BS ISO 22090-3:2014

BSI Standards Publication

Ships and marine technology — Transmitting heading devices (THDs)

Part 3: GNSS principles

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of ISO 22090-3:2014. It supersedes BS ISO 22090-3:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/80, Maritime navigation and radiocommunication equipment and systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 79395 0

ICS 47.020.70

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2014.

Amendments issued since publication

Date	Text affected

BS ISO 22090-3:2014

INTERNATIONAL STANDARD

ISO 22090-3

Second edition
2014-03-01

Ships and marine technology — Transmitting heading devices (THDs) —

Part 3: GNSS principles

Navires et technologie maritime — Dispositifs de transmission de données de pilotage —

Partie 3: Principes pour un système global de navigation par satellites

Reference number
ISO 22090-3:2014(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 Performance and requirements ... **3**
4.1 Functionality ... 3
4.2 Continuous operation ... 4
4.3 Presentation of information ... 4
4.4 Heading output alignment ... 4
4.5 Compensation for brief GNSS signal interruption ... 4
4.6 Settling time ... 4
4.7 Heading information ... 4
4.8 Alert signal ... 4
4.9 Interface ... 4

5 Accuracy ... **5**
5.1 General ... 5
5.2 Accuracy of transmission data ... 5
5.3 Static error (settle point error) ... 5
5.4 Dynamic error ... 5
5.5 Follow-up error ... 5

6 Type tests ... **5**
6.1 General ... 5
6.2 Organization of test conditions ... 5
6.3 Settling time test ... 6
6.4 Static error test ... 6
6.5 Dynamic test ... 6
6.6 Follow-up error test ... 7
6.7 Back-up test ... 7
6.8 Environmental test ... 7
6.9 Electromagnetic compatibility test ... 8
6.10 Interface test ... 8
6.11 Malfunction test ... 8

7 Marking and identification ... **8**

Annex A (informative) **Equivalent requirements in ISO 22090-3 and IMO Resolution MSC.116 (73)** ... **9**

Bibliography ... **10**

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation and ship operations*.

This second edition cancels and replaces the first edition (ISO 22090-3:2004), of which has been technically revised. It also replaces ISO 22090-3:2004/Cor1:2005.

ISO 22090 consists of the following parts, under the general title *Ships and marine technology — Transmitting heading devices (THDs)*:

— *Part 1: Gyro-compasses*

— *Part 2: Geomagnetic principles*

— *Part 3: GNSS principles*

INTERNATIONAL STANDARD **ISO 22090-3:2014(E)**

Ships and marine technology — Transmitting heading devices (THDs) —

Part 3: GNSS principles

1 Scope

This part of ISO 22090 specifies general requirements, construction, performance, and testing of transmitting heading device using GNSS principle as required by chapter V, SOLAS 1974 (as amended).

A transmitting heading device (THD) is an electric device that *provides information about the ship's true heading.*

In addition to the general requirements contained in IMO *Resolution A.694(17)* to which IEC 60945 is associated *and the relevant standard for the sensing part used, the THD equipment* shall *comply with the following minimum requirements*.

Where the IMO performance standards that *apply to the sensing part do not specify a geographical operating area, the THD* shall *operate*

a) at a maximum rate of turn 20°/s and

b) from 70° latitude south to 70° latitude north as minimum.

The THDs complying with the requirements contained in this part of ISO 22090 *can be used for heading information as contained in chapter V of the SOLAS Convention*.

In addition, such THDs should meet the dynamic requirements contained in the HSC Code, chapter 13 for the carriage of a suitable device providing heading information.

NOTE 1 Several technologies can be used to detect and transmit heading information. It is illogical to standardize the detection of the heading separately from the transmission of the heading. Therefore, separate parts of this part of ISO 22090 refer to different technologies. The requirements of this part of ISO 22090 only apply to the principle of the GNSS. Other technologies are covered in other parts of ISO 22090.

NOTE 2 All requirements that are extracted from the recommendation of IMO Resolution MSC. 116(73) on performance standards for transmitting heading devices are printed in italics.

2 Normative references

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

ISO 25862, *Ships and marine technology — Marine magnetic compasses, binnacles and azimuth reading devices*

IEC 60945, *Marine navigation and radiocommunication equipment and systems — 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*