SLOVENSKI STANDARD
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Pomorski osebni javljalniki lokacije majhne moči z uporabo AIS - Harmonizirani standard, ki zajema bistvene zahteve člena 3.2 direktive 2014/53/EU

Maritime low power personal locating devices employing AIS - Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

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Maritime low power personal locating devices employing AIS; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

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Foreword

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

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.5] 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.1].

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 table A.1 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.

National transposition dates	
Date of adoption of this EN:	16 May 2016
Date of latest announcement of this EN (doa):	31 August 2016
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 2017
Date of withdrawal of any conflicting National Standard (dow):	28 February 2018

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document lays down the minimum requirements for low power maritime personal locating devices employing AIS The present document does not cover requirements for the integrated GNSS receiver providing locating function.

The present document incorporates the relevant provisions of the International Telecommunication Union (ITU) radio regulations [i.4] included in Recommendation ITU-R M.1371-5 [1].

For this application, both the radiated power and the length of time of operation are limited to enable the equipment to be sufficiently small and light to be worn comfortably at all times and to limit the operating range to a local area.

The present document also specifies technical characteristics, methods of measurement and required test results.

The present document contains requirements to demonstrate that "... *Radio equipment shall be so constructed that it both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference*" [i.1].

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] Recommendation ITU-R M.1371-5 (02/2014): "Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band".

[2] CENELEC EN 61108-1 (2003): "Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 1: Global positioning system (GPS) - Receiver equipment - Performance standards, methods of testing and required test results".

[3] CENELEC EN 61108-2 (1998): "Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 2: Global navigation satellite system (GLONASS) - Receiver equipment - Performance standards, methods of testing and required test results".

[4] CENELEC EN 61108-3 (2010): "Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 3: Galileo receiver equipment - Performance requirements, methods of testing and required test results".

[5] Recommendation ITU-T O.153 (10/1992): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[6] IMO Annex 11 - Resolution MSC.149(77) - (adopted on 3 June 2003): "Adoption of the revised performance standards for survival craft portable two-way VHF radiotelephone apparatus".

[7] 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".

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] 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.2] ETSI TR 100 028-1 (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1".

[i.3] ETSI TR 100 028-2 (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2".

[i.4] ITU-R Radio Regulations 2012.

[i.5] 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.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document the following terms and definitions apply:

active mode: activated mode, transmitting in an emergency situation

dedicated antenna: removable antenna supplied and tested with the equipment, designed as an indispensable part of the equipment

integral antenna: antenna designed to be connected to the equipment without the use of a 50 Ω external connector and considered to be part of the equipment

NOTE: An integral antenna may be fitted internally or externally to the equipment.

test mode: self testing mode, not involved in a genuine emergency

UTC lock: GNSS has precisely locked to UTC so that it can determine SOTDMA slot timing correctly.

UTC parameters: "Coordinated Universal Time (UTC) offset parameters" GNSS data that contains leap second offset information

3.2 Symbols

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

cSt	centi-Stokes
dB	decibel
µT	microtesla

3.3 Abbreviations

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

AIS	Automatic Identification System
ASTM	American Society for Testing and Materials
CIRM	Comité International Radio-Maritime
COG	Course Over Ground
CRC	Cyclic Redundancy Check
CW	Continuous Wave
EFTA	European Free Trade Area
EIRP	Effective Isotropic Radiated Power
ERP	Effective Radiated Power
EUT	Equipment Under Test
GLONASS	GLObal NAvigation Satellite System (Russian system)
GMSK	Gaussian Minimum Shift Keying
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GTRF	Galileo Terrestrial Reference Frame system
IMO	International Maritime Organization
ISO	International Organization for Standardization
ITRF	International Terrestrial Reference Frame
ITU-R	International Telecommunication Union Radiocommunication sector
ITU-T	International Telecommunication Union Telecommunication sector
MOB	Man Over-Board
NRZI	Non Return to Zero, Inverted
PPS	Pulses Per Second
PZ-90	Parametry Zemli 1990
RAIM	Receiver Autonomous Integrity Monitoring
RF	Radio Frequency
SOG	Speed Over Ground
SOTDMA	Self-Organized Time Division Multiple Access
TDMA	Time Division Multiple Access
UTC	Coordinated Universal Time
VDL	VHF Data Link
VHF	Very High Frequency
VSWR	Voltage Standing Wave Ratio
WGS-84	World Geodetic System 1984

4 General requirements

4.1 Construction

4.1.0 General

The manufacturer shall provide evidence that all requirements in clause 4 are fulfilled.

In all respects, the mechanical and electrical design and the construction and finish of the equipment shall conform with good engineering practice.

The equipment shall be designed to minimize the risk of internal and external damage during use or stowage.

The exterior of the equipment shall have no sharp edges or projections that could easily damage inflatable rafts or injure personnel.

The general construction and method of operation shall provide a high degree of proof against inadvertent operation due to magnetic influences, handling, stowage and transit, whilst still providing a simple means of operation in an emergency.

The equipment shall be portable, lightweight, compact and be designed as one integral unit. The locating device shall derive its energy from a battery forming a part of the equipment and incorporate an integral or dedicated antenna which may be either fixed length or extendible.

The locating device may be fitted with a test facility by which the functioning of the transmitter and battery can be easily tested without the use of any external equipment.

The equipment shall be capable of being used by an unskilled person.

The locating device shall be watertight to a depth of 1 m (see clause 7.13).

The equipment shall not be unduly affected by sea water or oil and shall be resistant to deterioration by prolonged exposure to sunlight.

A substantial part of the equipment shall be of highly visible yellow or orange colour to assist visual location.

4.1.1 Categories of equipment

Two categories are defined:

- Category 1 locating devices shall have sufficient positive buoyancy to float in fresh water.
- Category 2 locating devices intended to be incorporated into or attached to a buoyancy aid are not required to float.

Category 1 locating devices that can float free may have a lanyard to attach them to a person or life vest. Where a lanyard is employed it shall meet the requirements of IMO MSC.149(77) [6], paragraph 2.3.11. The user manual or instructions shall include necessary information to allow the user to properly attach the locating device lanyard.

The user manual or instructions for Category 2 devices shall include necessary information to allow the user to fit or attach the locating device to a buoyancy aid.

4.2 Controls

The equipment shall be initially activated by the use of two simple, but independent mechanical actions, neither of which on its own shall activate the equipment. The second mechanical action may be replaced by an immersion sensor. Where the second action is replaced by an immersion sensor then the first action shall be an arm function thus to ensure the device is armed for automatic activation when submerged.

It shall only be possible to activate the equipment after a seal or other mechanical restraint has been removed from the first mechanical action. For devices without an arm function it shall not be possible to reattach a removed seal or restraint. After activation it shall be simple to de-activate the equipment and the means to deactivate the equipment shall be clearly marked.

The switch that operates any test facility (clause 4.1) shall be so designed that it returns automatically to the off-position when released.

4.3 Indicators

The equipment shall be provided with a visual and/or audible indication that signals are being emitted. The indicator shall be sufficiently bright to be seen in bright sunlight. Except when operating in test mode the indicator shall not be green in colour.

The indicator shall clearly distinguish the following states:

(i) The locating device has been activated and is waiting for GNSS data.

(ii) The locating device has GNSS data and is transmitting in active mode.

(iii) The locating device is undergoing test and is transmitting in test mode.

(iv) The locating device has completed a test or has been de-activated.