



Harmonized European Standard

**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**

*PRELIMINARY DRAFT*  
*https://standards.iso.org/standards/catalog/iso/50126-4978-4-03*

---

**Reference**

REN/ERM-TG26-104-3

---

**Keywords**

DSC, maritime, radio, VHF

**ETSI**

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

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

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

---

**Important notice**

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

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

[http://portal.etsi.org/chaicor/ETSI\\_support.asp](http://portal.etsi.org/chaicor/ETSI_support.asp)

---

**Copyright Notification**

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2013.  
All rights reserved.

DECT™, PLUGTESTS™, UMTS™ and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.  
3GPP™ and LTE™ are Trade Marks of ETSI registered for the benefit of its Members and  
of the 3GPP Organizational Partners.  
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

# Contents

Intellectual Property Rights .....	7
Foreword.....	7
Introduction .....	7
1 Scope .....	8
2 References .....	8
2.1 Normative references .....	8
2.2 Informative references.....	8
3 Definitions and abbreviations.....	9
3.1 Definitions.....	9
3.2 Abbreviations .....	9
4 Technical requirements specifications .....	9
4.1 Environmental profile.....	9
4.2 General, operational and technical requirements.....	10
4.2.1 General and operational requirements .....	10
4.2.1.1 Requirements .....	10
4.2.1.2 Conformance.....	10
4.2.2 Technical requirements.....	10
4.2.2.1 Requirements .....	10
4.2.2.2 Conformance.....	10
4.3 Environmental requirements .....	10
4.3.1 Drop test .....	10
4.3.1.1 Definition .....	10
4.3.1.2 Requirement .....	10
4.3.1.3 Conformance .....	10
4.3.2 Temperature tests.....	10
4.3.2.1 Definition .....	10
4.3.2.2 Dry heat.....	11
4.3.2.2.1 Definition.....	11
4.3.2.2.2 Requirement .....	11
4.3.2.2.3 Conformance .....	11
4.3.2.3 Damp heat .....	11
4.3.2.3.1 Definition.....	11
4.3.2.3.2 Requirement .....	11
4.3.2.3.3 Conformance .....	11
4.3.2.4 Low temperature .....	11
4.3.2.4.1 Definition.....	11
4.3.2.4.2 Requirement .....	11
4.3.2.4.3 Conformance .....	11
4.4 Conformance requirements .....	11
4.4.1 Sensitivity of the modulator, including microphone.....	11
4.4.1.1 Definition .....	11
4.4.1.2 Limit.....	11
4.4.1.3 Conformance.....	12
4.4.2 Audio frequency response .....	12
4.4.2.1 Definition .....	12
4.4.2.2 Limit.....	12
4.4.2.3 Conformance.....	12
4.4.3 Audio frequency harmonic distortion of the emission .....	12
4.4.3.1 Definition .....	12
4.4.3.2 Limit.....	12
4.4.3.3 Conformance.....	12
4.4.4 Residual modulation of the transmitter .....	12
4.4.4.1 Definition .....	12

4.4.4.2	Limit.....	12
4.4.4.3	Conformance.....	12
4.4.5	Harmonic distortion and rated audio-frequency output power .....	12
4.4.5.1	Definition .....	12
4.4.5.2	Limit.....	12
4.4.5.3	Conformance.....	13
4.4.6	Receiver audio frequency response .....	13
4.4.6.1	Definition .....	13
4.4.6.2	Limit.....	13
4.4.6.3	Conformance.....	13
4.4.7	Receiver noise and hum level .....	13
4.4.7.1	Definition .....	13
4.4.7.2	Limit.....	13
4.4.7.3	Conformance.....	13
4.4.8	Squelch operation .....	13
4.4.8.1	Definition .....	13
4.4.8.2	Limit.....	13
4.4.8.3	Conformance.....	13
4.4.9	Squelch hysteresis.....	13
4.4.9.1	Definition .....	13
4.4.9.2	Limit.....	13
4.4.9.3	Conformance.....	14
4.4.10	Receiver scanning efficiency .....	14
4.4.10.1	Definition .....	14
4.4.10.2	Limit.....	14
4.4.10.3	Conformance.....	14
4.5	DSC Signalling.....	14
4.5.1	DSC Call Validation .....	14
4.5.2	Display.....	14
4.5.3	GNSS receiver .....	14
4.5.4	Individual DSC calls.....	14
4.5.5	All ships calls.....	14
4.5.6	DSC call functionality .....	14
4.5.7	DSC message composition .....	14
4.5.8	Prioritized wait.....	14
4.5.9	Alarms .....	15
4.5.10	Standby .....	15
4.5.11	GNSS fix - sending distress .....	15
4.5.12	Tasks - sending distress .....	15
4.5.13	Display - sending distress .....	15
4.5.14	Distress button sub procedure .....	15
4.5.15	Transmission of the alert attempt.....	15
4.5.16	Updating position.....	15
4.5.17	Handling received DSC messages - sending distress.....	15
4.5.18	Alarms - sending distress .....	15
4.5.19	Determining subsequent communications - sending distress.....	15
4.5.20	Automated tuning - sending distress .....	15
4.5.21	Cancelling the distress alert .....	16
4.5.22	Acknowledgements - sending distress .....	16
4.5.23	Termination - sending distress .....	16
4.5.24	Warnings - sending distress .....	16
4.5.25	Tasks - receiving distress .....	16
4.5.26	Display - receiving distress.....	16
4.5.27	Handling received DSC messages - receiving distress .....	16
4.5.28	Alarms - receiving distress .....	16
4.5.29	Determining subsequent communications - receiving distress .....	16
4.5.30	Automated tuning - receiving distress .....	16
4.5.31	Acknowledgements - receiving distress.....	16
4.5.32	Termination - receiving distress.....	16
4.5.33	Warnings - receiving distress.....	16
4.5.34	Tasks - sending non distress .....	17
4.5.35	Display - sending non distress .....	17

4.5.36	Handling received DSC messages - sending non distress .....	17
4.5.37	Alarms - sending non distress .....	17
4.5.38	Automated tuning - sending non distress .....	17
4.5.39	Delayed acknowledgements - sending non distress .....	17
4.5.40	Termination - sending non distress .....	17
4.5.41	Warnings - sending non distress .....	17
4.5.42	Tasks - receiving non distress .....	17
4.5.43	Display - receiving non distress .....	17
4.5.44	Handling received DSC messages - receiving non distress .....	17
4.5.45	Alarms - receiving non distress .....	17
4.5.46	Automated tuning - receiving non distress .....	17
4.5.47	Acknowledgements - receiving non distress .....	18
4.5.48	Termination - receiving non distress .....	18
4.5.49	Warnings - receiving non distress .....	18
4.5.50	Communication automated procedure .....	18
4.5.51	Tasks - communication .....	18
4.5.52	Display - communication .....	18
4.5.53	Handling received DSC messages - communication .....	18
4.5.54	Tuning of the receiver and transmitter - communication .....	18
4.5.55	Termination - communication .....	18
4.5.56	Tasks of handling incoming calls while engaged .....	18
4.5.57	Termination of automated procedures .....	18
4.5.58	Actions after termination of an automated procedure .....	18
4.5.59	Putting automated procedures on hold .....	18
4.5.60	Controlling non-terminated automated procedures on hold .....	19
4.5.61	Sending and receiving distress alert scanning .....	19
4.5.62	Normal scan .....	19
4.5.63	Multiple watch scan .....	19
5	Testing for compliance with technical requirements .....	19
5.1	Test conditions, power supply and ambient temperatures .....	19
5.2	Interpretation of the measurement results .....	19
5.3	Essential radio test suites .....	20
5.3.1	Environmental tests .....	20
5.3.1.1	Introduction .....	20
5.3.1.2	Procedure .....	20
5.3.1.3	Performance check .....	20
5.3.1.4	Drop test .....	20
5.3.1.4.1	Definition .....	20
5.3.1.4.2	Limit .....	20
5.3.1.4.3	Conformance .....	20
5.3.1.5	Temperature tests .....	21
5.3.1.5.1	Dry heat .....	21
5.3.1.5.2	Damp heat .....	21
5.3.1.5.3	Low temperature .....	21
5.3.2	Conformance tests .....	21
5.3.2.1	Sensitivity of the modulator, including microphone .....	21
5.3.2.2	Audio frequency response .....	21
5.3.2.3	Audio frequency harmonic distortion of the emission .....	22
5.3.2.4	Residual modulation of the transmitter .....	22
5.4	Other test suites .....	22
5.4.1	General .....	22
5.4.2	Harmonic distortion and rated audio-frequency output power .....	22
5.4.3	Receiver audio frequency response .....	22
5.4.4	Receiver noise and hum level .....	22
5.4.5	Squelch operation .....	22
5.4.6	Squelch hysteresis .....	22
5.4.7	Receiver scanning efficiency .....	22
<b>Annex A (normative):</b>	<b>HS Requirements and conformance Test specifications Table</b>	
	<b>(HS-RTT) .....</b>	<b>23</b>

<b>Annex B: Void .....</b>	<b>27</b>
History .....	28

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/01a42bc6-4978-4bcb-b81d-7b5cd9d36cb/etsi-en-302-885-3-v1.2.1-2014-03>

---

## Intellectual Property Rights

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

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

---

## 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 the European Commission mandate M/357 issued 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".**

<b>National transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

---

## 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 (V1.3.0) (05-2013): "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.

- [i.1] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).



- [i.2] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.
- [i.3] EC decision 2004/71/EC of 4 September 2003 on essential requirements relating to marine radio communication equipment which is intended to be used on non-SOLAS vessels and to participate in the Global Maritime Distress and Safety System (GMDSS).
- [i.4] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive".
- [i.5] Directive 98/48/EC of the European Parliament and of the Council of 20 July 1998 amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.

---

## 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
IMO	International Maritime Organization
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
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 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.