SLOVENSKI STANDARD
oSIST prEN 301 025 V2.2.2:2020

01-december-2020

Radiotelefonska oprema za območje VHF za splošne komunikacije in pripadajoča oprema za digitalni selektivni klic (DSC) razreda D - Harmonizirani standard za dostop do radijskega spektra in za funkcije storitev v sili

VHF radiotelephone equipment for general communications and associated equipment for Class D Digital Selective Calling (DSC) - Harmonised Standard for access to radio spectrum and for features for emergency services

Ta slovenski standard je istoveten z: **ETSI EN 301 025 V2.2.2 (2020-10)**

ICS:

33.060.99	Druga oprema za radijske komunikacije	Other equipment for radiocommunications

oSIST prEN 301 025 V2.2.2:2020 **en**

Draft ETSI EN 301 025 V2.2.2 (2020-10)

VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Harmonised Standard for access to radio spectrum and for features for emergency services

Reference
REN/ERM-TGMAR-608

Keywords
DSC, harmonised standard, maritime, radio, traffic, VHF

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Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.7] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.3].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in tables A.1 and A.2 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1 Scope

The present document specifies technical characteristics and methods of measurements for VHF radiotelephone operating in the frequency bands specified in Radio Regulation appendix 18 [1] as applicable, allocated to the maritime mobile service using either 25 kHz or 25 kHz and 12,5 kHz channels and associated equipment for DSC - class D.

The present document does not cover requirements for any integrated GNSS receiver providing locating function.

These requirements include the relevant provisions of the ITU Radio Regulations, appendix 18 [1], Recommendation ITU-R M.493-15 [3] (where class D is defined), Recommendation ITU-R M.825-3 [i.4] and incorporate the relevant guidelines of the IMO as detailed in IMO Circular MSC/Circ-803 [i.1].

NOTE: The relationship between the present document and essential requirements of article 3.2 and article 3.3(g) of Directive 2014/53/EU [i.3] is given in annex A.

2 References

2.1 Normative 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 referenced 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.

The following referenced documents are necessary for the application of the present document.

[1] ITU Radio Regulations (2020).

[2] ETSI EN 300 338-3 (V1.3.1) (06-2020): "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 3: Class D DSC".

[3] Recommendation ITU-R M.493-15 (01/2019): "Digital selective-calling system for use in the maritime mobile service".

[4] Recommendation ITU-R M.1084-5 (03/2012): "Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service".

[5] ETSI TS 103 052 (V1.1.1) (03-2011): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiated measurement methods and general arrangements for test sites up to 100 GHz".

[6] EN 61162-1 (2016): "Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners", (produced by CENELEC).

[7] EN 61162-3 (2008) +A2:2014: "Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 3: Serial data instrument network", (produced by CENELEC).

[8] Recommendation ITU-T O.41 (1994): "Psophometer for use on telephone-type circuits".

2.2 Informative 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 referenced document (including any amendments) applies.

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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] IMO Circular MSC/Circ-803: "Participation of non-SOLAS ships in the Global Maritime Distress and Safety System (GMDSS)".

[i.2] Recommendation ITU-R SM.332-4: "Selectivity of receivers".

[i.3] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

[i.4] Recommendation ITU-R M.825-3 (1998): "Characteristics of a transponder system using digital selective calling techniques for use with vessel traffic services and ship-to-ship identification".

[i.5] Void.

[i.6] ETSI TS 101 570-3 (V1.1.1) (06-2012): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 3: Class D Test Descriptions".

[i.7] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.

[i.8] ETSI EG 203 336: "Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".

3 Definition of terms, symbols and abbreviations

3.1 Terms

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

block: inhibit a function by making it inaccessible from the user interface

carrier frequency: frequency to which the transmitter or receiver is tuned

class D: class of DSC intended to provide minimum facilities for VHF DSC distress, urgency and safety as well as routine calling and reception, not necessarily in full accordance with IMO GMDSS carriage requirements for VHF installations

NOTE: See Recommendation ITU-R M.493-15 [3].

environmental profile: range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

frequency deviation: difference between the instantaneous frequency of the modulated RF signal and the carrier frequency

G2B: phase-modulation with digital information, with a sub-carrier for DSC operation

G3E: phase-modulation (frequency modulation with a pre-emphasis of 6 dB/octave) for speech

linear demodulator: FM demodulator with no audio filtering

linear demodulation: FM demodulation with no audio filtering

modulation index: ratio between the frequency deviation and the frequency of the modulation signal

3.2 Symbols

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

λ	lambda (wavelength)

3.3 Abbreviations

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

ad	amplitude difference
AIS	universal shipborne Automatic Identification System
CSP	Channel SPacing
d.c.	direct current
DSC	Digital Selective Calling
e.m.f.	electromotive force
EFTA	European Free Trade Association
EN	European Norm
EUT	Equipment Under Test
fd	frequency difference
FM	Frequency Modulation
FSK	Frequency Shift Keying
GLL	Geographic position – Latitude/Longitude
GMDSS	Global Maritime Distress and Safety System
GNSS	Global Navigation Satellite System
IF	Intermediate Frequency
IM	InterModulation
IMO	International Maritime Organization
ITU-R	International Telecommunication Union, Radiocommunications sector
ITU-T	International Telecommunication Union, Telecommunications sector
MPFD	Maximum Permissible Frequency Deviation
na	not available
nm	nautical mile
OOB	Out Of Band
ppm	parts per million
r.m.s.	root mean square
RBW	Reference BandWidth
RF	Radio Frequency
SINAD	Signal + Noise + Distortion to Noise + Distortion
SOLAS	Safety Of Life At Sea
VHF	Very High Frequency

4 General and operational requirements

4.1 General

Compliance shall be established by simple inspection of the equipment and its technical documentation.

4.2 Composition

The equipment shall, as a minimum, include:

- a VHF radiotelephone transmitter;
- a VHF radiotelephone receiver;
- a GNSS interface according to clause 5.5;
- a dedicated channel 70 watchkeeping receiver for DSC decoder; and
- a DSC encoder and a DSC decoder; or
- a dedicated DSC controller interface.

4.3 Construction

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.

Detailed operating instructions shall be provided with the equipment.

The equipment shall be capable of operating on single frequency and two-frequency channels with manual control (simplex).

The equipment shall be able to operate on appropriate channels defined in appendix 18 to the Radio Regulations [1], noting in particular footnotes m) and e).

Additional VHF channels for maritime use outside those defined by appendix 18 to the Radio Regulations may also be provided where permitted by relevant administrations. These channels shall be clearly identified for use as relating to the relevant administration(s) and accessed through (a) positive action(s) for enabling use of this/these channel(s) but means shall be provided to block any or all of these additional channels if required by the relevant administration(s).

If 12,5 kHz channels are implemented in the equipment it shall be in accordance with annex 4 of Recommendation ITU-R M.1084-5 [4].

The equipment shall be so designed that use of channel 70 for purposes other than DSC is prevented, and that use of channels AIS1 and AIS2 for purposes other than AIS is prevented.

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.

4.4 Controls and indicators

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

If the equipment can be operated from more than one position, the control unit provided at the position from where the vessel is normally navigated shall have priority and the individual control units shall be provided with an indicator showing whether the equipment is in operation.

The following controls or functions shall be provided:

- 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 with a visual indication that the transmitter is activated and facilities to limit the transmission time to a maximum of 5 min. A short audible alarm and a visual indication may be provided to show when the transmission will be automatically terminated within the next 10 s. It shall be possible to reoperate the push to talk switch and reactivate the transmitter after a 10 s period;