



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 2: Harmonized EN covering the essential requirements  
of article 3.2 of the R&TTE Directive**

---

**Reference**

REN/ERM-TG26-104-2

---

**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**

The present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (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 or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

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

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

© European Telecommunications Standards Institute 2014.

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 .....	6
Foreword.....	6
Introduction .....	6
1 Scope .....	7
2 References .....	7
2.1 Normative references .....	7
2.2 Informative references.....	7
3 Definitions and abbreviations.....	8
3.1 Definitions .....	8
3.2 Abbreviations .....	8
4 Technical requirements specifications .....	8
4.1 Environmental profile.....	8
4.2 Conformance requirements .....	8
4.2.1 Transmitter frequency error .....	8
4.2.1.1 Definition .....	8
4.2.1.2 Limit.....	8
4.2.1.3 Conformance.....	8
4.2.2 Transmitter carrier power .....	9
4.2.2.1 Definition .....	9
4.2.2.2 Limit.....	9
4.2.2.3 Conformance.....	9
4.2.3 Maximum transmitter frequency deviation.....	9
4.2.3.1 Definition .....	9
4.2.3.2 Limit.....	9
4.2.3.3 Conformance.....	9
4.2.4 Reduction of frequency deviation at modulation frequencies above 3 kHz.....	9
4.2.4.1 Definition .....	9
4.2.4.2 Limit.....	9
4.2.4.3 Conformance.....	9
4.2.5 Transmitter adjacent channel power .....	9
4.2.5.1 Definition .....	9
4.2.5.2 Limit.....	9
4.2.5.3 Conformance.....	10
4.2.6 Transmitter conducted spurious emissions conveyed to the antenna.....	10
4.2.6.1 Definition .....	10
4.2.6.2 Limit.....	10
4.2.6.3 Conformance.....	10
4.2.7 Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna .....	10
4.2.7.1 Definition .....	10
4.2.7.2 Limit.....	10
4.2.7.3 Conformance.....	10
4.2.8 Transient frequency behaviour of the transmitter .....	10
4.2.8.1 Definition .....	10
4.2.8.2 Limit.....	10
4.2.8.3 Conformance.....	10
4.2.9 DSC frequency error (demodulated DSC signal).....	10
4.2.9.1 Definition .....	10
4.2.9.2 Limit.....	11
4.2.9.3 Conformance.....	11
4.2.10 DSC modulation index.....	11
4.2.10.1 Definition .....	11
4.2.10.2 Limit.....	11

4.2.10.3	Conformance .....	11
4.2.11	DSC modulation rate .....	11
4.2.11.1	Definition .....	11
4.2.11.2	Limit .....	11
4.2.11.3	Conformance .....	11
4.2.12	Testing of free channel transmission on DSC channel 70 .....	11
4.2.12.1	Definition .....	11
4.2.12.2	Limit .....	11
4.2.12.3	Conformance .....	11
4.2.13	Receiver maximum usable sensitivity .....	11
4.2.13.1	Definition .....	11
4.2.13.2	Limit .....	12
4.2.13.3	Conformance .....	12
4.2.14	Receiver co-channel rejection .....	12
4.2.14.1	Definition .....	12
4.2.14.2	Limit .....	12
4.2.14.3	Conformance .....	12
4.2.15	Receiver adjacent channel selectivity .....	12
4.2.15.1	Definition .....	12
4.2.15.2	Limit .....	12
4.2.15.3	Conformance .....	12
4.2.16	Receiver spurious response rejection .....	12
4.2.16.1	Definition .....	12
4.2.16.2	Limit .....	12
4.2.16.3	Conformance .....	12
4.2.17	Receiver intermodulation response .....	12
4.2.17.1	Definition .....	12
4.2.17.2	Limit .....	13
4.2.17.3	Conformance .....	13
4.2.18	Receiver blocking or desensitization .....	13
4.2.18.1	Definition .....	13
4.2.18.2	Limit .....	13
4.2.18.3	Conformance .....	13
4.2.19	Receiver conducted spurious emissions .....	13
4.2.19.1	Definition .....	13
4.2.19.2	Limit .....	13
4.2.19.3	Conformance .....	13
4.2.20	Receiver radiated spurious emissions .....	13
4.2.20.1	Definition .....	13
4.2.20.2	Limit .....	13
4.2.20.3	Conformance .....	13
5	Testing for compliance with technical requirements .....	14
5.1	Test conditions, power supply and ambient temperatures .....	14
5.2	Interpretation of the measurement results .....	14
5.3	Essential radio test suites .....	14
5.3.1	Transmitter frequency error .....	14
5.3.2	Transmitter carrier power .....	15
5.3.3	Maximum transmitter frequency deviation .....	15
5.3.4	Reduction of frequency deviation at modulation frequencies above 3 kHz .....	15
5.3.5	Transmitter adjacent channel power .....	15
5.3.6	Transmitter conducted spurious emissions conveyed to the antenna .....	15
5.3.7	Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna .....	15
5.3.8	Transient frequency behaviour of the transmitter .....	15
5.3.9	DSC frequency error (demodulated DSC signal) .....	15
5.3.10	DSC modulation index .....	15
5.3.11	DSC modulation rate .....	15
5.3.12	Testing of free channel transmission on DSC channel 70 .....	15
5.4	Other test specifications .....	16
5.4.1	General .....	16
5.4.2	Receiver maximum usable sensitivity .....	16

5.4.3	Receiver co-channel rejection.....	16
5.4.4	Receiver adjacent channel selectivity .....	16
5.4.5	Receiver spurious response rejection.....	16
5.4.6	Receiver intermodulation response.....	16
5.4.7	Receiver blocking or desensitization .....	16
5.4.8	Receiver conducted spurious emissions.....	16
5.4.9	Receiver radiated spurious emissions .....	16
<b>Annex A (normative):</b>	<b>HS Requirements and conformance Test specifications Table (HS-RTT).....</b>	<b>17</b>
<b>Annex B:</b>	<b>Void .....</b>	<b>20</b>
History .....		21

---

## 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 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 the European Commission mandate M/284 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 2 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 adoption of this EN:	13 September 2013
Date of latest announcement of this EN (doa):	31 December 2013
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2014
Date of withdrawal of any conflicting National Standard (dow):	30 June 2015

---

## 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.

---

## 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".

### 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.