

STN	Elektromagnetická kompatibilita a záležitosti rádiového spektra (ERM). Plavebné pohyblivé vysielacie a prijímače prevádzkované v pásmach MF a HF. Časť 1: Technické charakteristiky a meracie metódy.	STN EN 300 373-1 V1.4.1 87 0373
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Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime mobile transmitters and receivers for use in the MF and HF bands; Part 1: Technical characteristics and methods of measurement

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**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Maritime mobile transmitters and receivers
for use in the MF and HF bands;
Part 1: Technical characteristics and
methods of measurement**

Reference

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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 Maritime mobile transmitters and receivers for use in the MF and HF bands, as identified below:

- Part 1: "Technical characteristics and methods of measurement";**
- Part 2: "Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive";
- Part 3: "Harmonized EN covering essential requirements under article 3.3(e) of the R&TTE Directive; Equipment with integrated or associated equipment for Class E Digital Selective Calling (DSC)".

The present document sets out the minimum requirements for Medium Frequency (MF) and Medium and High Frequency (MF/HF) equipment on board ships, operating in the maritime mobile MF and HF radio services.

National transposition dates	
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
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1 Scope

The present document states the minimum requirements for radio transmitters and receivers, for use on ships, operating in either the Medium Frequency (MF) only or in the Medium and High Frequency (MF/HF) bands allocated in the International Telecommunications Union (ITU) Radio Regulations [6], to the Maritime Mobile Service (MMS).

The present document includes the International Maritime Organization (IMO) and ITU requirements included in the relevant provisions of the Radio Regulations [6], the International Convention for the Safety Of Life At Sea (SOLAS) [i.1], the IMO Resolutions A.694(17) [i.3] and A806 (19) [i.2] and is primarily intended to specify equipment suitable for fitting to ships subject to the SOLAS convention and complying with the European Marine Equipment Directive [i.12].

The present document refers to equipment for one or more of the following:

- Single SideBand (SSB) modulation for telephony transmission and reception (J3E);
- Frequency Shift Keying (FSK) or SSB modulation of a keyed sub-carrier to transmit and receive Digital Selective Calling (DSC) signals in accordance with Recommendation M.493-13 ITU-R [i.4].

The present document also refers to radio equipment, which is not integrated with the DSC encoder or decoder, but defines the interfaces with such equipment.

NOTE 1: The requirements for integrated equipment may be found in other relevant ENs.

NOTE 2: The requirements for other modes of operation may be found in other relevant ENs.

The tests in the present document are applicable to equipment operating on all frequencies in the bands 1 606,5 kHz to 4 000 kHz or 1 606,5 kHz to 27,5 MHz as allocated in the Radio Regulations [6], to the MMS.

The present document does not address the testing of ancillary equipment on a stand-alone basis, i.e. separately from the radio equipment with which it is to be used.

NOTE 3: The EMC requirements and requirements for cabinet radiation for ancillary equipment are found in EN 301 843-5 [i.5], clause 7.

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 301 033: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for shipborne watchkeeping receivers for reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and VHF bands".
- [2] Recommendation ITU-T E.161 (2001): "Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network".
- [3] CENELEC EN 61162-1 (2011): "Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners".

- [4] ISO 3791 (1976): "Office machines and data processing equipment -- Keyboard layouts for numeric applications".
- [5] ETSI TR 100 028 (V1.4.1) (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [6] ITU Radio Regulations (2012).
- [7] ANSI C63.5-2006: "American National Standard for Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz)".
- [8] IEC 60489-3 Second edition (1999) appendix F: "Methods of measurement for radio equipment used in the mobile services. Part 3: Receivers for A3E or F3E emissions".
- [9] ETSI EN 300 338-2 (V1.3.1): "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 2: Class A/B DSC".
- [10] CISPR 16-1-1 ed. 3.1 (2010) "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus".

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] International Convention for the Safety of Life at Sea, (SOLAS), as amended.
- [i.2] IMO Resolutions A.806 (19): "Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling".
- [i.3] IMO Resolutions A.694(17): "General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System and for Electronic Navigational Aids".
- [i.4] Recommendation ITU-R M.493-13: "Digital selective-calling system for use in the maritime mobile service".
- [i.5] ETSI EN 301 843-5: "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 5: Specific conditions for MF/HF radiotelephone transmitters and receivers".
- [i.6] ETSI ETS 300 019-1-6: "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-6: Classification of environmental conditions; Ship environments".
- [i.7] Recommendation ITU-R SM.326-6: "Determination and measurement of the power of radio transmitters".
- [i.8] Recommendation ITU-R SM.332-4: "Selectivity of receivers".
- [i.9] ETSI TR 102 273 (parts 2, 3 and 4): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".
- [i.10] ETSI TS 101 570-2 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 2: Class A/B Test Descriptions".
- [i.11] ETSI ETS 300 067 (Edition 1) (1990): "Radio Equipment and Systems (RES); Radiotelex equipment operating in the maritime MF/HF service; Technical Characteristics and methods of measurement".

- [i.12] Council Directive 96/98/EC of 20 December 1996 on marine equipment (Marine Equipment Directive).
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