



SLOVENSKI STANDARD
SIST EN 300 225 V1.4.1:2006

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**Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) –
Tehnične karakteristike in merilne metode za prenosne radiotelefonske aparate
VHF za rešilne čolne**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for survival craft portable VHF radiotelephone apparatus

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Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for survival craft portable VHF radiotelephone apparatus

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Foreword

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

This edition of the present document is the result of the incorporation of an amendment into the third edition of ETS 300 225 (1998). This amendment has been approved via the ETSI standards One-step Approval Procedure. For details, consult the document history on the last page.

The present document defines the minimum technical characteristics required for portable VHF radio telephones operating in survival craft and optionally on board ships at sea, in certain frequency bands allocated to the Maritime Mobile Service (MMS). It also incorporates the requirements detailed in the Radio Regulations, International Convention for the Safety of Life at Sea SOLAS 1974 as amended [9] and the relevant recommendations of the International Maritime Organization.

Every EN prepared by ETSI is a voluntary standard. The present document contains text concerning type approval of the equipment to which it relates. This text does not make the present document mandatory in its status as a standard. However, the present document can be referenced wholly or in part, for mandatory application by decisions of regulatory bodies.

National transposition dates

Date of adoption of this EN:	10 December 2004
Date of latest announcement of this EN (doa):	31 March 2005
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2005
Date of withdrawal of any conflicting National Standard (dow):	30 September 2005

1 Scope

The present document states the minimum technical characteristics required for portable VHF radiotelephones operating in the bands between 156 MHz and 174 MHz allocated to the Maritime Mobile Services by the Radio Regulations (see Radio Regulations, Appendices 18 [1] and 19 [2]) and suitable for use in survival craft and, optionally, on board ships at sea. The requirements detailed in the Radio Regulations, International Convention for the Safety Of Life At Sea SOLAS 1974 and the International Maritime Organization Resolutions A.694(17) [4] and A.809(19) [3] are incorporated in 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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

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- [1] ITU Radio Regulations, Appendix 18: "Table of transmitting frequencies in the VHF maritime mobile band".
- [2] ITU Radio Regulations, Appendix 19: "Technical characteristics of emergency position-indicating radiobeacons operating on the carrier frequency 2182 kHz".
- [3] International Maritime Organization Resolution A.809(19): "Performance standards for survival craft two way VHF radiotelephone apparatus".
- [4] International Maritime Organization Resolution A.694(17): "General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids".
- [5] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [6] ITU-T Recommendation O.41 (1994): "Psophometer for use on telephone-type circuits".
- [7] ETSI EN 300 019 (all parts): "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment".
- [8] ISO 694: "Ships and marine technology - Positioning of magnetic compasses in ships".
- [9] International Maritime Organisation: "International Convention for the Safety Of Life At Sea (SOLAS)".

3 Abbreviations

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

ad	amplitude difference
DSC	Digital Selective Calling
emf	electro-motive force
ERP	Effective Radiated Power
fd	frequency difference

IF	Intermediate Frequency
MMS	Maritime Mobile Service
RF	Radio Frequency
rms	root mean square
SINAD	(Signal + Noise + Distortion)/(Noise + Distortion) ratio
SOLAS	International Convention for the Safety of Life at Sea

4 General requirements

4.1 Construction

The equipment shall be portable and capable of being used for on-scene communications between survival craft, between survival craft and ship and between survival craft and rescue unit. It may also be used for on-board communications when capable of operating on appropriate frequencies.

The equipment shall comprise at least:

- an integral transmitter/receiver including antenna and battery;
- an integral control unit including a press-to-transmit switch; and
- an internal microphone and loudspeaker.

The equipment shall be of either, highly visible yellow or orange colour, or marked with a surrounding highly visible yellow or orange marking strip, which shall be visible also during charging and storage, as applicable.

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 and survival craft at sea.

All controls shall be of sufficient size to enable the usual control functions to be easily performed by a user wearing gloves for immersion suits, in accordance with SOLAS 1974 Chapter III, Regulation 32 [9]. The number of controls should be the minimum necessary for simple and satisfactory operation. With the possible exception of channel selection, it shall be possible to operate the equipment using only one hand.

Any parts of the equipment required to be checked during inspection or maintenance operations as laid down by the manufacturer, shall be readily accessible. Components shall be readily identifiable.

For the purpose of conformance testing in accordance with the present document, adequate technical and operational documentation shall be supplied with the equipment.

The equipment shall not be unduly affected by sea water, oil, or exposure to sunlight.

The equipment shall be of small size and light weight (not more than 1,5 litres and 1,5 kg).

The equipment shall have provisions for its attachment to the clothing of the user and also be provided with a wrist or neck strap. For safety reasons, the strap should include a suitable weak link to prevent the bearer from being ensnared.

The manufacturer shall provide evidence on the method of attaching the equipment to the user's clothing, including the immersion suit specified in SOLAS 1974 Chapter III, Regulation 32 [9]. The manufacturer shall supply documentary proof of compliance with this requirement.

4.2 Frequencies and power

The equipment shall operate only on single-frequency channels for voice communications with manual control (simplex).

The equipment shall provide for transmission and reception of signals on channel 16 and at least one other single frequency channel from those specified in Appendix 18 of the Radio Regulations [1], (with the exception of the DSC calling channel 70), (see also clause 6.6).

Independent selection of transmitting and receiving frequencies shall not be possible.

After switch on the equipment shall be operational within 5 seconds and meet the requirements of the present document within 1 minute.

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

4.3 Controls

The equipment shall have a channel selector and shall indicate the designator of the channel at which the equipment is set, as given in Appendix 18 of the Radio Regulations [1].

It shall be possible to determine that channel 16 has been selected in all ambient light conditions.

The equipment shall have the following additional controls:

- on/off switch for the equipment with a visual indication that the equipment is switched on;
- a manual non-locking push to talk switch to operate the transmitter;
- a switch for reducing the power to not exceed 1 watt ERP; if the transmitter ERP is greater than 1 watt;
- an audio-frequency volume control;
- a squelch control;
- a carrier power detector giving a visual indication that the carrier is being produced.

The user shall not have access to any control which may impair the technical characteristics of the equipment if wrongly set.

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4.4 Switching time (standards.iteh.ai)

The channel switching arrangements 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 seconds.

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

4.5 Safety precautions

Means shall be incorporated to prevent damage to the equipment due to reversal of polarity of the battery power supply.

The equipment shall be designed to be free of sharp projections which could damage survival craft.

The manufacturer shall declare the survival craft compass safe distance according to ISO Recommendation 694 [8].

The equipment shall not be damaged by the effects of an open circuit or a short circuit of the antenna.

4.6 Class of emission and modulation characteristics

The equipment shall use phase modulation, G3E (frequency modulation with a pre-emphasis of 6 dB/octave) for speech.

The equipment shall be designed to operate satisfactorily to the requirements of the present document with a channel separation of 25 kHz.

The frequency deviation corresponding to 100 % modulation shall approach ± 5 kHz as nearly as practicable.

4.7 Battery

The battery shall be integrated in the equipment. In addition provision may be made to operate the equipment using an external power source.

The equipment shall be capable of operating with primary batteries. In addition the equipment may be capable of operating with secondary batteries.

Primary batteries shall have a shelf life of at least two years.

Primary batteries shall have a colour and marking as described in clause 4.1.

Secondary batteries shall not have the same colour or marking as the primary batteries.

The capacity of the integral primary battery shall be sufficient to operate the equipment continuously for at least eight hours at any temperature condition (see clauses 5.3.1 and 5.4.1) with a 1:9 transmit to receive duty cycle at the highest rated transmit power.

This duty cycle is defined as:

- 6 s transmit at full RF output power without modulation, 6 s reception with an RF input signal at the nominal frequency of the receiver at a level of +60 dB μ V using normal test modulation (see clause 6.4); and
- the audio volume control of the receiver set at maximum followed by 48 s reception without input signal and the squelch control operational (muted).

Provisions shall be made for replacing the battery easily without the use of special tools and without degrading the performance of the equipment (particularly water tightness after re-assembly).

If the equipment is capable of operation with secondary batteries, see clause 11.

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4.8 Labelling

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All controls and indicators shall be clearly labelled.

The equipment shall be clearly labelled with brief instructions for operation.

The equipment shall be clearly marked on the exterior with identification of the manufacturer, type designation, serial number and the compass safe distance.

The type and designation of the battery used and the expiry date of any primary battery shall be clearly labelled.

5 Test conditions, power sources and ambient temperatures

5.1 Normal and extreme test conditions

Conformance testing shall be made under normal test conditions and also, where stated, under extreme test conditions.

5.2 Test power source

During conformance testing, the equipment shall be supplied from a test power source capable of producing normal and extreme test voltages as specified in clauses 5.3.2 and 5.4.2. The test power source shall only be used in measurements where its effect on the test results shall be negligible. For the purpose of testing the power source voltage shall be measured at the input terminals of the equipment.

During testing, the power source voltages shall be maintained within a tolerance of ± 3 % relative to the voltage level at the beginning of each test.