Electromagnetic compatibility and Radio spectrum Matters (ERM);
Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands with integrated handheld class D DSC;
Part 3: Harmonized EN covering the essential requirements of article 3.3(e) of the R&TTE Directive
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Intellectual Property Rights

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Foreword

This Harmonized European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been produced by ETSI in response to mandate M/357 issued from the European Commission under Directive 98/34/EC [i.2] as amended by Directive 98/48/EC [i.5].

The title and reference to the present document are intended to be included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.1].

See article 5.1 of Directive 1999/5/EC [i.1] for information on presumption of conformity and Harmonized Standards or parts thereof the references of which have been published in the Official Journal of the European Union.

The requirements relevant to Directive 1999/5/EC [i.1] are summarized in annex A.

The present document is part 3 of a multi-part deliverable covering the Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands with integrated handheld class D DSC, as identified below:

Part 1: "Technical characteristics and methods of measurement";

Part 2: "Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive";

Part 3: "Harmonized EN covering the essential requirements of article 3.3(e) of the R&TTE Directive".

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Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [i.1]. The modular structure is shown in EG 201 399 [i.4].
1 Scope

The present document states the minimum technical characteristics and methods of measurement required for portable Very High Frequency (VHF) radiotelephones with integrated handheld class D DSC operating in certain frequency bands allocated to the maritime mobile service using either 25 kHz channels or 25 kHz and 12.5 kHz channels.

The present document also specifies technical characteristics, methods of measurement and required test results.

The present document is intended to cover the provisions of Directive 1999/5/EC [i.1] (R&TTE Directive) article 3.3(e), which states that radio equipment within the scope of the present document "...shall be so constructed that... (e) it supports certain features ensuring access to emergency services:...".

In addition to the present document, other European Norms (ENs) that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive [i.1] will apply to equipment within the scope of the present document.

NOTE: A list of such European Norms is included on the web site http://www.newapproach.org/.

2 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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://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.

2.1 Normative references

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

[1] ETSI EN 302 885-1 (V1.3.1) (03-2014): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands with integrated handheld class D DSC; Part 1: Technical characteristics and methods of measurement".

[2] ETSI TR 100 028-1 (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1".

[3] ETSI EN 300 338-5 (V1.1.1) (02-2011): "Electromagnetic compatibility and Radio spectrum Matters (ERM); 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 5: Handheld VHF Class D DSC".

2.2 Informative references

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.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [i.1] and the following apply:

**class D**: intended to provide minimum facilities for VHF DSC distress, urgency and safety as well as routine calling and reception, not necessarily in full accordance with IMO GMDSS carriage requirements for VHF installations

*NOTE*: For handheld VHF a reduced functionality is permitted compared to a fixed VHF class D.

**environmental profile**: range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

**G2B**: phase-modulation with digital information, with a sub-carrier for DSC operation

**G3E**: phase-modulation (Frequency modulation with a pre-emphasis of 6 dB/octave) for speech

**modulation index**: ratio between the frequency deviation and the frequency of the modulation signal

3.2 Abbreviations

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

- **DSC**: Digital Selective Calling
- **GMDSS**: Global Maritime Distress and Safety System
- **GNSS**: Global Navigation Satellite System
- **IMO**: International Maritime Organization
- **R&TTE**: Radio and Telecommunications Terminal Equipment
- **RF**: Radio Frequency
- **RT**: Radio Telephony
- **SOLAS**: Safety Of Life And Sea
- **VHF**: Very High Frequency

4 Technical requirements specifications

4.1 Environmental profile

Tests defined in the present document shall be carried out at representative points within the boundary limits of the declared operational environmental profile which, as a minimum, shall be that specified in the test conditions contained in the present document.
As technical performance varies subject to environmental conditions, tests shall be carried out under a sufficient variety of environmental conditions as specified in the present document to give confidence of compliance for the affected technical requirements. These environmental conditions represent those required by article 2 of EC Decision 2013/638/EU [i.3] (which shall also be within the boundary limits of the declared operational environmental profile).

4.2 General, operational and technical requirements

4.2.1 General and operational requirements

4.2.1.1 Requirements
The general and operational requirements are defined in EN 302 885-1 [1], clause 4.

4.2.1.2 Conformance
The manufacturer shall declare that compliance to these requirements is achieved and shall provide relevant documentation.

4.2.2 Technical requirements

4.2.2.1 Requirements
The technical requirements are defined in EN 302 885-1 [1], clause 5.

4.2.2.2 Conformance
The manufacturer shall declare that compliance to these requirements is achieved and shall provide relevant documentation.

4.3 Environmental requirements

4.3.1 Drop test

4.3.1.1 Definition
This test is defined in EN 302 885-1 [1], clause 7.3.1.

4.3.1.2 Requirement
The equipment shall meet the requirements of the performance check defined in EN 302 885-1 [1], clause 7.3.3.

4.3.1.3 Conformance
Relevant environment tests as defined in clause 5.3.1.4 shall be carried out.

4.3.2 Temperature tests

4.3.2.1 Definition
This series of tests is defined in EN 302 885-1 [1], clause 7.4.1.
4.3.2.2  Dry heat

4.3.2.2.1  Definition
This test is defined in EN 302 885-1 [1], clause 7.4.2.1.

4.3.2.2.2  Requirement
The equipment shall meet the requirements of the performance check defined in EN 302 885-1 [1], clause 7.2.

4.3.2.2.3  Conformance
Relevant environment tests as defined in clause 5.3.1.5.1 shall be carried out.

4.3.2.3  Damp heat

4.3.2.3.1  Definition
This test is defined in EN 302 885-1 [1], clause 7.4.3.1.

4.3.2.3.2  Requirement
The equipment shall meet the requirements of the performance check defined in EN 302 885-1 [1], clause 7.2.

4.3.2.3.3  Conformance
Relevant environment tests as defined in clause 5.3.1.5.2 shall be carried out.

4.3.2.4  Low temperature

4.3.2.4.1  Definition
This test is defined in EN 302 885-1 [1], clause 7.4.4.1.

4.3.2.4.2  Requirement
The equipment shall meet the requirements of the performance check defined in EN 302 885-1 [1], clause 7.2.

4.3.2.4.3  Conformance
Relevant environment tests as defined in clause 5.3.1.5.3 shall be carried out.

4.4  Conformance requirements

4.4.1  Sensitivity of the modulator, including microphone

4.4.1.1  Definition
This test is defined in EN 302 885-1 [1], clause 8.4.1.

4.4.1.2  Limit
The frequency deviation shall be as stated in EN 302 885-1 [1], clause 8.4.3.
4.4.1.3 Conformance
Conformance tests as defined in clause 5.3.2.1 shall be carried out.

4.4.2 Audio frequency response

4.4.2.1 Definition
This test is defined in EN 302 885-1 [1], clause 8.5.1.

4.4.2.2 Limit
The audio frequency response shall lie within the limits shown in EN 302 885-1 [1], clause 8.5.3, figure 2.

4.4.2.3 Conformance
Conformance tests as defined in clause 5.3.2.2 shall be carried out.

4.4.3 Audio frequency harmonic distortion of the emission

4.4.3.1 Definition
This test is defined in EN 302 885-1 [1], clause 8.6.1.

4.4.3.2 Limit
The harmonic distortion limit shall be as stated in EN 302 885-1 [1], clause 8.6.3.

4.4.3.3 Conformance
Conformance tests as defined in clause 5.3.2.3 shall be carried out.

4.4.4 Residual modulation of the transmitter

4.4.4.1 Definition
This test is defined in EN 302 885-1 [1], clause 8.10.1.

4.4.4.2 Limit
The residual modulation shall not exceed the limit stated in EN 302 885-1 [1], clause 8.10.3.

4.4.4.3 Conformance
Conformance tests as defined in clause 5.3.2.4 shall be carried out.

4.4.5 Harmonic distortion and rated audio-frequency output power

4.4.5.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.1.1.

4.4.5.2 Limit
The rated audio-frequency output power shall comply with the limits stated in EN 302 885-1 [1], clause 9.1.3.
4.4.5.3 Conformance
Conformance tests as defined in clause 5.4.2 may be carried out.

4.4.6 Receiver audio frequency response

4.4.6.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.2.1.

4.4.6.2 Limit
The audio frequency response shall lie within the limits shown in EN 302 885-1 [1], clause 9.2.3, figure 5.

4.4.6.3 Conformance
Conformance tests as defined in clause 5.4.3 may be carried out.

4.4.7 Receiver noise and hum level

4.4.7.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.11.1.

4.4.7.2 Limit
The receiver residual noise level shall not exceed the limit stated in EN 302 885-1 [1], clause 9.11.3.

4.4.7.3 Conformance
Conformance tests as defined in clause 5.4.4 may be carried out.

4.4.8 Squelch operation

4.4.8.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.12.1.

4.4.8.2 Limit
The squelch operation shall comply with the limits stated in EN 302 885-1 [1], clause 9.12.3.

4.4.8.3 Conformance
Conformance tests as defined in clause 5.4.5 may be carried out.

4.4.9 Squelch hysteresis

4.4.9.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.13.1.

4.4.9.2 Limit
The squelch hysteresis shall comply with the limits stated in EN 302 885-1 [1], clause 9.13.3.
4.4.9.3 Conformance
Conformance tests as defined in clause 5.4.6 may be carried out.

4.4.10 Receiver scanning efficiency

4.4.10.1 Definition
This test is defined in EN 302 885-1 [1], clause 9.14.1.

4.4.10.2 Limit
The scanning efficiency shall meet the limit stated in EN 302 885-1 [1], clause 9.14.3.

4.4.10.3 Conformance
Conformance tests as defined in clause 5.4.7 may be carried out.

4.5 DSC Signalling

4.5.1 DSC Call Validation
The radio shall comply with the requirements in EN 302 885-1 [1], clause 8.16.

4.5.2 Display
The radio shall comply with the display requirements given in clause 4.1 of EN 300 338-5 [3].

4.5.3 GNSS receiver
The radio shall comply with the GNSS receiver requirements given in clause 5.1.1 of EN 300 338-5 [3].

4.5.4 Individual DSC calls
The radio shall comply with the individual calls requirements given in clause 5.2.2 of EN 300 338-5 [3].

4.5.5 All ships calls
The radio shall comply with the all ships calls requirements given in clause 5.2.3 of EN 300 338-5 [3].

4.5.6 DSC call functionality
The radio shall comply with the DSC call functionality requirements given in clause 5.2.4 of EN 300 338-5 [3], except for transmission of all ships Urgency and Safety RT calls.

4.5.7 DSC message composition
The radio shall comply with the DSC message composition requirements given in clause 6.2.1 of EN 300 338-5 [3].

4.5.8 Prioritized wait
The radio shall comply with the prioritized wait requirements given in clause 6.2.2 of EN 300 338-5 [3].
4.5.9  Alarms
The radio shall comply with the alarms requirements given in clause 6.2.3 of EN 300 338-5 [3].

4.5.10  Standby
The radio shall comply with the standby requirements given in clause 6.3 of EN 300 338-5 [3].

4.5.11  GNSS fix - sending distress
The radio shall comply with the sending distress automated procedure requirements for acquiring GNSS fix as given in clause 6.4.1 of EN 300 338-5 [3].

4.5.12  Tasks - sending distress
The radio shall comply with the task requirements given in clause 6.4.2 of EN 300 338-5 [3] except that figure 1 should be treated as an example and not as a mandatory requirement.

4.5.13  Display - sending distress
The radio shall comply with the display requirements given in clause 6.4.3 of EN 300 338-5 [3].

4.5.14  Distress button sub procedure
The radio shall comply with the dedicated distress button sub procedure requirements given in clause 6.4.4 of EN 300 338-5 [3] except for bullet (c) where the requirement "(when releasing the button the radio shall return to its previous state)" need not apply.

4.5.15  Transmission of the alert attempt
The radio shall comply with the transmission of the alert attempt requirements given in clause 6.4.5 of EN 300 338-5 [3].

4.5.16  Updating position
The radio shall comply with the updating position requirements given in clause 6.4.6 of EN 300 338-5 [3].

4.5.17  Handling received DSC messages - sending distress
The radio shall comply with the requirements for handling received DSC messages given in clause 6.4.7 of EN 300 338-5 [3].

4.5.18  Alarms - sending distress
The radio shall comply with the alarms requirements given in clause 6.4.8 of EN 300 338-5 [3].

4.5.19  Determining subsequent communications - sending distress
The radio shall comply with the requirements given in clause 6.4.9 of EN 300 338-5 [3].

4.5.20  Automated tuning - sending distress
The radio shall comply with the requirements given in clause 6.4.10 of EN 300 338-5 [3].
4.5.21 Cancelling the distress alert
The radio shall comply with the distress cancel requirements given in clause 6.4.11 of EN 300 338-5 [3].

4.5.22 Acknowledgements - sending distress
The radio shall comply with the acknowledgements requirements given in clause 6.4.12 of EN 300 338-5 [3].

4.5.23 Termination - sending distress
The radio shall comply with the termination requirements given in clause 6.4.13 of EN 300 338-5 [3].

4.5.24 Warnings - sending distress
The radio shall comply with the warnings requirements given in clause 6.4.14 of EN 300 338-5 [3].

4.5.25 Tasks - receiving distress
The radio shall comply with the task requirements given in clause 6.5.2 of EN 300 338-5 [3] except that figure 4 should be treated as an example and not as a mandatory requirement.

4.5.26 Display - receiving distress
The radio shall comply with the display requirements given in clause 6.5.3 of EN 300 338-5 [3].

4.5.27 Handling received DSC messages - receiving distress
The radio shall comply with the requirements for handling received DSC messages given in clause 6.5.4 of EN 300 338-5 [3].

4.5.28 Alarms - receiving distress
The radio shall comply with the alarms requirements given in clause 6.5.5 of EN 300 338-5 [3].

4.5.29 Determining subsequent communications - receiving distress
The radio shall comply with the requirements given in clause 6.5.6 of EN 300 338-5 [3].

4.5.30 Automated tuning - receiving distress
The radio shall comply with the requirements given in clause 6.5.7 of EN 300 338-5 [3].

4.5.31 Acknowledgements - receiving distress
The radio shall comply with the acknowledgements requirements given in clause 6.5.8 of EN 300 338-5 [3].

4.5.32 Termination - receiving distress
The radio shall comply with the termination requirements given in clause 6.5.9 of EN 300 338-5 [3].

4.5.33 Warnings - receiving distress
The radio shall comply with the warnings requirements given in clause 6.5.10 of EN 300 338-5 [3].
4.5.34 Tasks - sending non distress
The radio shall comply with the task requirements given in clause 6.6.2 of EN 300 338-5 [3] except that figure 6 should be treated as an example and not as a mandatory requirement.

4.5.35 Display - sending non distress
The radio shall comply with the display requirements given in clause 6.6.3 of EN 300 338-5 [3].

4.5.36 Handling received DSC messages - sending non distress
The radio shall comply with the requirements for handling received DSC messages given in clause 6.6.4 of EN 300 338-5 [3].

4.5.37 Alarms - sending non distress
The radio shall comply with the alarms requirements given in clause 6.6.5 of EN 300 338-5 [3].

4.5.38 Automated tuning - sending non distress
The radio shall comply with the requirements given in clause 6.6.6 of EN 300 338-5 [3].

4.5.39 Delayed acknowledgements - sending non distress
The radio shall comply with the acknowledgements requirements given in clause 6.6.7 of EN 300 338-5 [3].

4.5.40 Termination - sending non distress
The radio shall comply with the termination requirements given in clause 6.6.8 of EN 300 338-5 [3].

4.5.41 Warnings - sending non distress
The radio shall comply with the warnings requirements given in clause 6.6.9 of EN 300 338-5 [3].

4.5.42 Tasks - receiving non distress
The radio shall comply with the task requirements given in clause 6.7.2 of EN 300 338-5 [3] except that figure 8 should be treated as an example and not as a mandatory requirement.

4.5.43 Display - receiving non distress
The radio shall comply with the display requirements given in clause 6.7.3 of EN 300 338-5 [3].

4.5.44 Handling received DSC messages - receiving non distress
The radio shall comply with the requirements for handling received DSC messages given in clause 6.7.4 of EN 300 338-5 [3].

4.5.45 Alarms - receiving non distress
The radio shall comply with the alarms requirements given in clause 6.7.5 of EN 300 338-5 [3].

4.5.46 Automated tuning - receiving non distress
The radio shall comply with the requirements given in clause 6.7.6 of EN 300 338-5 [3].
4.5.47 Acknowledgements - receiving non distress
The radio shall comply with the acknowledgements requirements given in clause 6.7.7 of EN 300 338-5 [3].

4.5.48 Termination - receiving non distress
The radio shall comply with the termination requirements given in clause 6.7.8 of EN 300 338-5 [3].

4.5.49 Warnings - receiving non distress
The radio shall comply with the warnings requirements given in clause 6.7.9 of EN 300 338-5 [3].

4.5.50 Communication automated procedure
The radio shall comply with the requirements given in clause 6.8.1 of EN 300 338-5 [3] except that the bullets (i)-(iii) describing which specific events should result in the communication automated procedure need not apply.

4.5.51 Tasks - communication
The radio shall comply with the task requirements given in clause 6.8.2 of EN 300 338-5 [3].

4.5.52 Display - communication
The radio shall comply with the display requirements given in clause 6.8.3 of EN 300 338-5 [3].

4.5.53 Handling received DSC messages - communication
The radio shall comply with the requirements for handling received DSC messages given in clause 6.8.4 of EN 300 338-5 [3].

4.5.54 Tuning of the receiver and transmitter - communication
The radio shall comply with the requirements given in clause 6.8.5 of EN 300 338-5 [3].

4.5.55 Termination - communication
The procedure shall be able to be terminated either by the user or automatic timeout.

4.5.56 Tasks of handling incoming calls while engaged
The radio shall comply with the task requirements given in clause 6.9.2 of EN 300 338-5 [3], except that clauses 6.9.2.1 and 6.9.2.2 need not apply.

4.5.57 Termination of automated procedures
The radio shall comply with the requirements given in clause 6.9.2.3 of EN 300 338-5 [3].

4.5.58 Actions after termination of an automated procedure
The radio shall comply with the requirements given in clause 6.9.2.4 of EN 300 338-5 [3] except that bullet (b) need not apply.

4.5.59 Putting automated procedures on hold
The radio may comply with the requirements given in clause 6.9.2.5 of EN 300 338-5 [3].
4.5.60 Controlling non-terminated automated procedures on hold

The radio may comply with the requirements given in clause 6.9.2.6 of EN 300 338-5 [3].

4.5.61 Sending and receiving distress alert scanning

The radio shall comply with the requirements given in clause 6.10.1 of EN 300 338-5 [3], except if the equipment has the facility for continuous monitoring of channel 70 as described in clause 5.4 of EN 302 885-1 [1].

4.5.62 Normal scan

The radio shall comply with the requirements given in clause 6.10.2 of EN 300 338-5 [3], except if the equipment has the facility for continuous monitoring of channel 70 as described in clause 5.4 of EN 302 885-1 [1].

4.5.63 Multiple watch scan

The radio shall comply with the requirements given in clause 6.10.3 of EN 300 338-5 [3], except if the equipment has the facility for continuous monitoring of channel 70 as described in clause 5.4 of EN 302 885-1 [1].

5 Testing for compliance with technical requirements

5.1 Test conditions, power supply and ambient temperatures

The general conditions for measurement as stated in EN 302 885-1 [1], clause 6 shall apply.

5.2 Interpretation of the measurement results

The interpretation of the results recorded in a test report for the measurements described in the present document shall be as follows:

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;
- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in table 1.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) \( k = 1.96 \) or \( k = 2 \) (which provide confidence levels of respectively 95 % and 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 1 is based on such expansion factors.
Table 1: Maximum measurement uncertainty

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Maximum uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF frequency</td>
<td>±1 x 10^{-7}</td>
</tr>
<tr>
<td>RF power</td>
<td>±0.75 dB</td>
</tr>
<tr>
<td>Maximum frequency deviation:</td>
<td></td>
</tr>
<tr>
<td>- within 300 Hz to 6 kHz of modulation frequency</td>
<td>±5 %</td>
</tr>
<tr>
<td>- within 6 kHz to 25 kHz of modulation frequency</td>
<td>±3 dB</td>
</tr>
<tr>
<td>Deviation limitation</td>
<td>±5 %</td>
</tr>
<tr>
<td>Adjacent channel power</td>
<td>±5 dB</td>
</tr>
<tr>
<td>Conducted spurious emission of transmitter</td>
<td>±4 dB</td>
</tr>
<tr>
<td>Conducted emission of receiver</td>
<td>±3 dB</td>
</tr>
<tr>
<td>Two-signal measurement</td>
<td>±4 dB</td>
</tr>
<tr>
<td>Three-signal measurement</td>
<td>±3 dB</td>
</tr>
<tr>
<td>Radiated emission of transmitter</td>
<td>±6 dB</td>
</tr>
<tr>
<td>Radiated emission of receiver</td>
<td>±6 dB</td>
</tr>
<tr>
<td>Transmitter transient time</td>
<td>±20 %</td>
</tr>
<tr>
<td>Transmitter transient frequency</td>
<td>±250 Hz</td>
</tr>
<tr>
<td>Receiver desensitization (duplex operation)</td>
<td>±0.5 dB</td>
</tr>
</tbody>
</table>

5.3 Essential radio test suites

5.3.1 Environmental tests

5.3.1.1 Introduction

Environmental tests shall be carried out before tests are performed on the same equipment with respect to the other requirements of the present document.

5.3.1.2 Procedure

This test procedure is defined in EN 302 885-1 [1], clause 7.1.

5.3.1.3 Performance check

The "performance check" series of tests are defined in EN 302 885-1 [1], clause 7.2.

5.3.1.4 Drop test

5.3.1.4.1 Definition

This test is defined in EN 302 885-1 [1], clause 7.3.1.

5.3.1.4.2 Limit

The equipment shall comply with the requirements defined in EN 302 885-1 [1], clause 7.3.3.

5.3.1.4.3 Conformance

The test shall be performed as defined in EN 302 885-1 [1], clause 7.3.2.
5.3.1.5 Temperature tests

5.3.1.5.1 Dry heat

5.3.1.5.1.1 Definition
This test is defined in EN 302 885-1 [1], clause 7.4.2.1.

5.3.1.5.1.2 Limit
The equipment shall comply with the limits of the performance check defined in EN 302 885-1 [1], clause 7.2.

5.3.1.5.1.3 Conformance
The test shall be performed as defined in EN 302 885-1 [1], clause 7.4.2.2.

5.3.1.5.2 Damp heat

5.3.1.5.2.1 Definition
This test is defined in EN 302 885-1 [1], clause 7.4.3.1.

5.3.1.5.2.2 Limit
The equipment shall comply with the limits of the performance check defined in EN 302 885-1 [1], clause 7.2.

5.3.1.5.2.3 Conformance
The test shall be performed as defined in EN 302 885-1 [1], clause 7.4.3.2.

5.3.1.5.3 Low temperature

5.3.1.5.3.1 Definition
This test is defined in EN 302 885-1 [1], clause 7.4.4.1.

5.3.1.5.3.2 Limit
The equipment shall comply with the limits of the performance check defined in EN 302 885-1 [1], clause 7.2.

5.3.1.5.3.3 Conformance
The test shall be performed as defined in EN 302 885-1 [1], clause 7.4.4.2.

5.3.2 Conformance tests

5.3.2.1 Sensitivity of the modulator, including microphone
The test specified in EN 302 885-1 [1], clause 8.4.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.1.2 in order to prove compliance with the requirement.

5.3.2.2 Audio frequency response
The test specified in EN 302 885-1 [1], clause 8.5.2 shall be carried out.
The results obtained shall be compared to the limits in clause 4.4.2.2 in order to prove compliance with the requirement.
5.3.2.3 Audio frequency harmonic distortion of the emission

The test specified in EN 302 885-1 [1], clause 8.6.2 shall be carried out. The results obtained under each of the stated test conditions shall be compared to the limits in clause 4.4.3.2 in order to prove compliance with the requirement.

5.3.2.4 Residual modulation of the transmitter

The test specified in EN 302 885-1 [1], clause 8.10.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.4.2 in order to prove compliance with the requirement.

5.4 Other test suites

5.4.1 General

The requirements in clauses 4.4.5 to 4.4.10 inclusive have been set on the assumption that the test specifications in clauses 5.4.2 to 5.4.7 will be used to verify the performance of the equipment.

5.4.2 Harmonic distortion and rated audio-frequency output power

The test specified in EN 302 885-1 [1], clause 9.1.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.5.2 in order to prove compliance with the requirement.

5.4.3 Receiver audio frequency response

The test specified in EN 302 885-1 [1], clause 9.2.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.6.2 in order to prove compliance with the requirement.

5.4.4 Receiver noise and hum level

The test specified in EN 302 885-1 [1], clause 9.11.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.7.2 in order to prove compliance with the requirement.

5.4.5 Squelch operation

The test specified in EN 302 885-1 [1], clause 9.12.2 shall be carried out. The results obtained in each of the tests shall be compared to the appropriate limits in clause 4.4.8.2 in order to prove compliance with the requirement.

5.4.6 Squelch hysteresis

The test specified in EN 302 885-1 [1], clause 9.13.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.9.2 in order to prove compliance with the requirement.

5.4.7 Receiver scanning efficiency

The test specified in EN 302 885-1 [1], clause 9.14.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.10.2 in order to prove compliance with the requirement.
Annex A (normative):
HS Requirements and conformance Test specifications
Table (HS-RTT)

The HS Requirements and conformance Test specifications Table (HS-RTT) in table A.1 serves a number of purposes, as follows:

- it provides a statement of all the requirements in words and by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it provides a statement of all the test procedures corresponding to those requirements by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it qualifies each requirement to be either:
  - Unconditional: meaning that the requirement applies in all circumstances; or
  - Conditional: meaning that the requirement is dependent on the manufacturer having chosen to support optional functionality defined within the schedule.
- in the case of Conditional requirements, it associates the requirement with the particular optional service or functionality;
- it qualifies each test procedure to be either:
  - Essential: meaning that it is included with the Essential Radio Test Suite and therefore the requirement shall be demonstrated to be met in accordance with the referenced procedures;
  - Other: meaning that the test procedure is illustrative but other means of demonstrating compliance with the requirement are permitted.

Table A.1: HS Requirements and conformance Test specifications Table (HS-RTT)

<table>
<thead>
<tr>
<th>Harmonized Standard EN 302 885-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following requirements and test specifications are relevant to the presumption of conformity article 3.3(e) of the R&amp;TTE Directive [i.1]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Conditionality</th>
<th>Test Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 General and operational requirements</td>
<td>U</td>
<td>X</td>
</tr>
<tr>
<td>2 Technical requirements</td>
<td>U</td>
<td>X</td>
</tr>
<tr>
<td>3 Drop test</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>4 Dry heat</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>5 Damp heat</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>6 Low temperature</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>18 Sensitivity of the modulator, including microphone</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>19 Audio frequency response</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>20 Audio frequency harmonic distortion of the emission</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>21 Residual modulation of the transmitter</td>
<td>U</td>
<td>E</td>
</tr>
<tr>
<td>22 Harmonic distortion and rated audio-frequency output power</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>23 Receiver audio frequency response</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>24 Receiver noise and hum level</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>25 Squelch operation</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>26 Squelch hysteresis</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>27 Receiver scanning efficiency</td>
<td>U</td>
<td>O</td>
</tr>
<tr>
<td>28 DSC call validation</td>
<td>U</td>
<td>X</td>
</tr>
</tbody>
</table>

ETS I
The following requirements and test specifications are relevant to the presumption of conformity article 3.3(e) of the R&TTE Directive [1.1]

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Conditionality</th>
<th>Test Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 DSC Display</td>
<td>4.5.2 U</td>
<td>X</td>
</tr>
<tr>
<td>30 GNSS Receiver</td>
<td>4.5.3 U</td>
<td>X</td>
</tr>
<tr>
<td>31 Individual DSC calls</td>
<td>4.5.4 U</td>
<td>X</td>
</tr>
<tr>
<td>32 All ships calls</td>
<td>4.5.5 U</td>
<td>X</td>
</tr>
<tr>
<td>33 DSC call functionality</td>
<td>4.5.6 U</td>
<td>X</td>
</tr>
<tr>
<td>34 DSC message composition</td>
<td>4.5.7 U</td>
<td>X</td>
</tr>
<tr>
<td>35 Prioritized wait</td>
<td>4.5.8 U</td>
<td>X</td>
</tr>
<tr>
<td>36 Alarms</td>
<td>4.5.9 U</td>
<td>X</td>
</tr>
<tr>
<td>37 Standby</td>
<td>4.5.10 U</td>
<td>X</td>
</tr>
<tr>
<td>38 GNSS fix requirements - sending distress</td>
<td>4.5.11 U</td>
<td>X</td>
</tr>
<tr>
<td>39 Tasks - sending distress</td>
<td>4.5.12 U</td>
<td>X</td>
</tr>
<tr>
<td>40 Display - sending distress</td>
<td>4.5.13 U</td>
<td>X</td>
</tr>
<tr>
<td>41 Distress button sub-procedure</td>
<td>4.5.14 U</td>
<td>X</td>
</tr>
<tr>
<td>42 Transmission of alert attempt</td>
<td>4.5.15 U</td>
<td>X</td>
</tr>
<tr>
<td>43 Updating position</td>
<td>4.5.16 U</td>
<td>X</td>
</tr>
<tr>
<td>44 Handling received DSC messages - sending distress</td>
<td>4.5.17 U</td>
<td>X</td>
</tr>
<tr>
<td>45 Alarms - sending distress</td>
<td>4.5.18 U</td>
<td>X</td>
</tr>
<tr>
<td>46 Determining subsequent communication - sending distress</td>
<td>4.5.19 U</td>
<td>X</td>
</tr>
<tr>
<td>47 Automated tuning - sending distress</td>
<td>4.5.20 U</td>
<td>X</td>
</tr>
<tr>
<td>48 Cancelling the distress alert</td>
<td>4.5.21 U</td>
<td>X</td>
</tr>
<tr>
<td>49 Acknowledgement - sending distress</td>
<td>4.5.22 U</td>
<td>X</td>
</tr>
<tr>
<td>50 Terminating - sending distress</td>
<td>4.5.23 U</td>
<td>X</td>
</tr>
<tr>
<td>51 Warnings - sending distress</td>
<td>4.5.24 U</td>
<td>X</td>
</tr>
<tr>
<td>52 Tasks - receiving distress</td>
<td>4.5.25 U</td>
<td>X</td>
</tr>
<tr>
<td>53 Display - receiving distress</td>
<td>4.5.26 U</td>
<td>X</td>
</tr>
<tr>
<td>54 Handling received DSC messages - receiving distress</td>
<td>4.5.27 U</td>
<td>X</td>
</tr>
<tr>
<td>55 Alarms - receiving distress</td>
<td>4.5.28 U</td>
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<tr>
<td>56 Determining subsequent communication - receiving distress</td>
<td>4.5.29 U</td>
<td>X</td>
</tr>
<tr>
<td>57 Automated tuning - receiving distress</td>
<td>4.5.30 U</td>
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</tr>
<tr>
<td>58 Acknowledgement - receiving distress</td>
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</tr>
<tr>
<td>59 Terminating - receiving distress</td>
<td>4.5.32 U</td>
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</tr>
<tr>
<td>60 Warnings - receiving distress</td>
<td>4.5.33 U</td>
<td>X</td>
</tr>
<tr>
<td>61 Tasks - sending non distress</td>
<td>4.5.34 U</td>
<td>X</td>
</tr>
<tr>
<td>62 Display - sending non distress</td>
<td>4.5.35 U</td>
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</tr>
<tr>
<td>63 Handling received DSC messages - sending non distress</td>
<td>4.5.36 U</td>
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<tr>
<td>64 Alarms - sending non distress</td>
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<tr>
<td>65 Automated tuning - sending non distress</td>
<td>4.5.38 U</td>
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</tr>
<tr>
<td>66 Delayed acknowledgement - sending non distress</td>
<td>4.5.39 U</td>
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</tr>
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<td>67 Terminating - sending non distress</td>
<td>4.5.40 U</td>
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</tr>
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<td>68 Warnings - sending non distress</td>
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</tr>
<tr>
<td>69 Tasks - receiving non distress</td>
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</tr>
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<td>70 Display - receiving non distress</td>
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<tr>
<td>71 Handling received DSC messages - receiving non distress</td>
<td>4.5.44 U</td>
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<tr>
<td>72 Alarms - receiving non distress</td>
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<tr>
<td>73 Automated tuning - receiving non distress</td>
<td>4.5.46 U</td>
<td>X</td>
</tr>
</tbody>
</table>
### Harmonized Standard EN 302 885-3

The following requirements and test specifications are relevant to the presumption of conformity article 3.3(e) of the R&TTE Directive [i.1]

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Conditionality</th>
<th>Test Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
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<tr>
<td>75</td>
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<td>90</td>
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<td></td>
</tr>
</tbody>
</table>

#### Key to columns:

- **Requirement:** A unique identifier for one row of the table which may be used to identify a requirement or its test specification.
- **Description:** A textual reference to the requirement.
- **Clause Number:** Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.
- **Requirement Conditionality:**
  - **U/C:** Indicates whether the requirement is to be unconditionally applicable (U) or is conditional upon the manufacturers claimed functionality of the equipment (C).
  - **Condition:** Explains the conditions when the requirement shall or shall not be applicable for a requirement which is classified "conditional".
- **Test Specification:**
  - **E/O:** Indicates whether the test specification forms part of the Essential Radio Test Suite (E) or whether it is one of the Other Test Suite (O).

#### NOTE:

All tests whether "E" or "O" are relevant to the requirements. Rows designated "E" collectively make up the Essential Radio Test Suite; those designated "O" make up the Other Test Suite; for those designated "X" there is no test specified corresponding to the requirement. The completion of all tests classified "E" as specified with satisfactory outcomes is a necessary condition for a presumption of conformity. Compliance with requirements associated with tests classified "O" or "X" is a necessary condition for presumption of conformity, although conformance with the requirement may be claimed by an equivalent test or by manufacturer's assertion supported by appropriate entries in the construction file.
<table>
<thead>
<tr>
<th>Clause Number</th>
<th>Identification of clause(s) defining the test specification in the present document unless another document is referenced explicitly. Where no test is specified (that is, where the previous field is &quot;X&quot;) this field remains blank.</th>
</tr>
</thead>
</table>
Annex B:
Void
## History

<table>
<thead>
<tr>
<th>Document history</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.1.1</td>
</tr>
<tr>
<td>V1.2.1</td>
</tr>
<tr>
<td>V1.2.2</td>
</tr>
</tbody>
</table>