

9`Y\_fca U[ bYfbUnXfi y`^j cghfØ A 7 L]b`nUXYj Yj`nj Ynj`n`fUX]`g\_ Ja `gdY\_fca `fØ F A L!  
HY b] bY`UfU\_hyf]gh\_Y]b`a Yf]bY`a YfcXY`nUdfYbcgbY`fUX]ch`YZ: bg\_Y`bUdfUj Y  
J<: `nUdca cfg\_c`a cV]bc`g`i yVcž\_]`XYi `Yc`bUdUgcj ] `J<: `fgUa c`nUi dcfUvc  
]nj Yb`; A 8 GGL!`&`"XY.`<Ufa cb]njfUb]`9 Bž\_]`nU`Ya UV]ghj YbY`nU Hfj Y` `YbU' "&  
X]fY\_hj YF/ HH9

Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only); Part 2: Harmonized EN under article 3.2 of the R&TTE Directive

(standards.iteh.ai)

[SIST EN 301 178-2:2001](https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001)

<https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001>

**Ta slovenski standard je istoveten z: EN 301 178-2 Version 1.1.1**

**ICS:**

|           |   |  |
|-----------|---|--|
| 33.060.99 | Druga oprema za radijske komunikacije   | Other equipment for radiocommunications  |
| 33.100.01 | Elektromagnetna združljivost na splošno | Electromagnetic compatibility in general |
| 47.020.70 | Navigacijska in krmilna oprema          | Navigation and control equipment         |

**SIST EN 301 178-2:2001**

**en**

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

SIST EN 301 178-2:2001

<https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001>

# ETSI EN 301 178-2 V1.1.1 (2000-08)

---

*Candidate Harmonized European Standard (Telecommunications series)*

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
Portable Very High Frequency (VHF) radiotelephone  
equipment for the maritime mobile service operating  
in the VHF bands (for non-GMDSS applications only);  
Part 2: Harmonized EN under article 3.2 of the R&TTE Directive**

---

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

[SIST EN 301 178-2:2001](https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001)

<https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001>



---

**Reference**

REN/ERM-RP01-040-2

---

**Keywords**

Maritime, radio, 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

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

SIST EN 301 178-2:2001

<https://standards.iteh.ai/catalog/standards/sist/25608809-ca03-4b0c-b9c4-f23a923f504d/sist-en-301-178-2-2001>

---

**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://www.etsi.org/tb/status/>

If you find errors in the present document, send your comment to:  
editor@etsi.fr

---

**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 2000.  
All rights reserved.

# Contents

|   |    |
|---|----|
| Intellectual Property Rights .....  | 5  |
| Foreword .....  | 5  |
| Introduction .....  | 6  |
| 1 Scope .....   | 8  |
| 2 References .....  | 8  |
| 3 Definitions, symbols and abbreviations .....  | 9  |
| 3.1 Definitions .....   | 9  |
| 3.2 Symbols .....   | 9  |
| 3.3 Abbreviations .....   | 9  |
| 4 Technical requirements specifications .....   | 9  |
| 4.1 Environmental profile .....   | 9  |
| 4.2 Conformance requirements .....  | 9  |
| 4.2.1 Transmitter frequency error .....   | 9  |
| 4.2.1.1 Definition .....  | 9  |
| 4.2.1.2 Limit .....   | 9  |
| 4.2.1.3 Conformance .....   | 10 |
| 4.2.2 Transmitter carrier power .....   | 10 |
| 4.2.2.1 Definition .....  | 10 |
| 4.2.2.2 Limit .....   | 10 |
| 4.2.2.3 Conformance .....   | 10 |
| 4.2.3 Transmitter frequency deviation .....   | 10 |
| 4.2.3.1 Definition .....  | 10 |
| 4.2.3.2 Limit .....   | 10 |
| 4.2.3.3 Conformance .....   | 10 |
| 4.2.4 Transmitter adjacent channel power .....  | 10 |
| 4.2.4.1 Definition .....  | 10 |
| 4.2.4.2 Limit .....   | 10 |
| 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 Limit .....   | 11 |
| 4.2.5.3 Conformance .....   | 11 |
| 4.2.6 Transmitter cabinet radiation and conducted spurious emissions other than those conveyed to the antenna ..... | 11 |
| 4.2.6.1 Definition .....  | 11 |
| 4.2.6.2 Limit .....   | 11 |
| 4.2.6.3 Conformance .....   | 11 |
| 4.2.7 Transient frequency behaviour of the transmitter .....  | 11 |
| 4.2.7.1 Definition .....  | 11 |
| 4.2.7.2 Limit .....   | 11 |
| 4.2.7.3 Conformance .....   | 11 |
| 4.2.8 Receiver maximum usable sensitivity .....   | 11 |
| 4.2.8.1 Definition .....  | 11 |
| 4.2.8.2 Limit .....   | 11 |
| 4.2.8.3 Conformance .....   | 11 |
| 4.2.9 Receiver co-channel rejection .....   | 12 |
| 4.2.9.1 Definition .....  | 12 |
| 4.2.9.2 Limit .....   | 12 |
| 4.2.9.3 Conformance .....   | 12 |
| 4.2.10 Receiver adjacent channel selectivity .....  | 12 |
| 4.2.10.1 Definition .....   | 12 |
| 4.2.10.2 Limit .....  | 12 |

|                             |   |           |
|-----------------------------|---|-----------|
| 4.2.10.3                    | Conformance.....  | 12        |
| 4.2.11                      | Receiver spurious response rejection .....  | 12        |
| 4.2.11.1                    | Definition.....   | 12        |
| 4.2.11.2                    | Limit .....   | 12        |
| 4.2.11.3                    | Conformance.....  | 12        |
| 4.2.12                      | Receiver intermodulation response.....  | 12        |
| 4.2.12.1                    | Definition.....   | 12        |
| 4.2.12.2                    | Limit .....   | 12        |
| 4.2.12.3                    | Conformance.....  | 12        |
| 4.2.13                      | Receiver blocking or desensitization .....  | 13        |
| 4.2.13.1                    | Definition.....   | 13        |
| 4.2.13.2                    | Limit .....   | 13        |
| 4.2.13.3                    | Conformance.....  | 13        |
| 4.2.14                      | Receiver conducted spurious emissions .....   | 13        |
| 4.2.14.1                    | Definition.....   | 13        |
| 4.2.14.2                    | Limit .....   | 13        |
| 4.2.14.3                    | Conformance.....  | 13        |
| 4.2.15                      | Receiver radiated spurious emissions.....   | 13        |
| 4.2.15.1                    | Definition.....   | 13        |
| 4.2.15.2                    | Limit .....   | 13        |
| 4.2.15.3                    | Conformance.....  | 13        |
| 5                           | Testing for compliance with technical requirements.....   | 13        |
| 5.1                         | Test conditions, power supply and ambient temperatures.....   | 13        |
| 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.....  | 14        |
| 5.3.3                       | Transmitter frequency deviation.....  | 14        |
| 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 ..... | 15        |
| 5.3.7                       | Transient frequency behaviour of the transmitter.....   | 15        |
| 5.4                         | Other test specifications .....   | 15        |
| 5.4.1                       | General .....   | 15        |
| 5.4.2                       | Receiver maximum usable sensitivity.....  | 15        |
| 5.4.3                       | Receiver co-channel rejection .....   | 15        |
| 5.4.4                       | Receiver adjacent channel selectivity.....  | 15        |
| 5.4.5                       | Receiver spurious response rejection .....  | 15        |
| 5.4.6                       | Receiver intermodulation response.....  | 15        |
| 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>The EN Requirements Table (EN-RT).....</b>   | <b>17</b> |
| History.....                |   | 19        |

---

## 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://www.etsi.org/ipr>).

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

The present document is part 2 of a multi-part EN 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 (for non-GMDSS applications only), as identified below:

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

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

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [6] laying down a procedure for the provision of information in the field of technical standards and regulations.

SIST EN 301 178-2:2001

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 [1] 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").

| National transposition dates   |                 |
|--|-----------------|
| Date of adoption of this EN:   | 21 July 2000    |
| Date of latest announcement of this EN (doa):  | 31 October 2000 |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 30 April 2001   |
| Date of withdrawal of any conflicting National Standard (dow):                         | 30 April 2001   |

## Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [1]. Each standard is a module in the structure. The modular structure is shown in figure 1.

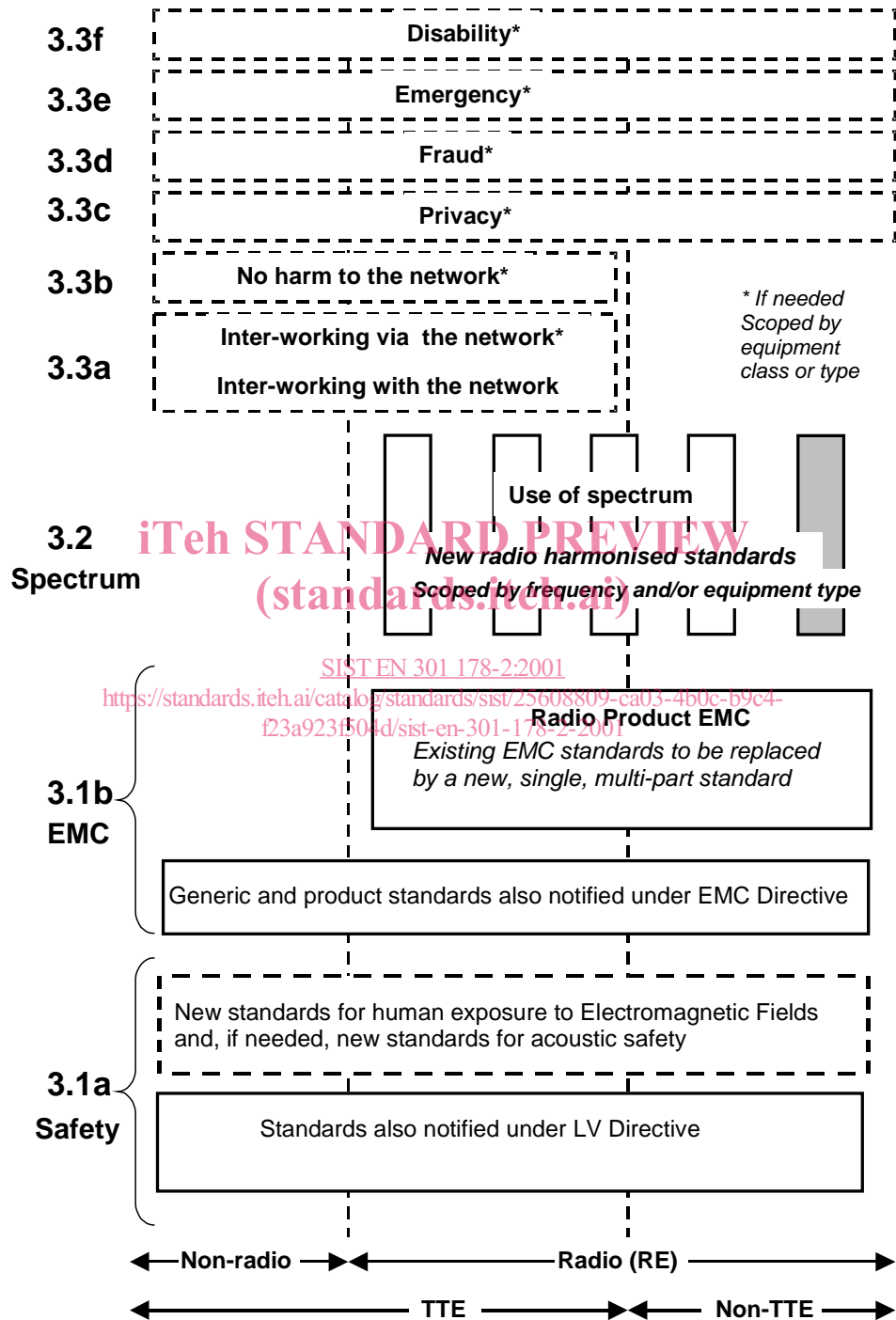


Figure 1: Modular structure for the various standards used under the R&TTE Directive [1]



The left hand edge of the figure 1 shows the different subclauses of Article 3 of the R&TTE Directive [1].

For article 3.3 various horizontal boxes are shown. Dotted lines indicate that at the time of publication of the present document essential requirements in these areas have to be adopted by the Commission. If such essential requirements are adopted, and as far and as long as they are applicable, they will justify individual standards whose scope is likely to be specified by function or interface type.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum by radio equipment. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.1b the diagram shows the new single multi-part product EMC standard for radio, and the existing collection of generic and product standards currently used under the EMC Directive [2]. The parts of this new standard will become available in the second half of 2000, and the existing separate product EMC standards will be used until it is available.

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive [3] and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both. A radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement under the R&TTE Directive [1] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [1] may be covered in a set of standards.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards to be added:
  - under article 3.2 when new frequency bands are agreed; or
  - under article 3.3 should the Commission take the necessary decisions;
 without requiring alteration of standards that are already published;
- it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

---

## 1 Scope

The present document applies radio portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in all or any part of the VHF band 156 MHz to 174 MHz (for non-GMDSS applications only).

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] may 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [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] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).
- [3] Council 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).
- [4] ETSI EN 301 178-1 (V1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only); Part 1: Technical characteristics and methods of measurement".
- [5] ETSI ETR 028: "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".
- [6] 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.

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

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

**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.

**Supplier:** entity referred to in the R&TTE Directive [1] responsible for the placing on the market of an equipment within the scope of the Directive.

**integral antenna:** antenna that is permanently fixed to the equipment and not detachable by the user.

**detachable antenna:** antenna fixed to the equipment by means of an antenna connector and detachable by the user.

### 3.2 Symbols

For the purposes of the present document, the following symbol applies:

emf                      Electromotive force

### 3.3 Abbreviations

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

|       |   |
|-------|---|
| EMC   | Electro-Magnetic Compatibility                  |
| GMDSS | Global Maritime Distress and Safety System      |
| LV    | Low Voltage                                     |
| R&TTE | Radio and Telecommunications Terminal Equipment |
| VHF   | Very High Frequency                             |

## 4 Technical requirements specifications

### 4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be determined by the environmental class of the equipment. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.

### 4.2 Conformance requirements

#### 4.2.1 Transmitter frequency error

##### 4.2.1.1 Definition

The transmitter frequency error shall be as defined in EN 301 178-1 [4], subclause 8.1.1.

##### 4.2.1.2 Limit

The transmitter frequency error limit shall be as stated in EN 301 178-1 [4], subclause 8.1.3.