

ETSI EN 301 929-2 V1.2.1 (2007-02)

Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
VHF transmitters and receivers as Coast Stations for GMDSS
and other applications in the maritime mobile service;
Part 2: Harmonized EN under article 3.2
of the R&TTE Directive**



Reference

REN/ERM-TG26-077-2

Keywords

maritime, VHF, radio, GMDSS, regulation

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

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 2007.
All rights reserved.

DECTTM, **PLUGTESTSTM** and **UMTSTM** are Trade Marks of ETSI registered for the benefit of its Members.
TIPHONTM and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members.
3GPPTM is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Contents

Intellectual Property Rights	6
Foreword.....	6
1 Scope	7
2 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	9
4.2.1 Transmitter frequency error	9
4.2.1.1 Definition	9
4.2.1.2 Limits	9
4.2.1.3 Conformance.....	9
4.2.2 Transmitter carrier power	9
4.2.2.1 Definition	9
4.2.2.2 Limits	9
4.2.2.3 Conformance.....	9
4.2.3 Transmitter frequency deviation	9
4.2.3.1 Definition	9
4.2.3.2 Limits	9
4.2.3.3 Conformance.....	9
4.2.4 Transmitter adjacent channel power	9
4.2.4.1 Definition	9
4.2.4.2 Limits	9
4.2.4.3 Conformance.....	10
4.2.5 Transmitter conducted spurious emissions conveyed to the antenna	10
4.2.5.1 Definition	10
4.2.5.2 Limits	10
4.2.5.3 Conformance.....	10
4.2.6 Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna	10
4.2.6.1 Definition	10
4.2.6.2 Limits	10
4.2.6.3 Conformance.....	10
4.2.7 DSC transmitter modulation index	10
4.2.7.1 Definition	10
4.2.7.2 Limits	10
4.2.7.3 Conformance.....	10
4.2.8 Transient frequency behaviour of the transmitter	10
4.2.8.1 Definitions.....	10
4.2.8.2 Limits	11
4.2.8.3 Conformance.....	11
4.2.9 Intermodulation attenuation	11
4.2.9.1 Definitions.....	11
4.2.9.2 Limits	11
4.2.9.3 Conformance.....	11
4.2.10 Receiver maximum usable sensitivity	11
4.2.10.1 Definition	11
4.2.10.2 Limits	11
4.2.10.3 Conformance.....	11
4.2.11 Receiver co-channel rejection.....	11
4.2.11.1 Definition	11
4.2.11.2 Limits	11

4.2.11.3	Conformance.....	11
4.2.12	Receiver adjacent channel selectivity	11
4.2.12.1	Definition	11
4.2.12.2	Limit.....	12
4.2.12.3	Conformance.....	12
4.2.13	Receiver spurious response.....	12
4.2.13.1	Definition	12
4.2.13.2	Limit.....	12
4.2.13.3	Conformance.....	12
4.2.14	Receiver intermodulation response.....	12
4.2.14.1	Definition	12
4.2.14.2	Limit.....	12
4.2.14.3	Conformance.....	12
4.2.15	Receiver blocking or desensitization	12
4.2.15.1	Definition	12
4.2.15.2	Limit.....	12
4.2.15.3	Conformance.....	12
4.2.16	Receiver spurious emissions at the antenna	13
4.2.16.1	Definition	13
4.2.16.2	Limit.....	13
4.2.16.3	Conformance.....	13
4.2.17	Receiver cabinet radiated spurious emissions.....	13
4.2.17.1	Definition	13
4.2.17.2	Limit.....	13
4.2.17.3	Conformance.....	13
4.2.18	DSC receiver maximum usable sensitivity	13
4.2.18.1	Definition	13
4.2.18.2	Limit.....	13
4.2.18.3	Conformance.....	13
4.2.19	DSC receiver co-channel rejection	13
4.2.19.1	Definition	13
4.2.19.2	Limit.....	13
4.2.19.3	Conformance.....	13
4.2.20	DSC receiver adjacent channel selectivity.....	14
4.2.20.1	Definition	14
4.2.20.2	Limit.....	14
4.2.20.3	Conformance.....	14
4.2.21	Receiver desensitization with simultaneous transmission and reception (duplex operation).....	14
4.2.21.1	Definition	14
4.2.21.2	Limit.....	14
4.2.21.3	Conformance.....	14
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.....	15
5.3.1	Transmitter frequency error	15
5.3.2	Transmitter carrier power	15
5.3.3	Transmitter frequency deviation	15
5.3.4	Transmitter adjacent channel power	15
5.3.5	Transmitter conducted spurious emissions conveyed to the antenna	15
5.3.6	Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna.....	16
5.3.7	DSC transmitter modulation index	16
5.3.8	Transient frequency behaviour of the transmitter	16
5.3.9	Intermodulation attenuation	16
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.....	16

5.4.6	Receiver intermodulation response	16
5.4.7	Receiver blocking or desensitization	17
5.4.8	Receiver spurious emissions at the antenna	17
5.4.9	Receiver cabinet radiated spurious emissions	17
5.4.10	DSC receiver maximum usable sensitivity	17
5.4.11	DSC receiver co-channel rejection	17
5.4.12	DSC receiver adjacent channel selectivity	17
5.4.13	Receiver desensitization with simultaneous transmission and reception (duplex operation).....	17
Annex A (normative):	HS Requirements and conformance Test specifications Table (HS-RTT)	18
Annex B (informative):	The EN title in the official languages	22
Annex C (informative):	Bibliography	24
History		25

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://webapp.etsi.org/IPR/home.asp>).

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 (Telecommunications series) 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 a mandate from the European Commission issued under Council Directive 98/34/EC (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the 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 ("the R&TTE Directive" [1]).

The present document is part 2 of a multi-part deliverable covering VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service, as identified below:

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

Part 2: "Harmonized EN under article 3.2 of the R&TTE Directive".

Technical specifications relevant to Directive 1999/5/EC are given in annex A.

National transposition dates	
Date of adoption of this EN:	9 February 2007
Date of latest announcement of this EN (doa):	31 May 2007
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2007
Date of withdrawal of any conflicting National Standard (dow):	30 November 2008

1 Scope

The present document applies to the following radio equipment:

- Transmitters, receivers and transceivers fitted with external antenna connectors, used as coast stations, operating in the VHF band of the maritime mobile service as defined in the Radio Regulations, Appendix S18 [3] and utilizing class of emission G3E, and where relevant G2B for DSC signalling.
- This includes:
 - equipment operating under local or remote control;
 - equipment operating on 12,5 kHz or 25 kHz channel spacing;
 - equipment capable of analogue speech, Digital Selective Calling (DSC), or both;
 - equipment operating in Simplex, Semi-Duplex (Half Duplex) and Duplex modes;
 - equipment which may consist of more than one unit;
 - equipment which may be single-channel or multi-channel;
 - equipment operating on shared radio sites;
 - equipment operating in isolation from other radio equipment.

The present document is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive) article 3.2, which states that "... radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

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 [1] will apply to equipment within the scope of the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

For a specific reference, subsequent revisions do not apply.

For a non-specific reference, the latest version 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.

- [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).
- [2] ETSI TR 100 028-1 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [3] ITU Radio Regulations (2004).

- [4] ETSI TR 102 273-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".
- [5] ETSI EN 301 929-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service; Part 1: Technical characteristics and methods of measurement".

3 Definitions and abbreviations

3.1 Definitions

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

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

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

G2B: phase-modulation with digital information, with a sub-carrier for Digital Selective Calling (DSC) operation

modulation index: ratio between the frequency deviation and the modulation frequency

3.2 Abbreviations

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

DSC	Digital Selective Calling
EMC	Electro-Magnetic Compatibility
LV	Low Voltage
R&TTE	Radio and Telecommunications Terminal Equipment
SINAD	Signal + Noise + Distortion/Noise + Distortion
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. (which shall also be within the boundary limits of the declared operational environmental profile).

4.2 Conformance requirements

4.2.1 Transmitter frequency error

4.2.1.1 Definition

The frequency error is defined in EN 301 929-1 [5], clause 8.1.1.

4.2.1.2 Limits

The transmitter frequency error limit shall be as stated in EN 301 929-1 [5], clause 8.1.3.

4.2.1.3 Conformance

Conformance tests as defined in clause 5.3.1 shall be carried out.

4.2.2 Transmitter carrier power

4.2.2.1 Definition

The transmitter carrier power is defined in EN 301 929-1 [5], clause 8.2.1.

4.2.2.2 Limits

The transmitter carrier power limit shall be as stated in EN 301 929-1 [5], clause 8.2.3.

4.2.2.3 Conformance

Conformance tests as defined in clause 5.3.2 shall be carried out.

4.2.3 Transmitter frequency deviation

4.2.3.1 Definition

The transmitter frequency deviation is defined in EN 301 929-1 [5], clause 8.3.1.

4.2.3.2 Limits

The transmitter frequency deviation limit shall be as stated in EN 301 929-1 [5], clauses 8.3.2.2 and 8.3.3.2.

4.2.3.3 Conformance

Conformance tests as defined in clause 5.3.3. shall be carried out.

4.2.4 Transmitter adjacent channel power

4.2.4.1 Definition

The transmitter adjacent channel power is defined in EN 301 929-1 [5], clause 8.6.1.

4.2.4.2 Limits

The transmitter adjacent channel power limit shall be as stated in EN 301 929-1 [5], clause 8.6.3.

4.2.4.3 Conformance

Conformance tests as defined in clause 5.3.4 shall be carried out.

4.2.5 Transmitter conducted spurious emissions conveyed to the antenna

4.2.5.1 Definition

Conducted spurious emissions conveyed to the antenna are defined in EN 301 929-1 [5], clause 8.7.1.

4.2.5.2 Limits

The transmitter conducted spurious emissions conveyed to the antenna limit shall be as stated in EN 301 929-1 [5], clause 8.7.3.

4.2.5.3 Conformance

Conformance tests as defined in clause 5.3.5 shall be carried out.

4.2.6 Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna

4.2.6.1 Definition

Cabinet radiation and conducted spurious emissions other than those conveyed to the antenna are defined in EN 301 929-1 [5], clause 8.8.1.

4.2.6.2 Limits

The transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna limit shall be as stated in EN 301 929-1 [5], clause 8.8.3.

4.2.6.3 Conformance

Conformance tests as defined in clause 5.3.6 shall be carried out.

4.2.7 DSC transmitter modulation index

4.2.7.1 Definition

DSC transmitter modulation index is defined in EN 301 929-1 [5], clause 8.10.1.

4.2.7.2 Limits

The DSC transmitter modulation index shall be as stated in EN 301 929-1 [5], clause 8.10.3.

4.2.7.3 Conformance

Conformance tests as described in clause 5.3.7 shall be carried out.

4.2.8 Transient frequency behaviour of the transmitter

4.2.8.1 Definitions

The transient frequency behaviour of the transmitter is defined in EN 301 929-1 [5], clause 8.13.1.

4.2.8.2 Limits

The transient frequency behaviour of the transmitter limit shall be as stated in EN 301 929-1 [5], clause 8.13.3.

4.2.8.3 Conformance

Conformance tests as described in clause 5.3.8 shall be carried out.

4.2.9 Intermodulation attenuation

4.2.9.1 Definitions

The intermodulation attenuation of the transmitter is defined in EN 301 929-1 [5], clause 8.14.1.

4.2.9.2 Limits

The intermodulation attenuation shall be as stated in EN 301 929-1 [5], clause 8.14.3.

4.2.9.3 Conformance

Conformance tests as described in clause 5.3.9 shall be carried out.

4.2.10 Receiver maximum usable sensitivity

4.2.10.1 Definition

The receiver maximum usable sensitivity of the receiver is defined in EN 301 929-1 [5], clause 9.4.1.

4.2.10.2 Limits

The receiver maximum usable sensitivity limit shall be as stated in EN 301 929-1 [5], clause 9.4.3.

4.2.10.3 Conformance

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

4.2.11 Receiver co-channel rejection

4.2.11.1 Definition

The receiver co-channel rejection is defined in EN 301 929-1 [5], clause 9.5.1.

4.2.11.2 Limits

The receiver co-channel rejection limit shall be as stated in EN 301 929-1 [5], clause 9.5.3.

4.2.11.3 Conformance

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

4.2.12 Receiver adjacent channel selectivity

4.2.12.1 Definition

The receiver adjacent channel selectivity is defined in EN 301 929-1 [5], clause 9.6.1.

4.2.12.2 Limit

The receiver adjacent channel selectivity limit shall be as stated in EN 301 929-1 [5], clause 9.6.3.

4.2.12.3 Conformance

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

4.2.13 Receiver spurious response

4.2.13.1 Definition

The receiver spurious response rejection is defined in EN 301 929-1 [5], clause 9.7.1.

4.2.13.2 Limit

The receiver spurious response rejection limit shall be as stated in EN 301 929-1 [5], clause 9.7.3.

4.2.13.3 Conformance

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

4.2.14 Receiver intermodulation response

4.2.14.1 Definition

The intermodulation response is defined in EN 301 929-1 [5], clause 9.8.1 for the receiver and in EN 301 929-1 [5], clause 9.20.1, for the DSC receiver.

4.2.14.2 Limit

The intermodulation response limit shall be as stated in EN 301 929-1 [5], clause 9.8.3 for the receiver and in EN 301 929-1 [5], clause 9.20.3, for the DSC receiver.

4.2.14.3 Conformance

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

4.2.15 Receiver blocking or desensitization

4.2.15.1 Definition

Blocking is defined in EN 301 929-1 [5], clause 9.9.1.

4.2.15.2 Limit

The receiver blocking or desensitization limit shall be as stated in EN 301 929-1 [5], clause 9.9.3.

4.2.15.3 Conformance

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

4.2.16 Receiver spurious emissions at the antenna

4.2.16.1 Definition

Spurious emissions are defined in EN 301 929-1 [5], clause 9.11.1.

4.2.16.2 Limit

The spurious emissions at the antenna limit shall be as stated in EN 301 929-1 [5], clause 9.11.2.2.

4.2.16.3 Conformance

Conformance tests as defined in clause 5.4.8 may be carried out.

4.2.17 Receiver cabinet radiated spurious emissions

4.2.17.1 Definition

Spurious emissions are defined in EN 301 929-1 [5], clause 9.11.1.

4.2.17.2 Limit

The cabinet radiated spurious emissions limit shall be as stated in EN 301 929-1 [5], clause 9.11.3.2.

4.2.17.3 Conformance

Conformance tests as defined in clause 5.4.9 may be carried out.

4.2.18 DSC receiver maximum usable sensitivity

4.2.18.1 Definition

The maximum usable sensitivity of the DSC receiver is defined in EN 301 929-1 [5], clause 9.13.1.

4.2.18.2 Limit

The DSC receiver maximum usable sensitivity limit shall be as stated in EN 301 929-1 [5], clause 9.13.3.

4.2.18.3 Conformance

Conformance tests as defined in clause 5.4.10 may be carried out.

4.2.19 DSC receiver co-channel rejection

4.2.19.1 Definition

The co-channel rejection of the DSC receiver is defined in EN 301 929-1 [5], clause 9.14.1.

4.2.19.2 Limit

The DSC receiver co-channel rejection limit shall be as stated in EN 301 929-1 [5], clause 9.14.3.

4.2.19.3 Conformance

Conformance tests as defined in clause 5.4.11 may be carried out.

4.2.20 DSC receiver adjacent channel selectivity

4.2.20.1 Definition

The adjacent channel selectivity of the DSC receiver is defined in EN 301 929-1 [5], clause 9.15.1.

4.2.20.2 Limit

The DSC receiver adjacent channel selectivity limit shall be as stated in EN 301 929-1 [5], clause 9.15.3.

4.2.20.3 Conformance

Conformance tests as defined in clause 5.4.12 may be carried out.

4.2.21 Receiver desensitization with simultaneous transmission and reception (duplex operation)

4.2.21.1 Definition

The receiver desensitization with simultaneous transmission and reception is defined in EN 301 929-1 [5], clause 9.17.2.1.

4.2.21.2 Limit

The receiver desensitization with simultaneous transmission and reception limit shall be as stated in EN 301 929-1 [5], clause 9.17.2.3.

4.2.21.3 Conformance

Conformance tests as defined in clause 5.4.13 may be carried out.

5 Testing for compliance with technical requirements

5.1 Test conditions, power supply and ambient temperatures

These shall be as described in EN 301 929-1 [5], clauses 6.1 to 6.8 and 7.1 to 7.5.

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
(Valid up to 1GHz for the RF parameters unless otherwise stated)**

Parameter	Uncertainty
RF frequency	$\pm 1 \times 10^{-7}$
RF power	$\pm 0,75$ dB
Maximum frequency deviation:	
- within 300 Hz to 6 kHz of audio frequency	± 5 %
- within 6 kHz to 25 kHz of audio frequency	± 3 dB
Deviation limitation	± 5 %
Adjacent channel power	± 5 dB
Conducted spurious emissions of transmitter	± 4 dB
Conducted spurious emissions of transmitter, valid to 12,75 GHz	± 7 dB
Audio output power	$\pm 0,5$ dB
Sensitivity at 20 dB SINAD	± 3 dB
Conducted emission of receiver	± 3 dB
Conducted emission of receiver, valid to 12,75 GHz	± 6 dB
Two-signal measurement, valid to 4 GHz	± 4 dB
Three-signal measurement	± 3 dB
Radiated emissions of transmitter, valid to 4 GHz	± 6 dB
Radiated emissions of receiver, valid to 4 GHz	± 6 dB
Transmitter transient time	± 20 %
Transmitter transient frequency	± 250 Hz
Transmitter intermodulation	± 3 dB
Receiver desensitization (duplex operation)	$\pm 0,5$ dB

TR 102 273-1 [4] provides further information concerning the usage of test sites.

5.3 Essential radio test suites

5.3.1 Transmitter frequency error

The test method specified in EN 301 929-1 [5], clause 8.1.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.1.2 in order to prove compliance with the requirement.

5.3.2 Transmitter carrier power

The test method specified in EN 301 929-1 [5], clause 8.2.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.2.2 in order to prove compliance with the requirement.

5.3.3 Transmitter frequency deviation

The test method specified in EN 301 929-1 [5], clauses 8.3.2.1 and 8.3.3.1, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.3.2 in order to prove compliance with the requirement.

5.3.4 Transmitter adjacent channel power

The test method specified in EN 301 929-1 [5], clause 8.6.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.4.2 in order to prove compliance with the requirement.

5.3.5 Transmitter conducted spurious emissions conveyed to the antenna

The test method specified in EN 301 929-1 [5], clause 8.7.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.5.2 in order to prove compliance with the requirement.

5.3.6 Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna

The test method specified in EN 301 929-1 [5], clause 8.8.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.6.2 in order to prove compliance with the requirement.

5.3.7 DSC transmitter modulation index

The test method specified in EN 301 929-1 [5], clause 8.10.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.7.2 in order to prove compliance with the requirement.

5.3.8 Transient frequency behaviour of the transmitter

The test method specified in EN 301 929-1 [5], clause 8.13.2, shall be carried out. The results obtained shall be compared to the limits in clause 4.2.8.2 in order to prove compliance with the requirement.

5.3.9 Intermodulation attenuation

The test method specified in EN 301 929-1 [5], clause 8.14.2 shall be carried out. The results obtained shall be compared to the limits in clause 4.2.9.2 in order to prove compliance with the requirement.

5.4 Other test specifications

5.4.1 General

The requirements in clauses 4.2.10 to 4.2.21 inclusive have been set on the assumption that the test specifications in clauses 5.4.2 to 5.4.13 will be used to verify the performance of the equipment.

5.4.2 Receiver maximum usable sensitivity

The test method specified in EN 301 929-1 [5], clause 9.4.2, applies. The results obtained shall be compared to the limits in clause 4.2.10.2 in order to prove compliance with the requirement.

5.4.3 Receiver co-channel rejection

The test method specified in EN 301 929-1 [5], clause 9.5.2, applies. The results obtained shall be compared to the limits in clause 4.2.11.2 in order to prove compliance with the requirement.

5.4.4 Receiver adjacent channel selectivity

The test method specified in EN 301 929-1 [5], clause 9.6.2, applies. The results obtained shall be compared to the limits in clause 4.2.12.2 in order to prove compliance with the requirement.

5.4.5 Receiver spurious response

The test method specified in EN 301 929-1 [5], clause 9.7.2, applies. The results obtained shall be compared to the limits in clause 4.2.13.2 in order to prove compliance with the requirement.

5.4.6 Receiver intermodulation response

The test method specified in EN 301 929-1 [5], clause 9.8.2, for the receiver and 9.20.2 for the DSC receiver applies. The results obtained shall be compared to the limits in clause 4.2.14.2 in order to prove compliance with the requirement.

5.4.7 Receiver blocking or desensitization

The test method specified in EN 301 929-1 [5], clause 9.9.2, applies. The results obtained shall be compared to the limits in clause 4.2.15.2 in order to prove compliance with the requirement.

5.4.8 Receiver spurious emissions at the antenna

The test methods specified in EN 301 929-1 [5], clause 9.11.2.1, applies. The results obtained shall be compared to the limits in clause 4.2.16.2 in order to prove compliance with the requirement.

5.4.9 Receiver cabinet radiated spurious emissions

The test methods specified in EN 301 929-1 [5], clause 9.11.3.1, applies. The results obtained shall be compared to the limits in clause 4.2.17.2 in order to prove compliance with the requirement.

5.4.10 DSC receiver maximum usable sensitivity

The test methods specified in EN 301 929-1 [5], clause 9.13.2, applies. The results obtained shall be compared to the limits in clause 4.2.18.2 in order to prove compliance with the requirement.

5.4.11 DSC receiver co-channel rejection

The test methods specified in EN 301 929-1 [5], clause 9.14.2, applies. The results obtained shall be compared to the limits in clause 4.2.19.2 in order to prove compliance with the requirement.

5.4.12 DSC receiver adjacent channel selectivity

The test methods specified in EN 301 929-1 [5], clause 9.15.2, applies. The results obtained shall be compared to the limits in clause 4.2.20.2 in order to prove compliance with the requirement.

5.4.13 Receiver desensitization with simultaneous transmission and reception (duplex operation)

The test methods specified in EN 301 929-1 [5], clause 9.17.2.2, applies. The results obtained shall be compared to the limits in clause 4.2.21.2 in order to prove compliance with the requirement.

Annex A (normative): HS Requirements and conformance Test specifications Table (HS-RTT)

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the HS-RTT proforma in this annex so that it can be used for its intended purposes and may further publish the completed HS-RTT.

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

- it provides a statement of all the essential requirements in words and by cross reference to a specific clause in the present document or to a specific clause in a specific referenced document;
- it provides a statement of all the test procedure corresponding to those essential requirements by cross reference to specific clause(s) in the present document or to a specific clause(s) in 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;
- when the schedule is completed in respect of a particular equipment including the testing outcomes, including a completed version of table A.1 it provides a means to assert the 'presumption of conformity' with the HS.

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

Harmonized Standard EN 301 929-2 The following technical requirements and test specifications are relevant to the presumption of conformity under Article 3.2 of the R&TTE Directive							
Technical Requirements reference			Technical Requirement Conditionality		Test Specification		
No	Description	Reference: Clause No	U/C	Condition	E/O	Reference: Clause No	Observations
1	Transmitter frequency error	4.2.1	U		E	5.3.1	
2	Transmitter carrier power	4.2.2	U		E	5.3.2	
3	Transmitter frequency deviation	4.2.3	U		E	5.3.3	
4	Transmitter adjacent channel power	4.2.4	U		E	5.3.4	
5	Transmitter conducted spurious emissions conveyed to the antenna	4.2.5	U		E	5.3.5	
6	Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna	4.2.6	U		E	5.3.6	
7	DSC transmitter modulation index	4.2.7	U		E	5.3.7	
8	Transient frequency behaviour of the transmitter	4.2.8	U		E	5.3.8	
9	Transmitter Intermodulation Attenuation	4.2.9	U		E	5.3.9	
10	Receiver maximum usable sensitivity	4.2.10	U		O	5.4.2	
11	Receiver co-channel rejection	4.2.11	U		O	5.4.3	
12	Receiver adjacent channel selectivity	4.2.12	U		O	5.4.4	
13	Receiver spurious response	4.2.13	U		O	5.4.5	
14	Receiver intermodulation response	4.2.14	U		O	5.4.6	
15	Receiver blocking or desensitization	4.2.15	U		O	5.4.7	
16	Receiver spurious emissions at the antenna	4.2.16	U		O	5.4.8	

Harmonized Standard EN 301 929-2 The following technical requirements and test specifications are relevant to the presumption of conformity under Article 3.2 of the R&TTE Directive							
Technical Requirements reference			Technical Requirement Conditionality		Test Specification		
No	Description	Reference: Clause No	U/C	Condition	E/O	Reference: Clause No	Observations
17	Receiver cabinet radiated spurious emissions	4.2.17	U		O	5.4.9	
18	DSC receiver maximum usable sensitivity	4.2.18	U		O	5.4.10	
19	DSC receiver co-channel rejection	4.2.19	U		O	5.4.11	
20	DSC receiver adjacent channel selectivity	4.2.20	U		O	5.4.12	
21	Receiver desensitization with simultaneous transmission and reception (duplex working)	4.2.21	U		O	5.4.13	

Key to columns:**Essential Requirement:**

No 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 Essential Requirement.

Reference: Clause Number

Identification of clause(s) defining the essential requirement in the present document unless another document is referenced explicitly.

Conditionality:

U/C Indicates whether the requirement is to be *unconditionally* applicable (U) or is *conditional* upon the suppliers 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 essential requirements. Tests designated 'E' collectively make up the Essential Radio Test Suite; those designated 'O' make up the Other Test Suite. For those requirements for which no test specification applies are designated 'X'. All tests classified 'E' shall be performed as specified with satisfactory outcomes in order to allow a presumption of conformity. Requirements associated with tests classified 'O' or 'X' must be complied with although the requirement shall be complied with as demonstrated by an equivalent test or by assertion by the supplier and asserted to be complied with to allow presumption of conformity.

Reference: Clause Number

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 'X') this field remains blank.

Observations: Remains blank in the HS but is available for use for users of the standard to record the outcome of tests against each requirement.

Annex B (informative):

The EN title in the official languages

Language	EN title
Bulgarian	Електромагнитна съвместимост и въпроси на радиоспектъра (ERM). VHF предаватели и приемници като брегови станции за GMDSS и други приложения в морската мобилна служба. Част 2: Хармонизиран европейски стандарт (EN) съгласно член 3.2 на Директивата за радиосъоръжения и крайни далекосъобщителни устройства (R&TTEd)
Czech	Elektromagnetická kompatibilita a rádiové spektrum (ERM) – Vysílače a přijímače VHF pobřežních stanic pro GMDSS a ostatní použití v námořní pohyblivé službě – Část 2: Harmonizovaná EN podle článku 3.2 Směrnice R&TTE
Danish	Danish Title: EN 301 929-2 V1.2.1Elektromagnetisk kompatibilitet og radiospektrumanliggende (ERM); Radiotelefonisendere og -modtagere beregnet til kystradiostationer, som bruges til GMDSS og andre anvendelser i den maritime mobile tjeneste og som anvender frekvenser i VHF båndene - Del 2: Harmoniseret EN, der dækker de væsentlige krav i R&TTE direktivets artikel 3.2
Dutch	Elektromagnetische compatibiliteit en radiospectrumaangelegenheden (ERM);VHF-zenders en ontvangers zoals CoastStations voor GMDSS en andere toepassingen in de maritieme mobiele dienst;Deel 2: Geharmoniseerde EN onder artikel 3.2 van de R&TTE richtlijn
English	Electromagnetic compatibility and Radio Spectrum Matters (ERM); VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
Estonian	Elektromagnetilise ühilduvuse ja raadiospektri küsimused (ERM); Liikuva mereside teenistuse VHF kaldajaamade saatjad ja vastuvõtjad GMDSS ja teistes rakendustes; Harmoneeritud EN R&TTE direktiivi artikli 3.2 alusel
Finnish	Sähkömagneettinen yhteensopivuus ja radiospektriasiat (ERM); Rannikkoradioasemien VHF-lähettimet ja vastaanottimet, jotka on tarkoitettu käytettäväksi GMDSS-järjestelmässä ja muissa siirtyvän meriradioliikenteen sovelluksissa; Osa 2: R&TTE-direktiivin artiklaan 3.2 perustuva yhdenmukaistettu standardi (EN)
French	Télécommunications - CEM et spectre radioélectrique (ERM) - Émetteurs et récepteurs VHF de stations côtières pour GMDSS et autres applications dans le service maritime mobile Partie 2 : EN harmonisée de l'article 3.2 de la Directive R&TTE
German	Elektromagnetische Verträglichkeit und Funkspektrumanangelegenheiten (ERM) - VHF-Sender und Empfänger als Küstenfunkstellen für GMDSS und andere Anwendungen im mobilen Seefunkdienst - Teil 2: Harmonisierte EN nach Artikel 3.2 der R&TTE-Richtlinie
Greek	Ηλεκτρομαγνητική Συμβατότητα και Θέματα Ραδιοφάσματος (ERM) – Πομπές και δέκτες VHF ως Παράκτιοι Σταθμοί για GMDSS και άλλες εφαρμογές στη ναυτιλιακή κινητή υπηρεσία - Μέρος 2: Εναρμονισμένο EN για την κάλυψη του Άρθρου 3.2 της Οδηγίας R&TTE
Hungarian	Elektromágneses összeférhetőségi és rádióspektrumügyek (ERM). A tengeri mozgósológatlanban GMDSS és egyéb alkalmazások parti állomásaiként üzemelő VHF-adók és -vevők. 2. rész: Az R&TTE-irányelv 3. cikkének (2) bekezdése alá tartozó, harmonizált európai szabvány
Icelandic	Þættir sem varða rafsegulviðssamhæfi og fjarskiptatíðni (ERM); Sendi- og móttökubúnaður á metrabylgjutíðni (VHF) til nota sem strandstöðvar fyrir GMDSS og aðra notkun í sjófarstöðvaþjónustunni; 2. hluti: Samræmdur Evrópustaðall skv. 2. mgr. 3. gr. í tilskipun 1999/5/EC um fjarskiptabúnað og endabúnað til fjarskipta
Italian	Compatibilità elettromagnetica e Questioni relative allo spettro delle radiofrequenze (ERM); Trasmettitori e ricevitori VHF di Stazioni Costiere per GMDSS e altre applicazioni nei servizi mobili marittimi; Parte 2: Norma Europea armonizzata per l'articolo 3.2 della direttiva R&TTE.
Latvian	Elektromagnētiskā saderība un radiofrekvenču spektra jautājumi (ERM) - Piekrastes staciju radiotelefona raidītāji un uztvērēji Globālajai jūras avārijai un drošības sistēmai (GMDSS) un citam lietojumam. 2.daļa: Harmonizēts Eiropas standarts (EN), kas atbilst R&TTE Direktīvas 3.2. punkta būtiskām prasībām
Lithuanian	Elektromagnetinio suderinamumo ir radijo dažnių spektro dalykai. LAD siųstuvai ir imtuvai, naudojami kaip kranto stotys pasaulinėje jūrų nelaimių ir saugos sistemoje (PJNSS) ir kitoms judriosios jūrų tarnybos reikmėms. 2 dalis. Darnusis Europos standartas pagal 1999/5/EC direktyvos 3.2 straipsnį
Maltese	Kompatibilità elettromanjetika u materji relatati ma' spettru radjofoniku (ERM); Trażmetturi u riċevituri VHF bħala Stazzjonijiet tal-Kosta għal GMDSS u applikazzjonijiet oħra fis-servizz marittimu mobbli; Parti 2: EN armonizzata taħt l-artiklu 3.2 tad-Direttiva R&TTE
Norwegian	Elektromagnetisk kompatibilitet og radiospektrumspørsmål (ERM); VHF sendere og mottakere som kyststasjoner for GMDSS og andre applikasjoner i den maritime mobiltjenesten; Del 2: Harmonisert EN under R&TTE-direktivets artikkel 3.2
Polish	Kompatybilność elektromagnetyczna i zagadnienia widma radiowego (ERM); Odbiorniki i nadajniki VHF pracujące jako stacje nadbrzeżne systemu GMDSS i inne zastosowania w morskiej służbie ruchomej; Część 2: Zharmonizowana EN zapewniająca spełnianie zasadniczych wymagań zgodnie z artykułem 3.2 dyrektywy R&TTE

Language	EN title
Portuguese	Assuntos de Espectro Radioelétrico e Compatibilidade Electromagnética (ERM); Emissores e receptores de VHF que funcionam como Estações Costeiras para GMDSS e outras aplicações no serviço móvel marítimo; Parte 2: EN Harmonizada no âmbito do artigo 3.º, n.º 2, da Directiva R&TTE
Romanian	Compatibilitate electromagnetică și probleme ale spectrului radio (ERM); emițătoare și receptoare VHF utilizate ca stații de coastă pentru GMDSS și alte aplicații din serviciul mobil maritim. Partea 2: EN armonizat sub articolul 3.2 al Directivei R&TTE
Slovak	Elektromagnetická kompatibilita a záležitosti rádiového spektra (ERM). Vysielače a prijímače VHF ako pobrežné stanice na GMDSS a ostatné aplikácie v plavebnej pohyblivej službe. Časť 2: Harmonizovaná EN podľa článku 3.2 smernice R&TTE
Slovenian	Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) – Visokofrekvenčni (VHF) oddajniki in sprejemniki kot obalne postaje za globalni pomorski nujnostni in varnostni sistem (GMDSS) in drugo uporabo v mobilni pomorski storitvi – 2. del: Harmonizirani EN v skladu s členom 3.2 direktive R&TTE
Spanish	Cuestiones de Compatibilidad Electromagnética y Espectro de Radiofrecuencia (ERM); Transmisores y receptores VHF para Estaciones Costeras de GMDSS y otras aplicaciones en el servicio móvil marítimo; Parte 2: Norma Europea (EN) armonizada, cubriendo los requisitos esenciales según el artículo 3,2 de la Directiva R&TTE
Swedish	Elektromagnetisk kompatibilitet och radiospektrumfrågor (ERM); VHF-sändare och mottagare som kuststationer för GMDSS och andra tillämpningar för den maritima mobila tjänsten; Del 2: Harmoniserad EN enligt artikel 3.2 i R&TTE-direktivet

Annex C (informative): Bibliography

- Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).
- Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).
- ETSI EN 301 489-1 (V1.6.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".

History

Document history		
V1.1.1	January 2002	Publication
V1.2.1	February 2007	Publication