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Radijska oprema in sistemi (RES) ï Tehniļne karakteristike in merilne metode za prenosne radiotelefonske aparate VHF za reģilne ļ olne

Radio Equipment and Systems (RES); Technical characteristics and methods of measurement for survival craft portable VHF radiotelephone apparatus

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New presentation - see History box

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Foreword

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

This I-ETS 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, SOLAS 1974 (as amended in 1988) [3] and the relevant recommendations of the International Maritime Organization.

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

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1 Scope

This I-ETS states the minimum technical characteristics required for portable VHF radiotelephones operating in the bands between 156 and 174 MHz allocated to the Maritime Mobile Services by the ITU 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, in SOLAS 1974 [3], as amended 1988, and the International Maritime Organisation Resolutions A.694(17) [5] and A.762(18) [4] are incorporated in this I-ETS.

2 Normative references

This I-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 publication apply to this I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] International Radio Regulations, Appendix 18: "Table of Transmitting Frequencies in the Band 156 - 174 MHz for Stations in the Maritime Mobile Service".

[2] International Radio Regulations, Appendix 19: "Technical Characteristics for Transmitters and Receivers used in the Maritime Mobile Service in the band 156 - 174 MHz".

[3] International Convention for the Safety of Life at Sea (SOLAS) 1974 as amended.

[4] International Maritime Organization Resolution A.762(18): "Performance standards for survival craft two way VHF radiotelephone apparatus".

[5] International Maritime Organization Resolution A.694(17): "General requirements for ship-borne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS)".

[6] ETR 028: "Radio Equipment and Systems; Uncertainties in the measurement of mobile radio equipment characteristics".

[7] CCITT Recommendation P.53 (1988): "Psophometric apparatus for the objective measurement of circuit noise".

[8] ETS 300 019: "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment".

[9] ISO Recommendation 694, Method B.

3 Abbreviations

For the purposes of this I-ETS the following abbreviations apply.

DSC	Digital Selective Calling
emf	electro-motive force
ERP	Effective Radiated Power
MMS	Maritime Mobile Service
RF	Radio Frequency
rms	root mean square
SINAD	(Signal + Noise + Distortion)/(Noise + Distortion) ratio
SOLAS	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 33 [3]. 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 this I-ETS, 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 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 33 [3].

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 subclause 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 this I-ETS 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 to 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.

4.4 Switching time

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 Method B [9].

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 this I-ETS 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 source of power, (i.e. battery) shall be integrated in the equipment; and in addition, provision may be made to operate the equipment using an external power source.

The capacity of the internal battery shall be sufficient to operate the equipment continuously for at least 8 hours at any temperature condition (see subclauses 5.3.1 and 5.4.1) with a 1:9 transmit to receive ratio at its highest rated transmitter power.

This duty cycle is defined as: