distress alert message is received from the EUT   | Yes            | No          |
| 15                                       | Wait until the EUT sends one further distress alert message   |                |             |
| 16                                       | Verify that QE1 sounds a self-terminating alarm upon the reception of this distress alert message from the EUT. At this point re-start the independent timer  | Yes            | No          |
| 17                                       | Change the position of the EUT and wait until it sends a further distress alert message   |                |             |
| 18                                       | Verify that QE1 sounds a self-terminating alarm upon the reception of the distress alert message from the EUT. At this point check the independent timer and verify that the time is between 9,9 and 10,1 minutes   | Yes            | No          |
| 19                                       | Verify that QE1 displays the MOB's correct, updated position in the distress information  | Yes            | No          |
| 20                                       | Wait a further 2 minutes.   |                |             |
| 21                                       | On QE1 select the option to acknowledge the current distress alert procedure  |                |             |
| 22                                       | Verify that the EUT does not receive the acknowledgement message and remains activated  | Yes            | No          |
| 23                                       | Deactivate the EUT before it has time to transmit any further signalling  |                |             |
| 24                                       | Verify the EUT's displays the correct visual indication for local deactivation  | Yes            | No          |
| <b>Final verdict:</b>                    |   |                |             |

| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0003   |         |      |
| <b>Summary:</b>                   | Test of the receiving of an acknowledgement to de-activate the DSC transmissions of the MOB device                                    |         |      |
| <b>Configuration:</b>             | CF_2  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.2 and 4.5.2  |         |      |
| <b>Pre-test conditions:</b>       | QE1 shall be a class A DSC radio.<br>The EUT having sent two distress alert messages and QE1 being in a distress alert procedure.     |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Verify that QE1 displays the MOB's correct position in the distress information   | Yes     | No   |
| 2                                 | On QE1 select the option to acknowledge the current distress alert procedure  |         |      |
| 3                                 | Verify that the EUT has received the acknowledgement and deactivated, displaying the correct visual indicator for remote deactivation | Yes     | No   |
| 4                                 | Wait 10 minutes   |         |      |
| 5                                 | Verify that no further DSC transmissions have taken place   | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |

## 6.3 Closed loop activation

### 6.3.1 Applicability

The tests in clause 6.3 apply only to MOB devices that start in closed loop. These devices are marked DSC-MOB-C. Tests for devices marked DSC-MOB-O continue from clause 6.4.

### 6.3.2 Closed loop operation

| Interoperability Test Description |  |         |      |
|-----------------------------------|--|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0004  |         |      |
| <b>Summary:</b>                   | Test of closed loop MOB device with its 'own vessel' MMSI not programmed. No closed loop signalling is performed, but after 12 minutes the MOB device goes 'open loop' |         |      |
| <b>Configuration:</b>             | CF_1   |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 4.5.2 and 4.9   |         |      |
| <b>Pre-test conditions:</b>       | QE1 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall <b>not</b> be programmed with a valid MMSI.   |         |      |
| Step                              | Test Sequence  | Verdict |      |
|                                   |  | Pass    | Fail |
| 1                                 | Activate the EUT (attempt to trigger a MOB event)  |         |      |
| 2                                 | Verify the EUT does not sound an audible alarm and the EUT displays the correct visual indication for an error condition   | Yes     | No   |
| 3                                 | Verify that QE1 remains in standby and no relayed distress alert message is received   | Yes     | No   |
| 4                                 | Wait 12 minutes  |         |      |
| 5                                 | Verify that QE1 receives a distress alert message of type man overboard without time or position   | Yes     | No   |
| 6                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 7                                 | Deactivate the EUT   |         |      |
| 8                                 | Verify that QE1 received the EUT's acknowledgement and at top level the procedure stage is displayed as 'Cancelled'  | Yes     | No   |
| <b>Final verdict:</b>             |  |         |      |

| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0004   |         |      |
| <b>Summary:</b>                   | Test of initial individual closed loop distress alert with self-cancellation  |         |      |
| <b>Configuration:</b>             | CF_1  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.1, 5.2.1.3, 4.5 and 4.8  |         |      |
| <b>Pre-test conditions:</b>       | QE1 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall be pre-programmed with the MMSI of QE1.<br>Inhibit EUT from being able to obtain a GNSS fix. |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)  |         |      |
| 2                                 | Verify audible (see note) and visual indication of EUT activation   | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation  |         |      |
| 4                                 | Verify that QE1 receives a distress relay message of type man overboard without time or position  | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI   | Yes     | No   |
| 6                                 | Deactivate the EUT  |         |      |
| 7                                 | Verify the EUT's audible (see note) indication ceases and the EUT displays the correct visual indication for local deactivation   | Yes     | No   |
| 8                                 | Verify that QE1 received the EUT's acknowledgement and at top level the procedure stage is displayed as 'Cancelled'   | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |
| <b>NOTE:</b>                      | Intrinsically safe MOB devices may not necessarily give an audible warning.   |         |      |

| Interoperability Test Description |  |         |      |
|-----------------------------------|--|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0005  |         |      |
| <b>Summary:</b>                   | Test of initial group closed loop distress alert with self-cancellation  |         |      |
| <b>Configuration:</b>             | CF_3   |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.1, 5.2.1.3, 4.5 and 4.8   |         |      |
| <b>Pre-test conditions:</b>       | QE1& QE2 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall be pre-programmed with a group MMSI.<br>Both QE1 and QE2 shall be programmed to part of that group.<br>Inhibit the EUT from being able to obtain a GNSS fix. |         |      |
| Step                              | Test Sequence  | Verdict |      |
|                                   |  | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)   |         |      |
| 2                                 | Verify audible (see note) and visual indication of EUT activation  | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation   |         |      |
| 4                                 | Verify that QE1 receives a distress relay message of type man overboard without time or position   | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 6                                 | Verify that QE2 receives a distress relay message of type man overboard without time or position   | Yes     | No   |
| 7                                 | Verify that QE2 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 8                                 | Deactivate the EUT.(cancel MOB event)  |         |      |
| 9                                 | Verify the EUT's audible (see note) indication ceases and the EUT displays the correct visual indication for local deactivation  | Yes     | No   |
| 10                                | Verify that QE1 received the EUT's acknowledgement and at top level the procedure stage is displayed as 'Cancelled'  | Yes     | No   |
| 11                                | Verify that QE2 received the EUT's acknowledgement and at top level the procedure stage is displayed as 'Cancelled'  | Yes     | No   |
| <b>Final verdict:</b>             |  |         |      |
| <b>NOTE:</b>                      | Intrinsically safe MOB devices may not necessarily give an audible warning.  |         |      |

| Interoperability Test Description |  |         |      |
|-----------------------------------|--|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0006  |         |      |
| <b>Summary:</b>                   | Test of individual closed loop distress alert with GNSS position update followed by remote deactivation.                   |         |      |
| <b>Configuration:</b>             | CF_1   |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.1 and 4.5   |         |      |
| <b>Pre-test conditions:</b>       | QE1 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall be pre-programmed with the MMSI of QE1. |         |      |
| Step                              | Test Sequence  | Verdict |      |
|                                   |  | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)   |         |      |
| 2                                 | Verify visual indication of EUT activation   | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation   |         |      |
| 4                                 | Verify that QE1 receives a relayed distress alert message of type man overboard  | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 6                                 | Wait for the EUT to obtain a GNSS position fix   |         |      |
| 7                                 | Verify that QE1 displays the MOB's correct position in the distress information  | Yes     | No   |
| 8                                 | On QE1 send a distress relay acknowledgement   |         |      |
| 9                                 | Verify the EUT's deactivates and displays the correct visual indication for remote deactivation                            | Yes     | No   |
| <b>Final verdict:</b>             |  |         |      |

| Interoperability Test Description |  |         |      |
|-----------------------------------|--|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0007  |         |      |
| <b>Summary:</b>                   | Test of group closed loop distress alert with GNSS position update followed by remote deactivation.  |         |      |
| <b>Configuration:</b>             | CF_3   |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.1 and 4.5   |         |      |
| <b>Pre-test conditions:</b>       | QE1 & QE2 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall be pre-programmed with a group MMSI.<br>Both QE1 and QE2 shall be programmed to part of that group. |         |      |
| Step                              | Test Sequence  | Verdict |      |
|                                   |  | Pass    | Fail |
| 1                                 | Activate the EUT (trigger a MOB event)   |         |      |
| 2                                 | Verify audible (see note) and visual indication of EUT activation  | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation   |         |      |
| 4                                 | Verify that QE1 receives a distress relay message of type man overboard  | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 6                                 | Verify that QE2 receives a distress relay message of type man overboard  | Yes     | No   |
| 7                                 | Verify that QE2 correctly displays the EUT's 'self ID' MMSI  | Yes     | No   |
| 8                                 | Wait for the EUT to obtain a GNSS position fix   |         |      |
| 9                                 | Verify that QE1 displays the MOB's correct position in the distress information  | Yes     | No   |
| 10                                | Verify that QE2 displays the MOB's correct position in the distress information  | Yes     | No   |
| 11                                | On QE1 send a distress relay acknowledgement   |         |      |
| 12                                | Verify the EUT's deactivates and displays the correct visual indication for remote deactivation  | Yes     | No   |
| <b>Final verdict:</b>             |  |         |      |
| <b>NOTE:</b>                      | Where the second action is replaced by an immersion sensor then immerse the EUT in sea water.  |         |      |

### 6.3.3 Open loop operation

| Interoperability Test Description |  |         |      |
|-----------------------------------|--|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0010  |         |      |
| <b>Summary:</b>                   | Test of individual closed loop distress alert that changes to open loop distress alert after 12 minutes.   |         |      |
| <b>Configuration:</b>             | CF_3   |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.1.1 and 4.5   |         |      |
| <b>Pre-test conditions:</b>       | QE1& QE2 in standby and EUT deactivated/idle.<br>The 'own vessel' MMSI of the EUT shall be pre-programmed with the MMSI of QE1.<br>An independent timer is needed for the test such as a stop watch. |         |      |
| Step                              | Test Sequence  | Verdict |      |
|                                   |  | Pass    | Fail |
| 1                                 | Activate EUT (trigger a MOB event)   |         |      |
| 2                                 | Verify visual indication of EUT activation   | Yes     | No   |
| 3                                 | Wait for 30 seconds after activation   |         |      |
| 4                                 | Verify that QE1 receives a distress relay message of type man overboard. At this point start an independent timer  | Yes     | No   |
| 5                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI and QE2 remains idle   | Yes     | No   |
| 6                                 | Wait for the EUT to obtain a GNSS position fix   |         |      |
| 7                                 | Verify that QE1 displays the EUT's correct position in the distress information  | Yes     | No   |
| 8                                 | Wait for 12 minutes to elapse on the independent timer during which time a further relayed distress alert message may be sent  |         |      |
| 9                                 | Verify that both QE1 and QE2 receive distress alert messages of type man overboard   | Yes     | No   |
| 10                                | Verify that both QE1 and QE2 display the EUT's 'self ID' MMSI and the correct position in the distress information   | Yes     | No   |
| 11                                | Wait a further 5 minutes during which time move the EUT  |         |      |
| 12                                | Verify that both QE1 and QE2 update the position in the distress information   | Yes     | No   |
| 13                                | Deactivate EUT (cancel MOB event)  |         |      |
| 14                                | Verify that both QE1 and QE2 distress alarm procedures are cancelled   | Yes     | No   |
| <b>Final verdict:</b>             |  |         |      |

### 6.4 Test mode

In all tests in this clause where it is necessary to verify the time reported by a class-M device, it should be noted that this may differ from UTC time by several seconds depending on the number of leap seconds that have elapsed since the device was last used. Therefore time need be verified to the nearest minute only.

| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0008   |         |      |
| <b>Summary:</b>                   | Test of sending an individual test message from a MOB device  |         |      |
| <b>Configuration:</b>             | CF_1  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clauses 5.2.2 and 4.5.2  |         |      |
| <b>Pre-test conditions:</b>       | EUT deactivated and idle and QE1 in standby. Pre-program the EUT with the own-vessel MMSI of QE1 prior to testing. The EUT shall be able to obtain a GNSS fix so its GNSS antenna shall be able to receive GNSS satellite signals during the test.<br>A separate AIS receiver is also needed if QE1 does not have an integral AIS receiver. |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Activate EUT in test mode (do not trigger a MOB event)  |         |      |
| 2                                 | Verify the EUT indicates it is in test mode   | Yes     | No   |
| 3                                 | Wait for the EUT to obtain a GNSS position  |         |      |
| 4                                 | Verify that QE1 correctly displays the EUT's 'self ID' MMSI. Verify that the EUT time is correctly displayed  | Yes     | No   |
| 5                                 | Using either QE1 or a separate AIS receiver, verify that the correct EUT GNSS position data is recorded   | Yes     | No   |
| 6                                 | On QE1 acknowledge the test message   |         |      |
| 7                                 | Verify that the EUT exits the test on receipt of the acknowledgement message  | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |

| Interoperability Test Description |   |         |      |
|-----------------------------------|---|---------|------|
| <b>Identifier:</b>                | TD_DSC_VHF_MOB_0009   |         |      |
| <b>Summary:</b>                   | Test of sending a group test message from a MOB device  |         |      |
| <b>Configuration:</b>             | CF_3  |         |      |
| <b>References:</b>                | ETSI EN 300 338-6 [1], clause 5.2.2   |         |      |
| <b>Pre-test conditions:</b>       | EUT deactivated and idle and QE1 in standby. Pre-program the EUT with a group MMSI. Program QE1 to be part of that group prior to testing. The EUT shall be able to obtain a GNSS fix so its GNSS antenna shall be able to receive GNSS satellite signals during the test.<br>A separate AIS receiver is also needed if QE1 does not have an integral AIS receiver. |         |      |
| Step                              | Test Sequence   | Verdict |      |
|                                   |   | Pass    | Fail |
| 1                                 | Activate EUT in test mode (do not trigger a MOB event)  |         |      |
| 2                                 | Verify the EUT indicates it is in test mode   | Yes     | No   |
| 3                                 | Wait for the EUT to obtain a GNSS position  |         |      |
| 4                                 | Verify that both QE1 and QE2 correctly display the EUT's 'self ID' MMSI. Verify that the EUT's time is correctly displayed  | Yes     | No   |
| 5                                 | Using either QE1 or a separate AIS receiver, verify that the correct EUT GNSS position data is recorded   | Yes     | No   |
| 5                                 | On QE2 acknowledge the test message   |         |      |
| 6                                 | Verify that the EUT exits the test on receipt of the acknowledgement message  | Yes     | No   |
| <b>Final verdict:</b>             |   |         |      |

| <b>Interoperability Test Description</b> |   |                |             |
|--|---|----------------|-------------|
| <b>Identifier:</b>                       | TD_DSC_VHF_MOB_0008   |                |             |
| <b>Summary:</b>                          | Test of MOB device abandoning a test  |                |             |
| <b>Configuration:</b>                    | CF_1  |                |             |
| <b>References:</b>                       | ETSI EN 300 338-6 [1], clause 5.2.2   |                |             |
| <b>Pre-test conditions:</b>              | EUT deactivated and idle and QE1 in standby. Pre-program EUT with the own-vessel MMSI of the QE1 prior to testing. The EUT shall <b>not</b> be able to obtain a GNSS fix so its GNSS antenna should be inhibited for the test.<br>An independent timer is needed for the test such as a stop watch. |                |             |
| <b>Step</b>                              | <b>Test Sequence</b>  | <b>Verdict</b> |             |
|  |   | <b>Pass</b>    | <b>Fail</b> |
| 1  | Activate EUT in test mode (do not trigger a MOB event)  |                |             |
| 2  | Verify the EUT indicates it is in test mode. At this point start an independent timer   | Yes            | No          |
| 3  | Wait for the EUT to timeout of test mode  |                |             |
| 4  | Using the independent timer verify that the EUT exits the test after 5 minutes and the EUT displays the correct visual indication for local deactivation  | Yes            | No          |
| 5  | Verify that QE1 remains in standby and no test message was received   | Yes            | No          |
| <b>Final verdict:</b>                    |   |                |             |



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## Annex A (informative): Bibliography

- ETSI ES 202 553: "Methods for testing and Specification (MTS); TPLan: A notation for expressing test Purposes".
- ETSI TS 102 351 (V2.1.1): "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".
- ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

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## History

| <b>Document history</b> |              |             |
|-------------------------|--------------|-------------|
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