

STN	Námorná navigácia a rádiokomunikačné zariadenia a systémy Integrované navigačné systémy (INS) Časť 2: Modulová štruktúra INS Požiadavky na prevádzku a funkčné vlastnosti, skúšobné metódy a požadované výsledky skúšok	STN EN IEC 61924-2 32 6780
------------	--	--

Maritime navigation and radiocommunication equipment and systems - Integrated navigation systems (INS) - Part 2: Modular structure for INS - Operational and performance requirements, methods of testing and required test results

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/21

Obsahuje: EN IEC 61924-2:2021, IEC 61924-2:2021

Oznámením tejto normy sa od 19.03.2024 ruší
STN EN 61924-2 (32 6780) zo septembra 2013

132882

EUROPEAN STANDARD

EN IEC 61924-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 47.020.70

Supersedes EN 61924-2:2013 and all of its amendments
and corrigenda (if any)

English Version

**Maritime navigation and radiocommunication equipment and
systems - Integrated navigation systems (INS) - Part 2: Modular
structure for INS - Operational and performance requirements,
methods of testing and required test results
(IEC 61924-2:2021)**

Matériels et systèmes de navigation et de
radiocommunication maritimes - Systèmes de navigation
intégrés (INS) - Partie 2: Structure modulaire des systèmes
de navigation intégrés - Exigences opérationnelles et de
fonctionnement, méthodes d'essai et résultats d'essai
exigés
(IEC 61924-2:2021)

Navigations- und Funkkommunikationsgeräte und -systeme
für die Seeschifffahrt - Integrierte Navigationssysteme (INS)
- Teil 2: Modulare Struktur für INS - Betriebs- und
Leistungsanforderungen, Prüfverfahren und geforderte
Prüfergebnisse
(IEC 61924-2:2021)

This European Standard was approved by CENELEC on 2021-03-19. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61924-2:2021 (E)**European foreword**

The text of document 80/977/FDIS, future edition 2 of IEC 61924-2, prepared by IEC/TC 80 "Maritime navigation and radiocommunication equipment and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61924-2:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-12-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-19

This document supersedes EN 61924-2:2013 and all of its amendments and corrigenda (if any).

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

Endorsement notice

The text of the International Standard IEC 61924-2:2021 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 60812	NOTE	Harmonized as EN IEC 60812
IEC 61108-5	NOTE	Harmonized as EN IEC 61108-5
IEC 61993-2	NOTE	Harmonized as EN IEC 61993-2
IEC 62923-2	NOTE	Harmonized as EN IEC 62923-2

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60945	2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	2002
IEC 61162-1	2016	Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 1: Single talker and multiple listeners	EN 61162-1	2016
IEC 61162-2	-	Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 2: Single talker and multiple listeners, high-speed transmission	EN 61162-2	-
IEC 61162-450	-	Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 450: Multiple talkers and multiple listeners - Ethernet interconnection	EN IEC 61162-450	-
IEC 61174	2015	Maritime navigation and radiocommunication equipment and systems - Electronic chart display and information system (ECDIS) - Operational and performance requirements, methods of testing and required test results	EN 61174	2015
IEC 62065	2014	Maritime navigation and radiocommunication equipment and systems - Track control systems - Operational and performance requirements, methods of testing and required test results	EN 62065	2014

EN IEC 61924-2:2021 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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 IEC 62288	-
IEC 62388	2013	Maritime navigation and radiocommunication equipment and systems - Shipborne radar - Performance requirements, methods of testing and required test results	EN 62388	2013
IEC 62616	-	Maritime navigation and radiocommunication equipment and systems - Bridge navigational watch alarm system (BNWAS)	EN 62616	-
IEC 62923-1	2018	Maritime navigation and radiocommunication equipment and systems - Bridge alert management - Part 1: Operational and performance requirements, methods of testing and required test results	EN IEC 62923-1	2018
ISO 11674	-	Ships and marine technology - Heading control systems	-	-
IMO 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/ICAO	-	International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual) Volume 3	-	-
IMO MSC/Circ. 982	-	Guidelines on ergonomic criteria for bridge equipment and layout	-	-
IMO MSC.191(79)	-	Performance standards for the presentation of navigation-related information on shipborne navigational displays	-	-
IMO MSC.232(82)	-	Adoption of the revised performance standards for electronic chart display and information systems (ECDIS)	-	-
IMO MSC.252(83)	-	Performance Standards for Integrated Navigation Systems (INS)	-	-
IMO MSC.452(99)	-	Amendments to the revised performance standards for integrated navigation systems (INS) (Resolution MSC.252(83))	-	-



IEC 61924-2

Edition 2.0 2021-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Maritime navigation and radiocommunication equipment and systems –
Integrated navigation systems (INS) –
Part 2: Modular structure for INS – Operational and performance requirements,
methods of testing and required test results**

**Matériels et systèmes de navigation et de radiocommunication maritimes –
Systèmes de navigation intégrés (INS) –
Partie 2: Structure modulaire des systèmes de navigation intégrés – Exigences
opérationnelles et de fonctionnement, méthodes d'essai et résultats d'essai
exigés**

**THIS PUBLICATION IS COPYRIGHT PROTECTED****Copyright © 2021 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -**webstore.iec.ch/advsearchform**

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 61924-2

Edition 2.0 2021-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Maritime navigation and radiocommunication equipment and systems –
Integrated navigation systems (INS) –
Part 2: Modular structure for INS – Operational and performance requirements,
methods of testing and required test results**

**Matériels et systèmes de navigation et de radiocommunication maritimes –
Systèmes de navigation intégrés (INS) –
Partie 2: Structure modulaire des systèmes de navigation intégrés – Exigences
opérationnelles et de fonctionnement, méthodes d'essai et résultats d'essai
exigés**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 47.020.70

ISBN 978-2-8322-9304-1

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	6
1 Scope	8
2 Normative references	8
3 Terms, definitions and abbreviated terms	9
3.1 Terms and definitions.....	9
3.2 Abbreviated terms.....	18
4 IMO resolutions	18
4.1 General.....	18
4.2 Purpose of integrated navigation systems	19
4.3 Application	20
5 Test requirements and results	22
5.1 General.....	22
5.2 Exceptions for tests previously performed.....	22
5.3 Test site.....	23
5.4 Methods of test	23
6 Module A – Requirements for integration of navigational information	23
6.1 Interfacing and data exchange	23
6.1.1 Combination, processing and evaluation of data	23
6.1.2 Availability, validity and integrity	23
6.1.3 Failure of data exchange	24
6.1.4 Interfaces in general	24
6.1.5 Interface to alert management	24
6.2 Accuracy.....	24
6.2.1 Requirement.....	24
6.2.2 Methods of test and required results	25
6.3 Validity, plausibility, latency	25
6.3.1 Validity	25
6.3.2 Plausibility	26
6.3.3 Latency.....	27
6.4 Consistent common reference system (CCRS).....	27
6.4.1 Consistency of data	27
6.4.2 Consistent common reference point (CCRP).....	28
6.4.3 Consistency of thresholds.....	29
6.5 Integrity monitoring	30
6.5.1 Requirement.....	30
6.5.2 Methods of test and required results	31
6.6 Marking of-data	32
6.6.1 Requirement.....	32
6.6.2 Methods of tests and required results	33
6.7 Selection of sensors and sources.....	33
6.7.1 Requirement.....	33
6.7.2 Methods of test and required results	34
7 Module B – Task related requirements for integrated navigation systems	34
7.1 Description	34
7.2 Task and functional requirements for an INS.....	34
7.2.1 General	34

7.2.2	Task "Route planning"	35
7.2.3	Task "Route monitoring"	37
7.2.4	Task "Collision avoidance"	41
7.2.5	Task "Navigation control data"	45
7.2.6	Task "Alert management"	46
7.2.7	Task "Status and data display"	47
7.3	Functional requirements for INS task stations	48
7.3.1	Number of task stations	48
7.3.2	Track control	50
7.3.3	Automatic control functions	51
7.4	Functional requirements for displays of INS	52
7.4.1	General	52
7.4.2	Default display configurations and operational modes	55
7.4.3	Mode and status awareness	56
7.4.4	Information display	56
7.5	Human machine interface	58
7.5.1	General	58
7.5.2	Equipment design	58
7.5.3	Display	59
7.5.4	Input	59
7.6	INS back-up requirements and redundancies	60
7.6.1	General	60
7.6.2	Hardware redundancies (back-up)	62
7.7	System failures and fallback arrangement	62
7.7.1	General description	62
7.7.2	Restored operation	62
7.7.3	Failure or change of sensor for automatic control function	63
7.7.4	Failure of sensor	63
7.7.5	Storage of system related parameters	64
7.7.6	Safe response to malfunction	64
7.7.7	Alert management	65
7.7.8	Fallback for navigational information failure	65
7.8	Technical requirements	67
7.8.1	General	67
7.8.2	Hardware and/or processors	67
7.8.3	Power supply	68
7.8.4	Power interruptions and shutdown	68
7.8.5	Data communication interface and protocols	69
7.8.6	Installation	69
8	Module C – Alert management	70
8.1	Description	70
8.1.1	Purpose of alert management	70
8.1.2	Scope of alert management	70
8.2	General requirements	71
8.2.1	Provisions	71
8.2.2	Requirement	71
8.2.3	Methods of test and required results	72
8.3	Transfer to BNWAS	72
8.3.1	Requirement	72

8.3.2	Methods of test and required results	72
8.4	Testing of alerts	72
8.4.1	Requirement	72
8.4.2	Methods of test and required results	73
8.5	Failures	73
8.5.1	Requirement	73
8.5.2	Methods of test and required results	73
9	Module D – Documentation requirements	73
9.1	Manuals	73
9.1.1	Requirement	73
9.1.2	Methods of tests and required results	74
9.2	Information regarding the system configuration	74
9.2.1	Requirement	74
9.2.2	Methods of tests and required results	75
9.3	Failure analysis	75
9.3.1	Requirement	75
9.3.2	Methods of test and required results	75
9.4	Onboard familiarization material	75
9.4.1	Requirement	75
9.4.2	Methods of test and required results	75
Annex A (informative)	Modular structure for IMO performance standards	76
A.1	Modular structure for radar performance standards	76
A.2	Modular structure for track control performance standards	78
Annex B (informative)	Guidance to equipment manufacturers for the provision of on-board familiarization material	79
B.1	General	79
B.2	On-board familiarization training for INS	79
B.3	Familiarization training framework	80
B.3.1	General description	80
B.3.2	Detailed operation (normal conditions)	80
Annex C (normative)	Classification of alerts	82
Annex D (normative)	Default display configurations	85
Annex E (informative)	Data flow diagram/consistent common reference system (CCRS)	87
Annex F (normative)	Interfaces	89
Annex G (informative)	Guidance for testing	94
G.1	Methods of test derived from ISO 9241-12	94
G.2	Observation	94
G.3	Inspection of documented evidence	94
G.4	Measurement	95
G.5	Analytical evaluation	95
Annex H (normative)	Verification of CCRP calculations	96
H.1	Scenario for verification of CCRP calculations	96
H.2	Stationary scenario	96
H.3	Dynamic scenario	97
Annex I (normative)	Sentence for integrity and plausibility	98
Annex J (normative)	INS alert related communication	99
J.1	Overview	99

J.2	Use of ALR for BNWAS	99
J.3	Use of ALR and ACK for legacy simple sensors	99
J.4	Use of HBT, ALF, ALC, ACN, AGL and ARC	99
J.5	INS standardized alert identifiers	99
J.6	Alert state transition diagram	99
Annex K (informative) Sentences for advanced alert related communication		100
Bibliography		101
Figure E.1 – Data flow diagram/consistent common reference system (CCRS)		88
Figure F.1 – INS logical interfaces		89
Table 1 – Applicable modules of performance standards of stand alone equipment.....		21
Table 2 – Applicable modules of other standards for INS to substitute for individual equipment.....		21
Table 3 – Marking of data		33
Table A.1 – Modular structure for radar performance standards		76
Table A.2 – Modular structure for track control performance standards		78
Table C.1 – Classification of INS alerts as specified in these performance standards		82
Table C.2 – Classification for INS for alerts specified in the individual equipment performance standards		83
Table D.1 – Task "Route monitoring"		85
Table D.2 – Task "Collision avoidance"		86
Table F.1 – IEC 61162-1 sentences transmitted by the INS		90
Table F.2 – IEC 61162-1 sentences received by the INS.....		91
Table H.1 – Required results		96
Table H.2 – Required results		97
Table H.3 – Required results for dynamic scenario		97
Table H.4 – Required resolution for test.....		97

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – INTEGRATED NAVIGATION SYSTEMS (INS) –

Part 2: Modular structure for INS – Operational and 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61924-2 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This second edition cancels and replaces the first edition published in 2012, of which it constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) addition of a requirement for INS to provide capability for Maritime Safety Information to comply with requirements of the International Maritime Organization;

- b) modification of Clause 8 (Alert management) and associated annexes to align it with IEC 62923-1 concerning bridge management;
- c) modifications to Annex D to incorporate newer recommendations of the International Maritime Organization.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
80/977/FDIS	80/970/RVC

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

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

A list of all parts in the IEC 61924 series, published under the general title *Maritime navigation and radiocommunication equipment and systems – Integrated navigation systems (INS)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – INTEGRATED NAVIGATION SYSTEMS (INS) –

Part 2: Modular structure for INS – Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 61924 specifies the minimum requirements for the design, manufacture, integration, methods of testing and required test results for an integrated navigation system (INS) to comply with the International Maritime Organization (IMO) requirements of Resolution MSC.252(83), as amended by Resolution MSC.452(99). In addition, it takes account of IMO Resolution A.694(17) to which IEC 60945 is associated. When a requirement in this document is different from IEC 60945, the requirement of this document takes precedence.

For bridge alert management, IMO Resolution MSC.302(87) supersedes IMO Resolution MSC.252(83). Accordingly, this document incorporates references to IEC 62923-1 and IEC 62923-2 which are associated with Resolution MSC.302(87) for requirements and tests, where applicable. This document indicates which requirements and associated tests of MSC.252(83) have been superseded by MSC.302(87).

NOTE All text of this document whose wording is identical to that in IMO Resolution MSC.252(83), as amended by MSC.452(99), is printed in *italics* and the Resolution and paragraph number indicated between brackets.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60945:2002, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 61162-1:2016, *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*

IEC 61162-450, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 450: Multiple talkers and multiple listeners – Ethernet interconnection*

IEC 61174:2015, *Maritime navigation and radiocommunication equipment and systems – Electronic chart display and information system (ECDIS) – Operational and performance requirements, methods of testing and required test results*

IEC 62065:2014, *Maritime navigation and radiocommunication equipment and systems – Track control systems – Operational and performance requirements, methods of testing and required test results*

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*

IEC 62388:2013, *Maritime navigation and radiocommunication equipment and systems – Shipborne radar – Performance requirements, methods of testing and required test results*

IEC 62616, *Maritime navigation and radiocommunication equipment and systems – Bridge navigational watch alarm system (BNWAS)*

IEC 62923-1:2018, *Maritime navigation and radiocommunication equipment and systems – Bridge alert management – Part 1: Operational and performance requirements, methods of testing and required test results*

ISO 11674, *Ships and marine technology – Heading control systems*

IMO 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/ICAO, *International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual) Volume 3*

IMO MSC/Circ.982, *Guidelines on ergonomic criteria for bridge equipment and layout*

IMO MSC.191(79), *Performance standards for presentation of navigation-related information on shipborne navigational displays*

IMO MSC.232(82), *Revised performance standards for Electronic Chart Display and Information Systems (ECDIS)*

IMO MSC.252(83), *Performance Standards for Integrated Navigation Systems (INS)*

IMO MSC.452(99), *Amendments to the revised performance standards for integrated navigation systems (INS) (Resolution MSC.252(83))*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN