



SLOVENSKI STANDARD SIST ETS 300 698 E1:2003

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Radio Equipment and Systems (RES); Radio telephone transmitters and receivers for the maritime mobile service operating in the VHF bands used on inland waterways; Technical characteristics and methods of measurement

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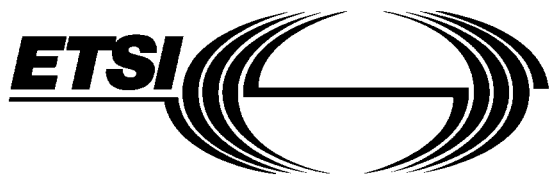
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Technical characteristics and methods of measurement**

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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1 Scope

This ETS lays down the minimum requirements for VHF radio transmitters and receivers operating on board ships in frequency bands allocated to the maritime mobile service, used on inland waterways as defined by Regional Agreements or responsible Administrations.

This ETS applies to VHF transmitters and receivers fitted with a 50 Ω external antenna socket or connector for use on board ships on inland waterways and operating in the bands between 156 and 174 MHz allocated to the maritime mobile service by the Radio Regulations [1], appendices 18 and 19.

For countries where the Automatic Transmitter Identification System (ATIS) is mandatory, the requirements of annex B apply.

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] ITU Radio Regulations (1990 Revised in 1994).
- [2] 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".
- [3] 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".
- [4] IEC 1162-1: "Digital Interfaces – Maritime Navigation and Radiocommunication Equipment and Systems – Part 1: Single Talker and Multiple Listeners".
- [5] ISO/R 694: "Positioning of magnetic compasses in ships".
- [6] ETR 028: "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".
- [7] ITU-T Recommendation P.53 (1988): "Psophometers (apparatus for the objective measurement of circuit noise)".
- [8] ITU-R Recommendation M.493: "Digital selective-calling system for use in the maritime mobile service".

3 Definitions and Abbreviations

3.1 Definitions

For the purposes of this ETS, the definitions given in the Radio Regulations [1] apply.

3.2 Abbreviations

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

ad	amplitude difference
ATIS	Automatic Transmitter Identification System
DSC	Digital Selective Calling
DX	first transmission
emf	electromotive force
fd	frequency difference

RF	Radio Frequency
rms	root mean square
RX	re-transmission
SINAD	Signal + Noise + Distortion/Noise + Distortion
VSWR	Voltage Standing Wave Ratio

4 General requirements

4.1 Construction

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.

For the purpose of conformance testing, relevant 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 the Radio Regulations require a separation of 4,6 MHz between the transmitting frequency and the receiving frequency.

The equipment 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).

No scanning or multiple watch facilities shall be implemented.

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

Operation on channels 75 and 76 shall be prevented by appropriate means.

The equipment shall be so designed that use of channel 70 for purposes other than Digital Selective Calling (DSC) is prevented.

The Administration may grant permission for one or more channels in addition to those as defined by the Radio Regulations [1], appendix 18.

The possibility to apply automatic power reduction to any of these channels shall be available. It shall not be possible for the user to change the programmed settings of these channels.

The output power shall be automatically limited to a value between 0,5 and 1 W on the following channels:

- 6, 8, 10, 11, 12, 13, 14, 15, 17, 71, 72, 74 and 77.

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 the Radio Regulations [1], appendix 18, of the channel at which the installation is set. The channel designator shall be legible irrespective of the external lighting conditions.

Where an input panel on the equipment for entering the digits 0 - 9 is provided, this shall conform to ITU-T Recommendation E.161 [2].

The equipment shall have the following additional controls and indicators:

- an 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;
- a manual switch for reducing the transmitter output power to a value between 0,5 and 1 W;
- an audio frequency power volume control not affecting the audio level of the handset;
- a squelch control;
- a control for reducing the brightness of the equipment illumination to zero;
- an output power detector giving a visual indication that the carrier is being produced.

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.

4.3 Handset and loudspeaker

The equipment shall be fitted with an integral loudspeaker and/or a socket for an external loudspeaker and shall have the facility to be fitted with a telephone handset or a microphone.

During transmission in simplex operation the receiver output shall be muted.

During transmission in duplex operation only the handset shall be operative. Measures shall be taken to ensure correct operation when duplex is used and precautions shall be taken to prevent harmful electrical or acoustic feedback which might produce oscillations.

4.4 Switching time

The channel switching arrangement shall be such that the time necessary to change over from using one of the channels to using any other channel does not exceed 5 s.

The time necessary to change over from transmission to reception or vice versa, shall not exceed 0,3 s.

4.5 Safety precautions

Measures shall be taken to protect the equipment against the effects of overcurrent or overvoltage.

Measures shall be taken to prevent damage to the equipment if the electrical power source produces transient voltage variations and to prevent any damage that might arise from an accidental reversal of polarity of the electrical power source.

Means shall be provided for earthing exposed metallic parts of the equipment but this shall not cause any terminal of the source of electrical energy to be earthed.

All components and wiring in which the dc or ac voltage (other than radio-frequency voltage) produce, singly or in combination, peak voltages in excess of 50 V shall be protected against any accidental access and shall be automatically isolated from all electrical power sources if the protective covers are removed. Alternatively, the equipment shall be constructed in such a way as to prevent access to components operating at such voltages unless an appropriate tool is used such as a nut-spanner or screwdriver. Conspicuous warning labels shall be affixed both inside the equipment and on the protective covers.