



SLOVENSKI STANDARD

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Pomorska plovba ter radiokomunikacijska oprema in sistemi - Globalni navigacijski satelitski sistem (GNSS) - 3. del: Galileo - Oprema sprejemnika - Tehnične zahteve, metode preskušanja in pričakovani rezultati preskušanja (IEC 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 (IEC 61108-3:2010)

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Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt - Weltweite Navigations-Satellitensysteme (GNSS) - Teil 3: Galileo - Empfangsanlagen - Leistungsanforderungen, Prüfverfahren und geforderte Prüfergebnisse (IEC 61108-3:2010)

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Matériels et systèmes de navigation et de radiocommunication maritimes - Système mondial de navigation par satellite (GNSS) - Partie 3 : Equipement pour récepteur Galileo - Exigences d'exploitation et de fonctionnement, méthodes d'essai et résultats d'essai exigés (CEI 61108-3:2010)

Ta slovenski standard je istoveten z: EN 61108-3:2010

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Navigacijska in krmilna oprema

Navigation and control equipment

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en

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**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
(IEC 61108-3:2010)**

Matériels et systèmes de navigation
et de radiocommunication maritimes -
Système mondial de navigation
par satellite (GNSS) -
Partie 3 : Equipement pour récepteur
Galileo -
Exigences d'exploitation
et de fonctionnement, méthodes d'essai
et résultats d'essai exigés
(CEI 61108-3:2010)

Navigations-
und Funkkommunikationsgeräte
und -systeme für die Seeschifffahrt –
Weltweite Navigations-Satellitensysteme
(GNSS) -
Teil 3: Galileo – Empfangsanlagen –
Leistungsanforderungen, Prüfverfahren
und geforderte Prüfergebnisse
(IEC 61108-3:2010)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 80/590/FDIS, future edition 1 of IEC 61108-3, prepared by IEC TC 80, Maritime navigation and radiocommunication equipment and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61108-3 on 2010-06-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2011-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61108-3:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- | | | |
|------------------|------|---|
| IEC 61108 series | NOTE | Harmonized in EN 61108 series (not modified). |
| IEC 61162-2 | NOTE | Harmonized as EN 61162-2. |

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60721-3-6	1987	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Ship environment	EN 60721-3-6 ¹⁾	1993
IEC 60945	-	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	-
IEC 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	EN 61108-1	2003
IEC 61108-4	-	Maritime navigation and radiocommunication equipment and systems - Global navigation satellite systems (GNSS) - Part 4: Shipborne DGPS and DGLONASS maritime radio beacon receiver equipment - Performance requirements, methods of testing and required test results	EN 61108-4	-
IEC 61162	Series	Maritime navigation and radiocommunication equipment and systems - Digital interfaces	EN 61162	Series
IEC 61162-1	-	Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners	EN 61162-1	-
IEC 62288	-	Maritime navigation and radiocommunication equipment and systems - Presentation of navigation-related information on shipborne navigational displays - General requirements, methods of testing and required test results	EN 62288	-
IMO Resolution A.694(17)	-	General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids	-	-

¹⁾ EN 60721-3-6 includes A1 to IEC 60721-3-6.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IMO Resolution A.915(22)	-	Revised maritime policy and requirements for a future Global Navigation Satellite System (GNSS)	-	-
IMO Resolution A.953(23)	-	World-wide radionavigation system	-	-
IMO Resolution MSC.233(82)	-	Adoption of the Performance Standards for Shipborne GALILEO Receiver Equipment	-	-
ITU-R Recommendation M.823-3	-	Technical characteristics of differential transmissions for global navigation satellite systems from maritime radio beacons in the frequency band 283.5-315 kHz in Region 1 and 285-325 kHz in Regions 2 and 3	-	-
RTCM 10402 version 2.4	-	RTCM Recommended Standards for Differential GNSS (Global Navigation Satellite Systems) Service	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61108-3 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
80/590/FDIS	80/595/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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

A list of all the parts in the IEC 61108 series, under the general title: *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS)*, can be found on the IEC website.

The committee has decided that the contents of this publication 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 publication 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 document using a colour printer.

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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

1 Scope

This part of IEC 61108 specifies the minimum performance standards, methods of testing and required test results for Galileo shipborne receiver equipment, based on IMO resolution MSC.233(82), which uses the signals from the Galileo Global Navigation Satellite System in order to determine position. It takes account of the general requirements given in IMO resolution A.694(17) and is associated with IEC 60945. When a requirement in this standard is different from IEC 60945, the requirement in this standard takes precedence. It also takes account, as appropriate, of requirements for the presentation of navigation-related information on shipborne navigational displays given in IMO resolution MSC.191(79) and is associated with IEC 62288.

A description of the Galileo Open Service and Safety of Life Service is given in the Galileo interface control documents (see Bibliography). This receiver standard applies to navigation in ocean waters for the open service and harbour entrances, harbour approaches and coastal waters for the Safety of Life service, as defined in IMO resolution A.953(23).

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All text of this standard, whose meaning is identical to that in IMO resolution MSC.233(82), is printed in *italics* and the resolution and paragraph numbers are indicated in brackets i.e. (M.233/A1.2).

The requirements in Clause 4 are cross-referenced to the tests in Clause 5 and vice versa.

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 60721-3-6:1987, *Classification of environmental conditions – Part 3-6: Classification of groups of environmental parameters and their severities – Ship environment*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 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*

IEC 61108-4, *Maritime navigation and radiocommunication equipment and systems – Global navigation satellite systems (GNSS) – Part 4: Shipborne DGPS and DGLONASS maritime radio beacon receiver equipment – Performance requirements, methods of testing and required test results*

IEC 61162 (all parts), *Maritime navigation and radiocommunication equipment and systems – Digital interfaces*

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

IEC 62288, *Maritime navigation and radiocommunication equipment and systems – Presentation of navigation-related information on shipborne navigational displays – General requirements – Methods of testing and required test results*

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

IMO resolution A.915(22), *Revised maritime policy and requirements for a future Global Navigation Satellite System (GNSS)*

IMO resolution A.953(23), *World-wide radionavigation system*

IMO resolution MSC.233(82), *Adoption of the Performance Standards for Shipborne GALILEO Receiver Equipment*

ITU-R Recommendation M.823-3, *Technical characteristics of differential transmissions for Global Navigation Satellite Systems from maritime radio beacons in the frequency band 283.5-315 kHz in Region 1 and 285-325 kHz in Regions 2 and 3*

RTCM 10402 RTCM Recommended Standards for Differential GNSS (Global Navigation Satellite Systems) Service, Version 2.4

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3 Terms, definitions and abbreviations

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

NOTE All definitions and abbreviations used are the same as those used in the Galileo performance signal specification.

3.1 Terms and definitions

3.1.1

integrity

ability of the system to provide users with warnings within a specified time when the system should not be used for navigation

3.2 Abbreviations

Compass	Beidou-2 GNSS (China)
COG	Course Over Ground
CW	Continuous Wave
dGalileo, dGPS, dGLONASS	Differential Galileo, GPS, GLONASS
EUT	Equipment Under Test
FDE	Fault Detection and Exclusion
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GLONASS	GLOBAL Navigation Satellite System
GTRF	Galileo Terrestrial Reference Frame

ITRF	International Terrestrial Frame
HAL	Horizontal Alert Limit
HDOP	Horizontal Dilution Of Precision
HPL	Horizontal Protection Limit
HMI	Hazardous Misleading Information
MDE	Marginally Detectable Error
NB	Narrow Band
pdf	Probability distribution function
PDOP	Position Dilution Of Precision
P_{HMI}	Probability of hazardous misleading error
PVT	Position, Velocity, Time
RAIM	Receiver Autonomous Integrity Monitor
RF	Radio Frequency
RFCS	Radio Frequency Constellation Simulator
RFI	Radio Frequency Interference
SDME	Speed and Distance Measuring Equipment
SIS	Signal in space
SOG	Speed Over Ground
SV	Space Vehicle
TTA	Time-to-alarm
ULS	Up-Link Station
UTC	Universal Time Coordinated
VAL	Vertical Alert Limit
VPL	Vertical Protection Limit
WB	Wide Band

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4 Minimum performances standards

4.1 Object

Galileo provides two different services of use for the maritime community.

(M.233/A1.3) *The Galileo Open Service provides positioning, navigation and timing services, free of direct user charges. The Open Service can be used on one (L1, E5a, E5b), two (L1 and E5a or L1 and E5b) or three (L1, E5a and E5b) frequencies.*

(M.233/A1.4) *The Galileo Safety of Life Service can be used on one (L1 or E5b) or two (L1 and E5b) frequencies. Each of the L1 and E5b frequencies carries a navigation data message that includes integrity information. The E5a frequency does not include integrity data.*

(M.233/A1.5) *Galileo receiver equipment intended for navigation purposes on ships of speeds not exceeding 70 knots, in addition to the general requirements specified in IEC 60945, shall comply with the following minimum performance requirements.*

(M.233/A1.6) *These standards cover the basic requirements of position fixing, determination of course over ground (COG), speed over ground (SOG) and timing, either for navigation purposes or as input to other functions. The standards do not cover the other computational facilities which may be in the equipment nor cover the requirements for any other systems that may take input from the Galileo receiver. Other computational activity, input/output*