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INTERNATIONAL STANDARD

colour inside

Global maritime distress and safety system (GMDSS) – Part 6: Narrowband direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)

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CONTENTS

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GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 6: Narrowband direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)

FOREWORD

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This consolidated version of IEC 61097-6 consists of the second edition (2005) [documents 80/419/FDIS and 80/424/RVD] and its amendment 1 (2011) [documents 80/619/CDV and 80/648/RVC]. It bears the edition number 2.1.

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience. A vertical line in the margin shows where the base publication has been modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through.

International Standard IEC 61097-6 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 61097 consists of the following parts under the general title *Global maritime distress and safety system (GMDSS)*:

Part 1: Radar transponder – Marine search and rescue (SART) – Operational and performance requirements, methods of testing and required test results

Part 2: COSPAS-SARSAT EPIRB – Satellite emergency position indicating radio beacon operating on 406 MHz – Operational and performance requirements, methods of testing and required test results

Part 3: Digital selective calling (DSC) equipment – Operational and performance requirements, methods of testing and required testing results

Part 4: INMARSAT-C ship earth station and INMARSAT enhanced group call (EGC) equipment – Operational and performance requirements, methods of testing and required test results

Part 5: Inmarsat-E – Emergency position indicating radio beacon (EPIRB) operating through the Inmarsat system – Operational and performance requirements, methods of testing and required test results

Part 6: Narrowband direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)

Part 7: Shipborne VHF radiotelephone transmitter and receiver – Operational and performance requirements, methods of testing and required test results

Part 8: Shipborne watchkeeping receivers for the reception of digital selective calling (DSC) in the maritime MF, MF/HF and VHF bands – Operational and performance requirements, methods of testing and required test results

Part 9: Shipborne transmitters and receivers for use in the MF and HF bands suitable for telephony, digital selective calling (DSC) and narrow band direct printing (NBDP) – Operational and performance requirements, methods of testing and required test results

Part 10: Inmarsat-B ship earth station equipment – Operational and performance requirements, methods of testing and required test results

Part 12: Survival craft portable two-way VHF radiotelephone apparatus – Operational and performance requirements, methods of testing and required test results

Part 13: Inmarsat F77 ship earth station equipment – Operational and performance requirements, methods of testing and required test results

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

NAVTEX provides shipping with navigational and meteorological warnings and urgent information by automatic display and/or print out from a dedicated receiver.

NAVTEX is a component of the IMO/IHO World-Wide Navigational Warning Service (WWNWS) defined by IMO Assembly Resolution A.706(17), as amended, and the WMO Manual on Marine Meteorological Services, Part I*bis*, Provision of warnings and weather and sea bulletins (GMDSS application). It has been included as an element of the Global Maritime Distress and Safety System (GMDSS).

The original NAVTEX specification allowed for equipment with integral printers and precluded the fitting of equipment which relied on other ways of recording and displaying NAVTEX data. The use of Liquid Crystal Displays and other Visual Display Units is now ubiquitous on ships' bridges and this revision of the specification allows for their use in displaying NAVTEX data.

As a result of the final cessation of the distresss watch on 500 kHz in 1999 the frequency 490 kHz became available for use as a national NAVTEX channel and this has now been widely implemented around the world. This NAVTEX specification therefore requires simultaneous operation on an additional channel to the international channel of 518 kHz.

IMO Resolution MSC.148(77) states that the equipment should comprise radio receivers, a signal processor and:

a) an integrated printing device; or

b) a dedicated display device, printer output port and a non-volatile message memory; or

c) a connection to an integrated navigation system and a non-volatile message memory.

INTRODUCTION
(to Amendment 1)

The amendment removes the description in Annex C of the sentences NRX and NRM. These sentences are now described in IEC 61162-1 (see NOTE below).

NOTE Applies as of edition 4 (2010).

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) –

Part 6: Narrowband direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)

1 Scope

This part of IEC 61097 specifies the minimum performance requirements, technical characteristics and type-testing requirements for narrowband telegraph equipment for the reception of navigational and meteorological information as required by Regulation IV/7.1.4 of the 1988 amendments to the 1974 International Convention for Safety of Life at Sea (SOLAS), and which is associated with IEC 60945. When a requirement in this standard is different from IEC 60945, the requirement in this standard takes precedence.

This standard incorporates the performance standards of IMO Resolution MSC.148(77), the technical characteristics of ITU-R Recommendation M.540, takes account of the IMO Resolution A.694(17) and conforms with the ITU Radio Regulations where applicable.

All text of this standard, whose meaning is identical to that in IMO Resolution MSC.148(77) and ITU-R Recommendation M.540 will be printed in *italics* and the Resolution/Recommendation and paragraph number indicated between brackets.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60945, *Marine navigation and radio communication equipment – General requirements – Methods of testing and required test results*

IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

IEC 61162-2; *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 2: Single talker and multiple listeners, high-speed transmission*

IMO *Safety of Life at Sea (SOLAS) Convention* (1974), as amended (GMDSS)

IMO Resolution A.694(17) (1991) *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*

IMO Resolution MSC.148(77) (2003) *Revised performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)*

IMO Publication – *NAVTEX Manual*

IMO Resolution MSC/Circ.1122 *Adoption of the revised NAVTEX manual*

ITU-R Recommendation M.540-2:1990, *Operational and technical characteristics for an automated direct printing telegraph system for promulgation of navigational and meteorological warnings and urgent information to ships*

ITU-R Recommendation M.625-3:1995, *Direct-printing telegraph equipment employing automatic identification in the maritime mobile service*

3 Definitions and abbreviations

For the purposes of this document, the following definitions and abbreviations apply.

3.1 Definitions

3.1.1
LORAN-C
long range radio-navigation system operating on an assigned frequency of 100 kHz

3.1.2
NAVTEX
system for the broadcast and automatic reception of maritime safety information by means of narrow-band telegraphy

3.1.3
Test script
text file containing a number of NAVTEX messages formatted as defined in 5.5. The STF is a particular example of a test script

3.2 Abbreviations

ASCII	American Standard Code for Information Interchange
CER	character error rate
EMC	electromagnetic compatibility
EUT	equipment under test
HMI	human-machine interface
INS	integrated navigation system
IMO	International Maritime Organization
ITU	International Telecommunication Union
PC	performance check
PT	performance test
RTC	real time clock
SAR	search and rescue
STF	standard test file
STS	standard test signal
USB	Universal Serial Bus
UTC	Co-ordinated Universal Time

4 Performance requirements

4.1 General

(148/A.1.1) *The equipment, in addition to meeting the requirements of the Radio Regulations, the provisions of Recommendation ITU-R M.540 applicable to shipborne equipment and the general requirements set out in resolution A.694(17)*, and specified in IEC 60945 shall *comply with the* revised IMO performance standards for NAVTEX equipment Resolution MSC 148(77).

(148/A.2.1) *The equipment* shall *comprise radio receivers, a signal processor and: either*

a) an integrated printing device; or

b) *a dedicated display device, printer output port and a non-volatile message memory; or*

NOTE *Where there is no printer, the dedicated display device shall be able to be located in the position from which the ship is normally navigated.*

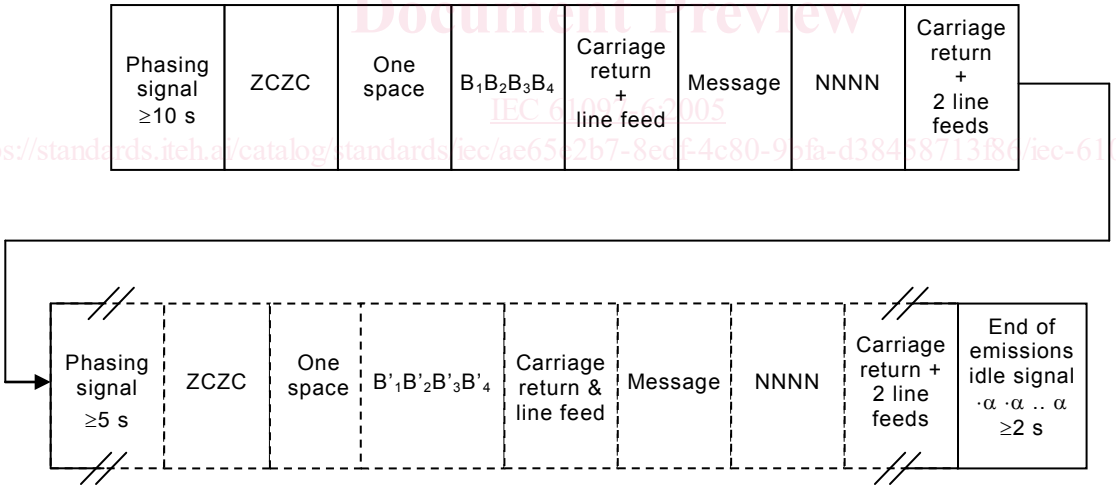
c) *a connection to an integrated navigation system (INS) and a non-volatile message memory.*

Examples of NAVTEX systems are given in Annex A.

4.2 General characteristics

(540/AII.2) The equipment shall be capable of receiving messages in *the collective B-mode of the direct printing system specified in ITU-R Recommendation M.625*, Annex I,4.

(540/AII.3) *The technical format of the transmission* shall be in accordance with ITU-R Recommendation M.540, Annex II,3 as follows:



where

ZCZC defines the end of the phasing period

B_1 character is a letter (A-Z) identifying the transmitter coverage area.

B_2 character is a letter (A-Z) for each type of message as follows:

A navigational warning

B meteorological warning

C ice report

D search and rescue information/piracy and armed robbery

E meteorological forecast

F pilot message

G AIS

H LORAN-C message

I reserved presently not used

J SATNAV message

K other electronic navigational aid system message

L navigational warning (additional)

M to Y reserved presently not used

Z QRU (no message on hand)

B_3B_4 characters are the serial number of the message between 01 and 99.

4.3 Specific characteristics

4.3.1 B_1 and B_2 characters

(540/AII.2.1) The B_1 characters *identifying the different transmitter coverage areas and the B_2 characters identifying the different types of messages are defined by IMO and chosen from table I of ITU-R Recommendation M.625, combination numbers 1-26.*

a) Ship equipment shall be capable of automatically rejecting unwanted information using character B_1.

b) Ship equipment shall be capable of disabling print-out, transmission to the INS port or display of selected types of messages using character B_2 with the exception of messages with B_2 characters A, B, D and L.

c) If any facility is rejected (transmitter coverage area) or disabled (type of message) the extent of any such limitation shall be clearly indicated to the user (see 4.3.7).

4.3.2 B_3 and B_4 characters

(540/AII.2.2) *B_3 B_4 is a two-character serial number for each B_2, starting with 01 except in special cases where the serial number 00 is used* (see 4.3.5).

4.3.3 Preamble

(540/AII.3) *The printer* or message store shall *only be activated if the preamble B_1 B_2 B_3 B_4 is received without errors.*

4.3.4 Repetition of printing/display

(540/AII.4) *Facilities* shall *be provided to avoid printing, storage or display of the same message several times on the same ship, when such a message has already been satisfactorily received.*

(540/AII.5) *The necessary information for* these *measures* shall *be deduced from the sequence B_1 B_2 B_3 B_4.*

4.3.5 Mandatory printing/display

(540/AII.6) *A message* shall *always be printed,* stored and displayed *if B_3 B_4 = 00* and if it is transmitted by a coast station that the equipment is programmed to select.

(540/AII.2.3) *The characters ZCZC B_1 B_2 B_3 B_4 need not be printed*/displayed.