Electromagnetic compatibility and Radio spectrum Matters (ERM);
VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (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 draft Harmonized European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document has been produced by ETSI in response to mandate M/357 from the European Commission issued under Directive 98/34/EC [i.4] as amended by Directive 98/48/EC [i.7].

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 of which have been published in the Official Journal of the European Union.

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

The present document is part 3 of a multi-part deliverable covering the VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (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".

Proposed national transposition dates

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<tr>
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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.6].
1 Scope

The present document covers the minimum requirements for general communication for shipborne fixed installations using a VHF radiotelephone operating in certain frequency bands allocated to the maritime mobile service using 25 kHz or 25 kHz and 12.5 kHz channels with associated equipment for DSC - class D.

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 it supports certain features ensuring access to emergency services".

In addition to the present document, other 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 ENs 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 301 025-1 (V1.5.2) (05-2013): "Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 1: Technical characteristics and methods of measurement".

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

[3] ETSI EN 300 338-3 (V1.1.1) (02-2010): "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 3: 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.


[i.2] Void.
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:** class D equipment is 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.

**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
- **IMO** International Maritime Organization
- **R&TTE** Radio and Telecommunications Terminal Equipment
- **RF** Radio Frequency
- **SINAD** Signal, Noise And Distortion
- **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 2004/71/EC [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 301 025-1 [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 301 025-1 [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 Vibration test

4.3.1.1 Definition

This test is defined in EN 301 025-1 [1], clause 7.4.1.

4.3.1.2 Requirement

The equipment shall meet the requirements of the performance check defined in EN 301 025-1 [1], clause 7.3.

There shall be no harmful deterioration of the equipment visible.

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 301 025-1 [1], clause 7.5.1.
4.3.2.2 Dry heat

4.3.2.2.1 Definition
This test is defined in EN 301 025-1 [1], clause 7.5.2.1.

4.3.2.2.2 Requirement
The equipment shall meet the requirements of the performance check defined in EN 301 025-1 [1], clause 7.3.

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 301 025-1 [1], clause 7.5.3.1.

4.3.2.3.2 Requirement
The equipment shall meet the requirements of the performance check defined in EN 301 025-1 [1], clause 7.3.

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 301 025-1 [1], clause 7.5.4.1.

4.3.2.4.2 Requirement
The equipment shall meet the requirements of the performance check defined in EN 301 025-1 [1], clause 7.3.

4.3.2.4.3 Conformance
Relevant environment tests as defined in clause 5.3.1.3 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 301 025-1 [1], clause 8.4.1.

4.4.1.2 Limit
The frequency deviation shall be as stated in EN 301 025-1 [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 301 025-1 [1], clause 8.5.1.

4.4.2.2 Limit
The audio frequency response shall lie within the limits shown in EN 301 025-1 [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 301 025-1 [1], clause 8.6.1.

4.4.3.2 Limit
The harmonic distortion limit shall be as stated in EN 301 025-1 [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 301 025-1 [1], clause 8.11.1.

4.4.4.2 Limit
The residual modulation shall not exceed the limit stated in EN 301 025-1 [1], clause 8.11.3.

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

4.4.5 Frequency error (demodulated DSC signal)

4.4.5.1 Definition
This test is defined in EN 301 025-1 [1], clause 8.12.1.

4.4.5.2 Limit
The frequency error shall not exceed the limit stated in EN 301 025-1 [1], clause 8.12.3.
4.4.5.3 Conformance
Conformance tests as defined in clause 5.3.2.5 shall be carried out.

4.4.6 Modulation index for DSC

4.4.6.1 Definition
This test is defined in EN 301 025-1 [1], clause 8.13.1.

4.4.6.2 Limit
The modulation index shall not exceed the limit stated in EN 301 025-1 [1], clause 8.13.3.

4.4.6.3 Conformance
Conformance tests as defined in clause 5.3.2.6 shall be carried out.

4.4.7 Modulation rate for DSC

4.4.7.1 Definition
This test is defined in EN 301 025-1 [1], clause 8.14.1.

4.4.7.2 Limit
The frequency shall not exceed the limit stated in EN 301 025-1 [1], clause 8.13.3.

4.4.7.3 Conformance
Conformance tests as defined in clause 5.3.2.7 shall be carried out.

4.4.8 Void

4.4.9 Harmonic distortion and rated audio-frequency output power

4.4.9.1 Definition
This test is defined in EN 301 025-1 [1], clause 9.1.1.

4.4.9.2 Limit
The rated audio-frequency output power shall comply with the limits stated in EN 301 025-1 [1], clause 9.1.3.

4.4.9.3 Conformance
Conformance tests as defined in clause 5.4.2 may be carried out.

4.4.10 Receiver audio frequency response

4.4.10.1 Definition
This test is defined in EN 301 025-1 [1], clause 9.2.1.
4.4.10.2 Limit
The audio frequency response shall lie within the limits shown in EN 301 025-1 [1], clause 9.2.3, figure 5.

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

4.4.11 Receiver residual noise level

4.4.11.1 Definition
This test is defined in EN 301 025-1 [1], clause 9.11.1.

4.4.11.2 Limit
The receiver residual noise level shall not exceed the limit stated in EN 301 025-1 [1], clause 9.11.3.

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

4.4.12 Squelch operation

4.4.12.1 Definition
This test is defined in EN 301 025-1 [1], clause 9.12.1.

4.4.12.2 Limit
The squelch operation shall comply with the limits stated in EN 301 025-1 [1], clause 9.12.3.

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

4.4.13 Squelch hysteresis

4.4.13.1 Definition
This test is defined in EN 301 025-1 [1], clause 9.13.1.

4.4.13.2 Limit
The squelch hysteresis shall comply with the limits stated in EN 301 025-1 [1], clause 9.13.3.

4.4.13.3 Conformance
Conformance tests as defined in clause 5.4.6 may be carried out.

4.4.14 Dynamic range

4.4.14.1 Definition
This test is defined in EN 301 025-1 [1], clause 10.6.1.
4.4.14.2 Limit
The bit error ratio shall not exceed the limit stated in EN 301 025-1 [1], clause 10.6.3.

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

4.5 DSC Signalling

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

4.5.2 Watchkeeping receiver
The radio shall comply with the watchkeeping receiver requirements given in clause 5.1.1 of EN 300 338-3 [3].

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

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

4.5.5 DSC call functionality
The radio shall comply with the DSC call functionality requirements given in clause 5.2.4 of EN 300 338-3 [3].

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

4.5.7 Prioritized wait
The radio shall comply with the prioritized wait requirements given in clause 6.2.2 of EN 300 338-3 [3].

4.5.8 Alarms
The radio shall comply with the alarms requirements given in clause 6.2.3 of EN 300 338-3 [3].

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

4.5.10 Sending distress automated requirements
The radio shall comply with the sending distress automated requirements given in clause 6.4.2 of EN 300 338-3 [3] except that the "Sending distress" procedure shown in figure 1 of [3] should be treated as an example and not as a mandatory requirement.

4.5.11 Display
The radio shall comply with the display requirements given in clause 6.4.3 of EN 300 338-3 [3].
4.5.12 Distress button sub procedure
The radio shall comply with the dedicated distress button sub procedure requirements given in clause 6.4.4 of EN 300 338-3 [3] except for the following requirement (bullet c) of [3]): "when releasing the button the radio shall return to its previous state", which shall be optional.

4.5.13 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 300 338-3 [3].

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

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

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

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

4.5.18 Automated tuning
The radio shall comply with the requirements given in clause 6.4.10 of EN 300 338-3 [3].

4.5.19 Cancelling the distress alert
The radio shall comply with the distress cancel requirements given in clause 6.4.11 of EN 300 338-3 [3].

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

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

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

4.5.23 Tasks – receiving distress
The radio shall comply with the task requirements given in clause 6.5.2 of EN 300 338-3 [3] except that the "received distress automated" procedure shown in figure 2 of [3] should be treated as an example and not as a mandatory requirement.
4.5.24  Display – receiving distress  
The radio shall comply with the display requirements given in clause 6.5.3 of EN 300 338-3 [3].

4.5.25  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 300 338-3 [3].

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

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

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

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

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

4.5.31  Warnings – receiving distress  
The radio shall comply with the warnings requirements given in clause 6.5.10 of EN 300 338-3 [3].

4.5.32  Tasks – sending non distress  
The radio shall comply with the task requirements given in clause 6.6.2 of EN 300 338-3 [3] except that the "Sending non distress automated" procedure shown in figure 3 of [3] should be treated as an example and not as a mandatory requirement.

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

4.5.34  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 300 338-3 [3].

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

4.5.36  Automated tuning – sending non distress  
The radio shall comply with the requirements given in clause 6.6.6 of EN 300 338-3 [3].
4.5.37 Delayed acknowledgements – sending non distress
The radio shall comply with the acknowledgements requirements given in clause 6.6.7 of EN 300 338-3 [3].

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

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

4.5.40 Tasks – receiving non distress
The radio shall comply with the task requirements given in clause 6.7.2 of EN 300 338-3 [3] except that the “Receiving non distress” procedure shown in figure 4 of [3] should be treated as an example and not as a mandatory requirement.

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

4.5.42 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 300 338-3 [3].

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

4.5.44 Automated tuning – receiving non distress
The radio shall comply with the requirements given in clause 6.7.6 of EN 300 338-3 [3].

4.5.45 Acknowledgements – receiving non distress
The radio shall comply with the acknowledgements requirements given in clause 6.7.7 of EN 300 338-3 [3].

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

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

4.5.48 Communication automated procedure
The radio shall comply with the requirements given in clause 6.8.1 of EN 300 338-3 [3] except that the bullets (i)-(iii) describing which specific events should result in the communication automated procedure shall be optional.

4.5.49 Tasks – communication
The radio shall comply with the task requirements given in clause 6.8.2 of EN 300 338-3 [3].
4.5.50 Display – communication
The radio shall comply with the display requirements given in clause 6.8.3 of EN 300 338-3 [3].

4.5.51 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 300 338-3 [3].

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

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

4.5.54 Tasks of handling incoming calls while engaged
The radio shall comply with the task requirements given in clause 6.9.2 of EN 300 338-3 [3], except that clauses 6.9.2.1 and 6.9.2.2 shall be optional.

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

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

4.5.57 Putting automated procedures on hold
The radio may comply with the requirements given in clause 6.9.2.5 of EN 300 338-3 [3].

4.5.58 Controlling non-terminated automated procedures on hold
The radio may comply with the requirements given in clause 6.9.2.6 of EN 300 338-3 [3].

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 301 025-1 [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>
<thead>
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<th>Parameter</th>
<th>Maximum uncertainty</th>
</tr>
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<tbody>
<tr>
<td>Radio Frequency (RF)</td>
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<tr>
<td>RF power/level</td>
<td>( \pm 0.75 ) dB</td>
</tr>
<tr>
<td>Audio output power</td>
<td>( \pm 0.5 ) dB</td>
</tr>
<tr>
<td>Amplitude characteristics of receiver limiter</td>
<td>( \pm 1.5 ) dB</td>
</tr>
<tr>
<td>Sensitivity at 20 dB SinAD</td>
<td>( \pm 3 ) dB</td>
</tr>
<tr>
<td>Two-signal measurement</td>
<td>( \pm 4 ) dB</td>
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<tr>
<td>Three-signal measurement</td>
<td>( \pm 3 ) 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 301 025-1 [1], clause 7.2.

5.3.1.3 Performance check

The "performance check" series of tests are defined in EN 301 025-1 [1], clause 7.3.

5.3.1.4 Vibration test

5.3.1.4.1 Definition

This test is defined in EN 301 025-1 [1], clause 7.4.1.

5.3.1.4.2 Limit

The equipment shall comply with the limits of the performance check defined in EN 301 025-1 [1], clause 7.3.

There shall be no harmful deterioration of the equipment visible.

5.3.1.4.3 Conformance

Relevant environment tests as defined in clause 5.3.1 shall be carried out.
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 301 025-1 [1], clause 7.5.2.1.

5.3.1.5.1.2  Limit

The equipment shall comply with the limits of the performance check defined in EN 301 025-1 [1], clause 7.3.

5.3.1.5.1.3  Conformance

Relevant environment tests as defined in clause 5.3.1 shall be carried out.

5.3.1.5.2  Damp heat

5.3.1.5.2.1  Definition

This test is defined in EN 301 025-1 [1], clause 7.5.3.1.

5.3.1.5.2.2  Limit

The equipment shall comply with the limits of the performance check defined in EN 301 025-1 [1], clause 7.3.

5.3.1.5.2.3  Conformance

Relevant environment tests as defined in clause 5.3.1 shall be carried out.

5.3.1.5.3  Low temperature

5.3.1.5.3.1  Definition

This test is defined in EN 301 025-1 [1], clause 7.5.4.1.

5.3.1.5.3.2  Limit

The equipment shall comply with the limits of the performance check defined in EN 301 025-1 [1], clause 7.3.

5.3.1.5.3.3  Conformance

Relevant environment tests as defined in clause 5.3.1 shall be carried out.

5.3.2  Conformance tests

5.3.2.1  Sensitivity of the modulator, including microphone

The test specified in EN 301 025-1 [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 301 025-1 [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 301 025-1 [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 301 025-1 [1], clause 8.11.2 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.

5.3.2.5 Frequency error (demodulated DSC signal)

The test specified in EN 301 025-1 [1], clause 8.12.2 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.

5.3.2.6 Modulation index for DSC

The test specified in EN 301 025-1 [1], clause 8.13.2 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.

5.3.2.7 Modulation rate for DSC

The test specified in EN 301 025-1 [1], clause 8.14.2 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 Other test suites - Radio

5.4.1 General

The requirements in clauses 4.4.9 to 4.4.15 inclusive have been set on the assumption that the test specifications in clauses 5.4.2 to 5.4.8 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 301 025-1 [1], clause 9.1.2 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.

5.4.3 Receiver audio frequency response

The test specified in EN 301 025-1 [1], clause 9.2.2 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.

5.4.4 Receiver residual noise level

The test specified in EN 301 025-1 [1], clause 9.11.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.11.2 in order to prove compliance with the requirement.

5.4.5 Squelch operation

The test specified in EN 301 025-1 [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 4.4.12.2 in order to prove compliance with the requirement.

5.4.6 Squelch hysteresis

The test specified in EN 301 025-1 [1], clause 9.13.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.13.2 in order to prove compliance with the requirement.
5.4.7 Dynamic range

The test specified in EN 301 025-1 [1], clause 10.6.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.4.14.2 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 supplier 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;

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Harmonized Standard EN 301 025-3

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

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

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Key to columns:

- **Requirement**: A unique identifier for one row of the table which may be used to identify an essential requirement or its test specification.
- **Description**: A textual reference to the requirement.
- **Clause Number**: Identification of clause(s) defining the essential requirement in the present document unless another document is referenced explicitly.
- **Requirement Conditionality**: 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 technical requirement which is classified "conditional".
- **Test Specification**: 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 technical construction file.

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