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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.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.4].

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.

Technical specifications relevant to Directive 2014/53/EU [i.4] are given in annex A.

National transposition dates	
Date of latest announcement of this EN (doa):	30 September 2016
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2017
Date of withdrawal of any conflicting National Standard (dow):	31 March 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).

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1 Scope

The present document states the minimum requirements for a Narrow-Band Direct-Printing (NBDP) maritime receiver operating in the NAVTEX system.

The equipment's function is to receive, display and/or print automatically and continuously, meteorological and navigational messages and Search And Rescue (SAR) messages transmitted by coast stations participating in the NAVTEX system.

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.4] and that "...*radio equipment supports certain features ensuring access to emergency services*" [i.4].

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the Radio Equipment Directive [i.4] may apply to equipment within the scope of the present document.

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 reference document (including any amendments) applies.

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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.625-4 (03-2012): "Direct-printing telegraph equipment employing automatic identification in the maritime mobile service".
- [2] Recommendation ITU-R M.540-2 (06-1990): "Operational and technical characteristics for an automated direct-printing telegraph system for promulgation of navigational and meteorological warnings and urgent information to ships".

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 reference 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] Recommendation ITU-R M.541-9: "Operational procedures for the use of digital selective-calling equipment in the maritime mobile service".
- [i.2] IEC 60529 (2001-02) Ed. 2.1 Bilingual Consolidated Edition: "Degrees of protection provided by enclosures (IP Code)".

- [i.3] IEC 61162-1 (2008): "Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners".
- [i.4] 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.5] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [i.6] ETSI TR 100 028-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2".
- [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.

3 Definitions and abbreviations

3.1 Definitions

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

dB_A: "A" weighted dB noise level measured at a distance of 1 metre

3.2 Abbreviations

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

ACK	ACKnowledgement
ALR	Alarm
emf	electro-motive force
EUT	Equipment Under Test
INS	Integrated Navigation System
MSGs	Messages
NAVTEX	NAVigational TeLEX
NBDP	Narrow-Band Direct-Printing
r.m.s.	root mean square
RF	Radio Frequency
SAR	Search And Rescue
STS	Standard Test Signal

4 General and operational requirements

4.0 General

The manufacturer shall declare that compliance to the requirements of clause 4 is achieved and shall provide relevant documentation.

4.1 Construction

- 4.1.1 The mechanical and electrical design and the construction and finish of the equipment shall accord with good engineering practice and the equipment shall be designed for use on board ships at sea.

- 4.1.2 All controls, instruments and terminals shall be clearly identified. Details concerning the power source with which the equipment is to be used shall be clearly indicated. A label indicating the type designation shall be affixed to the equipment in a place where it is clearly visible in the normal operating position.
- 4.1.3 It shall be possible to reduce to zero the intensity of any equipment light source other than visual alarms.
- 4.1.4 The equipment shall have either:
- an integrated printing device; or
 - a dedicated display device, an industry standard printer output port and non-volatile message memory; or
 - an interface to an Integrated Navigation System (INS) and a non-volatile memory.
- 4.1.5 The equipment shall consist of a radio-frequency receiver incorporating a signal processor and a printing and/or displaying device.
- 4.1.6 The message format shall conform to Recommendation ITU-R M.625-4 [1], collective B-mode. The system shall conform to Recommendation ITU-R M.540-2 [2].
- The equipment shall be provided with installation documentation including notably the required information for antennae siting.
- Documentation shall also be available detailing servicing and fault finding of the equipment. Where practicable this should detail all required information for repair down to component level.

4.2 Receivers

- 4.2.1 The primary radio-frequency receiver shall operate on a frequency of 518 kHz.
- 4.2.2 At least one additional radio frequency receiver shall be provided and operation shall be selectable both manually and via the INS interface to either 490 kHz or 4 209,5 kHz. Such additional receivers shall be capable of simultaneous operation with the primary receiver.
- 4.2.3 The equipment shall comprise a device for performing tests to verify whether the radio-frequency receiver, signal processor or printing device are working correctly. The test shall at least provide verification of the signal's path from the antenna to the loudspeaker or to an audio-frequency output delivering sufficient power to operate a loudspeaker or earphones. A self-return switch shall be used if a loudspeaker is used.

4.3 Handling of messages

- 4.3.1 To limit the number of messages printed or displayed, it shall be possible to select the appropriate B1 character for those messages that are wanted.
- 4.3.2 The equipment shall display information indicating that the B1 characters have been selected or excluded, or this information shall be easily accessible via the user interface.
- 4.3.3 It shall be possible to inhibit the printing or displaying of message categories (defined by the B2 characters), transmitted by the coast stations selected, other than navigational warnings, gale warnings and SAR messages. It shall be possible to exclude at least four different message categories.
- 4.3.4 The equipment shall provide a clear indication of the message categories that are excluded.
- 4.3.5 Means shall be provided to avoid the outputting of messages which are not correctly received or which have already been correctly received.
- 4.3.5.1 A message is considered to have been correctly received if the character error rate is less than 4×10^{-2} . The message identification of each such message shall be stored in memory until erased.

- 4.3.5.2 When the received character error rate exceeds 33×10^{-2} for more than 5 seconds, the printing or displaying of the message shall be inhibited, the message shall be considered as not correctly received, and the message identification shall not be stored in memory.
- 4.3.5.3 The equipment shall not print or display any message (except as defined in the following paragraph), the identification of which is already stored in memory.
- 4.3.6 A message shall always be printed or displayed if B3B4 = 00.
- 4.3.7 The equipment may be provided with facilities to store complete messages without being printed or displayed directly, with the exception of messages with the message identity B3B4 = 00 and/or B2 = A, B, D or L, which shall always be printed or displayed upon receipt. Where such storage facilities are provided, it shall be possible at least to print or display, on request, stored messages in the sequential order: last stored - first output.
- 4.3.8 If the number of message identifications received exceeds the memory capacity, the oldest message identification shall be erased.
- 4.3.9 However, after a period of 60 hours to 72 hours, a message identification shall automatically be erased from the memory.
- 4.3.10 The equipment shall output an asterisk for each corrupted character detected.
- 4.3.11 The equipment may be provided with additional facilities to output messages in a second language using an alphabet different from the Latin alphabet.
- 4.3.12 If an automatic line feed causes a word to be divided then this shall be indicated in the text.
The printer or printer output shall automatically insert line feeds after completion of message printing.
- 4.3.13 The equipment may optionally use an externally provided source of UTC or an internal RTC to provide timing data for message handling.

4.4 Alarms

- 4.4.1 An alarm indicating the reception of SAR messages shall be provided, whether incorporated in the equipment or remote from it. The remote alarm interface shall be a normally open pair of contacts, neither of which shall be grounded. This alarm shall only be able to be stopped (acknowledged) manually but without inhibiting receipt of further other alarms. The audible level of the alarm shall be between 75 dB(A) and 85 dB(A).
- 4.4.2 If an additional alarm is used to indicate the reception of navigational and gale warnings, it shall be capable of being suppressed.
- 4.4.3 The alarm status shall be communicated using the ALR sentence via the INS interface. The ALR sentences shall include the local alarm number and descriptive text as given in table 1.

Table 1: Alarm definitions

Alarm number	Alarm Text
001	NAVTEX : Navigational Warning
002	NAVTEX : Meteorological Warning
003	NAVTEX : Search and Rescue information
004	NAVTEX : Receiver malfunction
005	NAVTEX : Built in self test failure
006	NAVTEX : General failure

While any alarm is active (even acknowledged alarms) the equipment shall send the corresponding ALR sentences once every 30 seconds via the data interface. When no alarms are active, the equipment shall send an ALR sentence with the status set to "V" every 60 seconds.