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ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 1: Common technical requirements

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

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ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 1: Common technical requirements

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document is part 1 of a multi-part deliverable covering the ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services, as identified below:

Part 1: "Common technical requirements";

Part 2: "Specific conditions for VHF radiotelephone transmitters and receivers operating in the frequency range 156 MHz to 174 MHz";

Part 3: "Specific conditions for non-SOLAS maritime radars and river radars";

Part 4: "Specific conditions for Narrow-Band Direct-Printing (NBDP) NAVTEX receivers";

Part 5: "Specific conditions for MF/HF radiotelephone transmitters and receivers";

Part 6: "Specific conditions for Earth Stations on board Vessels operating in frequency bands above 3 GHz";

Part 7: "Specific conditions for Maritime Broadband Radiolink equipment";

Part 8: "Specific conditions for radio beacons and locating devices".

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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Introduction

The present document contains a full list of EMC requirements together with the standard test set-ups and compliance limits, that should be used by the product specific parts within the ETSI EN 301 843 series. Deviations, where applicable, from this are set out in the specific product related part.

Product dependent arrangements necessary to perform the EMC tests on dedicated types of radio equipment, and the assessment of test results, are detailed in the appropriate relevant radio technology parts of ETSI EN 301 843 series details of which can be found in the foreword of the present document.

The present document also acts as the basis for product specific parts of the ETSI EN 301 843 series. It is these product specific parts that are intended to be cited in the OJEU under article 3.1(b) of Directive 2014/53/EU [i.8].

1 Scope

The present document contains the common requirements for marine radio communications and radio determination equipment and associated ancillary equipment operating from any combination of internal batteries, DC and single phase AC, in respect of ElectroMagnetic Compatibility (EMC).

The provisions of the present document apply to marine radio equipment **not covered** in the scope of the Council Directive on marine equipment (the "Marine Equipment Directive" 2014/90/EU [i.4]).

Product dependent arrangements necessary to perform the EMC tests on dedicated types of marine radio communications and radio determination equipment, and the assessment of test results, are detailed in the appropriate product related parts of the present document.

The present document, together with the product related part, specifies the applicable EMC tests, the methods of measurement, the limits and the performance criteria for marine radio equipment and associated ancillary equipment.

In case of differences (for instance concerning special conditions, definitions, abbreviation) between the present document and the relevant product related part of the present document, the product related part takes precedence.

For the further content of the present document, the expression "radio equipment" is taken to mean marine radio communications or radio determination equipment, in each individual case.

Technical specifications related to the antenna port of radio equipment and emissions from the enclosure port of radio equipment and combinations of radio and associated ancillary equipment are not included in the present document. Such technical specifications are normally found in the relevant product standards for the effective use of the radio spectrum.

The environment classification used in the present document is maritime, as defined in EN IEC 60945 [i.3].

Marine radio communications equipment meeting the EMC requirements set out in EN IEC 61000-6-3 [i.1] and EN 61000-6-1 [i.2] is deemed to meet also the EMC requirements for the maritime environment described in EN IEC 60945 [i.3].

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus intended to be used in the maritime environment. The levels, however, do not cover extreme cases which may occur in any location but with low probability of occurrence.

2 References

2.1 Normative 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 referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] [EN IEC 55016-1-4:2019](#): "Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Antennas and test sites for radiated disturbance measurements", (produced by CENELEC).
- [2] [EN IEC 55016-1-1:2019](#): "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus", (produced by CENELEC).

- [3] [EN 61000-4-2:2009](#): "Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test", (produced by CENELEC).
- [4] [EN IEC 61000-4-3:2020](#): "Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test", (produced by CENELEC).
- [5] [EN 61000-4-4:2012](#): "Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test", (produced by CENELEC).
- [6] [EN 61000-4-5:2014 +A1:2017](#): "Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test", (produced by CENELEC).
- [7] [EN 61000-4-6:2014](#): "Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields", (produced by CENELEC).
- [8] [EN IEC 61000-4-11:2020](#): "Electromagnetic compatibility (EMC) –Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase", (produced by CENELEC).
- [9] [EN 55016-2-3:2017/A1:2019](#): "Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements", (produced by CENELEC).
- [10] [EN 55016-2-1:2014+A1:2017](#): "Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements", (produced by CENELEC).

2.2 Informative references

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- [i.1] EN IEC 61000-6-3 (2021): "Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments", (produced by CENELEC).
- [i.2] EN 61000-6-1 (2019): "Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments", (produced by CENELEC).
- [i.3] EN 60945 (2002) + Corrigendum 1 (2008): "Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results", (produced by CENELEC).
- [i.4] [Directive 2014/90/EU](#) of the European Parliament and of the Council of 23 July 2014 on marine equipment and repealing Council Directive 96/98/EC.
- [i.5] IEC 60050-161 (1990): "International Electrotechnical Vocabulary. Chapter 161: Electromagnetic compatibility".
- [i.6] [CEPT/ERC Recommendation 74-01 \(2021\)](#): "Unwanted emissions in the spurious domain".
- [i.7] IMO Convention: "International Convention for the Safety of Life at Sea (SOLAS)".

- [i.8] [Directive 2014/53/EU](#) of the European Parliament and of the council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.
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