



SLOVENSKI STANDARD

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Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Technical characteristics and methods of measurement

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Technical characteristics and methods of measurement**

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Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Electromagnetic compatibility and Radio spectrum Matters (ERM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 83/189/EEC (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

This ETS, together with ETS 300 828 [10], is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility ("the EMC Directive") (89/336/EEC as amended).

Technical specifications relevant to the EMC Directive are given in annex B.

Annex D contains the ERC Decision which references the technical specifications in this ETS for inclusion in national type approval regulations.

Transposition dates	
Date of adoption of this ETS:	6 February 1998
Date of latest announcement of this ETS (doa):	30 June 1998
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 December 1998
Date of withdrawal of any conflicting National Standard (dow):	31 December 1998

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1 Scope

This ETS specifies the minimum requirements for shipborne Very High Frequency (VHF) transmitters and receivers capable of voice and Digital Selective Calling (DSC), fitted with an external antenna connector for use on board ships.

This ETS lays down minimum requirements for VHF radio transmitters and receivers operating in certain frequency bands allocated to the maritime mobile service, and incorporates the requirements of the relevant recommendations of the International Maritime Organization (IMO).

2 Normative references

This ETS incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent references to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] Radio Regulations, Appendix 18 (1990): "Table of Transmitting Frequencies in the Band 156 - 174 MHz for Stations in the Maritime Mobile Service".
- [2] Radio Regulations, Appendix 19 (1990): "Technical Characteristics for Transmitters and Receivers used in the Maritime Mobile Service in the Band 156 - 174 MHz".
- [3] ITU-T Recommendation E.161 (1993): "Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network".
- [4] Recommendation ITU-R M.4938 (1997): "Digital selective-calling system for use in the maritime mobile service".
- [5] Recommendation ITU-R M.541-7 (1997): "Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service".
- [6] IMO Resolution A.803(19): "Performance Standards for Shipborne VHF Radio Installations capable of Voice Communications and Digital Selective Calling".
- [7] IMO Resolution A.524(13): "Performance Standard for VHF Multiple Watch facilities".
- [8] ITU-T Recommendation P.53 (1988): "Psophometer for use on telephone-type circuits".
- [9] IEC 1162-1 (1995-11): "Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners".
- [10] ETS 300 828 (1997): "Radio Equipment and Systems (RES); ElectroMagnetic Compatibility (EMC) for radiotelephone transmitters and receivers for the maritime mobile service operating in the VHF bands".
- [11] ETR 028: "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".
- [12] ETS 300 338: "Radio Equipment and Systems (RES); 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".
- [13] ITU-R Recommendation SM 332-4: "Selectivity of receivers".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purpose of this ETS, the following definitions apply:

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

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

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

performance check: A check of:

- the transmitter carrier power and frequency; and
- receiver sensitivity (see subclause 7.2).

3.2 Symbols

For the purposes of this ETS, the following symbols apply:

dBa	relative to 2×10^{-5} Pa
e.m.f.	electromotive force

3.3 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

ad	amplitude difference
DSC	Digital Selective Calling
EUT	Equipment Under Test
fd	frequency difference
FSI	Frequency Set Information
RF	Radio Frequency
rms	root mean square
SFI	Scanning Frequency Information
SINAD	Signal + Noise + Distortion / Noise + Distortion
VHF	Very High Frequency

4 General and operational requirements

4.1 Construction

The manufacturer shall declare that compliance to the requirement of clause 4 is achieved and shall provide relevant documentation.

The mechanical and electrical construction and finish of the equipment shall conform in all respects to good engineering practice, and the equipment shall be suitable for use on board ships.

All controls shall be of sufficient size to enable the usual control functions to be easily performed and the number of controls should be the minimum necessary for simple and satisfactory operation.

All parts of the equipment to be checked during inspection or maintenance operations shall be readily accessible. The components shall be readily identifiable.

Technical documentation shall be supplied with the equipment.

The VHF maritime mobile service uses both single-frequency and two-frequency channels. For two-frequency channels there shall be a separation of 4,6 MHz between the transmitting frequency and the receiving frequency (see Radio Regulations [1]).

The equipment, which can consist of more than one unit, shall be capable of operating on single frequency and two-frequency channels with manual control (simplex). It may also be capable of operating on two-frequency channels without manual control (duplex).

The equipment shall be able to operate on all channels defined in Appendix 18 to the Radio Regulations [1].

Operation on channels 75 and 76 shall be prevented by appropriate means. Additional VHF channels outside those defined by Appendix 18 to the Radio Regulations [1] may also be provided, but means shall be provided to block any or all of these additional channels, as may be required by an Administration, before installation on board ships. It shall not be possible for the user to unblock or block these additional channels.

The equipment shall be so designed that use of channel 70 for purposes other than Digital Selective Calling (DSC) is prevented (see Recommendation ITU-R M.493-8 [4] and Recommendation ITU-R M.541-7 [5]).

It shall not be possible to transmit while any frequency synthesizer used within the transmitter is out of lock.

It shall not be possible to transmit during channel switching operations.

4.2 Controls and indicators

The equipment shall have a channel selector and shall indicate the designator, as shown in Appendix 18 to the Radio Regulations [1], of the channel at which the installation is set. The channel designator shall be legible irrespective of the external lighting conditions.

Channels 16 and 70 should be distinctively marked. Selection of channel 16, and if possible channel 70, shall be by readily accessible means (e.g. a distinctively marked key). Where an input panel on the equipment for entering the digits 0 - 9 is provided, this shall conform to ITU-T Recommendation E.161 [3].

The equipment shall have the following additional controls and indicators (see IMO Resolution A.803(19) [6]): <https://standards.iteh.ai/catalog/standards/sist/643fadc6-0f66-4d33-b2c5-ca91556066a5/sist-ets-300-162-1999>

- on/off switch for the entire installation with a visual indication that the installation is in operation;
- a manual non-locking push to talk switch to operate the transmitter;
- on/off switch for the loudspeaker;
- a switch for reducing transmitter output power to no more than 1 W;
- an audio frequency power volume control;
- a squelch control;
- a control for reducing the brightness of the equipment illumination to zero;
- a visual indication that the transmitter is activated.

The equipment shall also meet the following requirements:

- the user shall not have access to any control which, if wrongly set, might impair the technical characteristics of the equipment;
- if the accessible controls are located on a separate console and if there are two or more control consoles, one of the consoles shall have priority over the others. If there are two or more control consoles, the operation of one console shall be indicated on the other consoles.