SLOVENSKI STANDARD
SIST EN 61162-460:2016

01-marec-2016

Pomorska navigacijska in radiokomunikacijska oprema in sistemi - Digitalni vmesniki - 460. del: Več govorcev in poslušalcev - Povezovanje prek eterneta - Varnost in zaščita

Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 460: Multiple talkers and multiple listeners - Ethernet interconnection - Safety and Security

Ta slovenski standard je istoveten z: **EN 61162-460:2015**

ICS:

35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment
47.020.70	Navigacijska in krmilna oprema	Navigation and control equipment

SIST EN 61162-460:2016 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61162-460

November 2015

ICS 47.020.70

English Version

Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 460: Multiple talkers and multiple listeners - Ethernet interconnection - Safety and security (IEC 61162-460:2015)

Matériels et systèmes de navigation et de radiocommunication maritimes - Interfaces numériques - Partie 460 : Emetteurs multiples et récepteurs multiples - Interconnexion Ethernet - Sûreté et sécurité (IEC 61162-460:2015)

Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt - Digitale Schnittstellen - Teil 460: Mehrere Datensender und mehrere Datenempfänger - Ethernet Verbund - Funktionale und Informationssicherheit (IEC 61162-460:2015)

This European Standard was approved by CENELEC on 2015-09-22. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 80/764/FDIS, future edition 1 of IEC 61162-460, 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 61162-460:2015.

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)	2016-06-22
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2018-09-22

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

Endorsement notice

The text of the International Standard IEC 61162-460:2015 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 in EN 60812.
IEC 61162 series	NOTE	Harmonized in EN 61162 series.
IEC 61162-1	NOTE	Harmonized in EN 61162-1.
IEC 61162-2	NOTE	Harmonized in EN 61162-2.
IEC 62439 series	NOTE	Harmonized in EN 62439 series.
IEC 62439-1	NOTE	Harmonized in EN 62439-1.
IEC 62439-2	NOTE	Harmonized in EN 62439-2.
IEC 62439-3	NOTE	Harmonized in EN 62439-3.
IEC 62439-4	NOTE	Harmonized in EN 62439-4.
IEC 62439-5	NOTE	Harmonized in EN 62439-5.
IEC 62439-6	NOTE	Harmonized in EN 62439-6.
ISO 9241-12	NOTE	Harmonized in EN ISO 9241-12.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.

Publication	Year	Title	EN/HD	Year
IEC 60945	-	Matériels et systèmes de navigation et de radiocommunication maritimes - Spécifications générales - Méthodes d'essai et résultats exigibles	EN 60945	-
IEC 61162-450	2011	Maritime navigation and radiocommunication equipment and systems - Digital interfaces -- Part 450: Multiple talkers and multiple listeners - Ethernet interconnection	EN 61162-450	2011
IEC 61924-2	2012	Matériels et systèmes de navigation et de radiocommunication maritimes - Systèmes de navigation intégrés -- Partie 2: Structure modulaire pour les INS - Exigences d'exploitation et de fonctionnement, méthodes et résultats d'essais exigés	EN 61924-2	2013
IEC 62288	2014	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	2014
IEEE 802.1D	2004	IEEE Standard for local and metropolitan area networks - Media Access Control (MAC) Bridges	-	-
IEEE 802.1Q	2005	IEEE Standard for Local and Metropolitan Area Networks - Virtual Bridged Local Area Networks	-	-
ISOC RFC 792	-	Internet Control Message Protocol (ICMP), Standard STD0005 (and updates)		
ISOC RFC 1112	-	Host Extensions for IP Multicasting		
ISOC RFC 2236	-	Internet Group Management Protocol, Version 2		

Publication	Year	Title	EN/HD	Year
ISOC RFC 3411	-	An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks		
ISOC RFC 4604	-	Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast		
ISOC RFC 5424	-	The Syslog Protocol	-	-

IEC 61162-460

Edition 1.0 2015-08

INTERNATIONAL STANDARD

colour inside

Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 460: Multiple talkers and multiple listeners – Ethernet interconnection – Safety and security

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 47.020.70

ISBN 978-2-8322-2850-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 460: Multiple talkers and multiple listeners – Ethernet interconnection – Safety and security

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 61162-460 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
80/764/FDIS	80/769/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.

This International Standard is to be used in conjunction with IEC 61162-450:2011.

A list of all parts in the IEC 61162 series, published under the general title *Maritime navigation and radiocommunication equipment and systems – Digital interfaces*, 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.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 460: Multiple talkers and multiple listeners – Ethernet interconnection – Safety and security

1 Scope

This part of IEC 61162 is an add-on to the IEC 61162-450 standard where higher safety and security standards are needed, e.g. due to higher exposure to external threats or to improve network integrity. This standard provides requirements and test methods for equipment to be used in an IEC 61162-460 compliant network as well as requirements for the network itself and requirements for interconnection from the network to other networks. This standard also contains requirements for a redundant IEC 61162-460 compliant network.

This standard extends the informative guidance given in Annex D of IEC 61162-450:2011. It does not introduce new application level protocol requirements to those that are defined in IEC 61162-450.

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.

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

IEC 61162-450:2011, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 450: Multiple talker and multiple listeners – Ethernet interconnection*

IEC 61924-2:2012, *Maritime navigation and radiocommunication equipment and systems – Integrated navigation systems – Part 2: Modular structure for INS – Operational and performance requirements, methods of testing and required test results*

IEC 62288:2014, *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*

IEEE 802.1D-2004, *IEEE Standards for Local Area Networks: Media Access Control (MAC) Bridges*

IEEE 802.1Q-2005, *Virtual Bridged Local Area Networks*

ISOC RFC 792, *Internet Control Message Protocol (ICMP), Standard STD0005 (and updates)*

ISOC RFC 1112, *Host Extensions for IP Multicasting*

ISOC RFC 2236, *Internet Group Management Protocol, Version 2*

ISOC RFC 3411, *An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks*

ISOC RFC 4604, *Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast*

ISOC RFC 5424, *The Syslog Protocol*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61162-450, as well as the following apply.

3.1
450-Node
device compliant with the IEC 61162-450 standard and which satisfies additional requirements specified in this standard

Note 1 to entry: This also includes nodes only implementing the ONF function block.

3.2
460-Forwarder
network infrastructure device that can safely exchange data streams between a 460-Network and other controlled networks including other 460-Networks

3.3
460-Gateway
network infrastructure device that connects 460-Networks and uncontrolled networks and which satisfies the safety and security requirements as specified in this standard

3.4
460-Network
network which consists of only 460-Nodes, 460-Switches, 460-Forwarder, 460-Gateway and 460-Wireless gateway as well as 450-Nodes

3.5
460-Node
device compliant with the requirement of a 450-Node and which satisfies the safety and security requirements as specified in this standard

3.6
460-Switch
network infrastructure device used to interconnect nodes on a 460-Network and which satisfies the safety and security requirements as specified in this standard

3.7
460-Wireless gateway
network infrastructure device that connects a 460-Network and wireless networks and which satisfies the safety and security requirements as specified in this standard

3.8
advanced encryption standard
AES
symmetric-key block cipher algorithm which is based on a substitution-permutation network (SPN) and does not use the data encryption standard (DES) feistel network