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## Marin navigerings- och kommunikationsutrustning – Digitala gränssnitt – Del 460: Flera sändare och flera mottagare – Ethernetbaserat nät – Skydd och säkerhet

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

Som svensk standard gäller europastandarden EN IEC 61162-460:2018. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61162-460:2018.

### Nationellt förord

Europastandarden EN IEC 61162-460:2018

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61162-460, Second edition, 2018 - Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 460: Multiple talkers and multiple listeners - Ethernet interconnection - Safety and security**

utarbetad inom International Electrotechnical Commission, IEC.

EN från CENELEC som är identiska med motsvarande IEC-standarder och som görs tillgängliga för nationalkommittéerna efter den 1 januari 2018 får en beteckning som inleds med EN IEC istället för som tidigare bara EN.

Standarden ska användas tillsammans med SS-EN IEC 61162-450, utgåva 1, 2018.

Tidigare fastställd svensk standard SS-EN 61162-460, utgåva 1, 2016, gäller ej fr o m 2021-06-08.

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Denna standard är fastställd av SEK Svensk Elstandard,  
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Postadress: Box 1284, 164 29 KISTA  
Telefon: 08 - 444 14 00.  
E-post: sek@elstandard.se. Internet: www.elstandard.se

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Box 1284  
164 29 Kista  
Tel 08-444 14 00  
[www.elstandard.se](http://www.elstandard.se)

English Version

**Maritime navigation and radiocommunication equipment and  
systems - Digital interfaces - Part 460: Multiple talkers and  
multiple listeners - Ethernet interconnection - Safety and security  
(IEC 61162-460:2018)**

Matériels et systèmes de navigation et de  
radiocommunication maritimes - Interfaces numériques -  
Partie 460: Émetteurs multiples et récepteurs multiples -  
Interconnexion Ethernet - Sécurité et sécurité  
(IEC 61162-460:2018)

Navigations- und Funkkommunikationsgeräte und -systeme  
für die Seeschifffahrt - Digitale Schnittstellen -  
Teil 460: Mehrere Datensender und mehrere  
Datenempfänger - Ethernet-Verbund - Funktionale und  
Informationssicherheit  
(IEC 61162-460:2018)

This European Standard was approved by CENELEC on 2018-06-08. 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.

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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**

## **European foreword**

The text of document 80/879/FDIS, future edition 2 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 IEC 61162-460:2018.

The following dates are fixed:

- latest date by which the document has to be (dop) 2019-03-08  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2021-06-08  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 61162-460:2015.

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 61162-460:2018 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 60812.                     |
| IEC 61162 Series | NOTE | Harmonized as EN 61162 Series.              |
| IEC 61162-1      | NOTE | Harmonized as EN 61162-1.                   |
| IEC 61162-2      | NOTE | Harmonized as EN 61162-2.                   |
| IEC 62388        | NOTE | Harmonized as EN 62388.                     |
| IEC 62439 Series | NOTE | Harmonized as EN 62439 Series.              |
| IEC 62439-1      | NOTE | Harmonized as EN 62439-1.                   |
| IEC 62439-2      | NOTE | Harmonized as EN 62439-2.                   |
| IEC 62439-3      | NOTE | Harmonized as EN 62439-3.                   |
| IEC 62439-4      | NOTE | Harmonized as EN 62439-4.                   |
| IEC 62439-5      | NOTE | Harmonized as EN 62439-5.                   |
| IEC 62439-6      | NOTE | Harmonized as EN 62439-6.                   |
| IEC 62940        | NOTE | Harmonized as EN 62940.                     |
| ISO 9241-12      | NOTE | Harmonized as EN ISO 9241-12 <sup>1</sup> . |

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<sup>1</sup> Superseded by EN ISO 9241-112 (ISO 9241-112) and EN ISO 9241-125 (ISO 9241-125).

## 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](http://www.cenelec.eu).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>                                                                                                                                                                                                                  | <u>EN/HD</u>     | <u>Year</u> |
|--------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|
| IEC 60945          | -           | Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results                                                                                        | EN 60945         | -           |
| IEC 61162-450      | 2018        | Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 450: Multiple talkers and multiple listeners - Ethernet interconnection                                                          | EN IEC 61162-450 | 2018        |
| 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 | 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        | -           | IEEE Standard for Local and metropolitan area networks - Media Access Control (MAC) Bridges and Virtual Bridges                                                                                                               | -                | -           |
| IETF RFC 792       | 1981        | Internet Control Message Protocol (ICMP)                                                                                                                                                                                      | -                | -           |
| IETF RFC 1112      | 1989        | Host Extensions for IP Multicasting (SNMP)                                                                                                                                                                                    | -                | -           |
| IETF RFC 1157      | 1990        | Simple Network Management Protocol (SNMP)                                                                                                                                                                                     | -                | -           |
| IETF RFC 2021      | 1997        | Remote Network Monitoring Management Information Base                                                                                                                                                                         | -                | -           |

| <u>Publication</u> | <u>Year</u> | <u>Title</u>                                                                                                                                          | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|
| IETF RFC 2236      | 1997        | Internet Group Management Protocol, Version 2                                                                                                         | -            | -           |
| IETF RFC 2819      | 2000        | Remote Network Monitoring Management Information Base                                                                                                 | -            | -           |
| IETF RFC 3411      | 2002        | An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks                                                        | -            | -           |
| IETF RFC 3577      | 2003        | Introduction to the RMON family of MIB modules                                                                                                        | -            | -           |
| IETF RFC 4604      | 2006        | Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast | -            | -           |
| IETF RFC 5424      | 2009        | The Syslog Protocol                                                                                                                                   | -            | -           |

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**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.
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International Standard IEC 61162-460 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This second edition of IEC 61162-460 cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

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

- a) 460-Switches and 460-Forwarders are required to implement IGMP snooping;
- b) connection between secure and non-secure areas requires a 460-Forwarder as an isolation element;

- c) SFI collision detection added as function of network monitoring;
- d) 460-Gateway and 460-Wireless gateway are no longer required to report to the network monitoring;
- e) all alerts from network monitoring have standardized alert identifiers.

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

| FDIS        | Report on voting |
|-------------|------------------|
| 80/879/FDIS | 80/884/RVD       |

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.

This International Standard is to be used in conjunction with IEC 61162-450:2018.

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 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.

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# 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 IEC 61162-450 where higher safety and security standards are needed, for example due to higher exposure to external threats or to improve network integrity. This document 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 document also contains requirements for a redundant IEC 61162-460 compliant network.

This document does not introduce new application level protocol requirements to those that are defined in IEC 61162-450.

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

IEC 61162-450:2018, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 450: Multiple talkers 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 Standard for Local and metropolitan area networks: Media Access Control (MAC) Bridges*

IEEE 802.1Q, *IEEE Standard for Local and metropolitan area networks: Virtual Bridged Local Area Networks*

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INTERNET SOCIETY (ISOC). RFC 1112, *Host Extensions for IP Multicasting* [online]. Edited by S. Deering. August 1989 [viewed 2018-01-08]. Available at <https://www.ietf.org/rfc/rfc1112.txt>

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INTERNET SOCIETY (ISOC). RFC 3577, *Introduction to the RMON family of MIB modules* [online]. Edited by S. Waldbusser. August 2003 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc3577>

INTERNET SOCIETY (ISOC). RFC 4604, *Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast* [online]. Edited by H. Holbrook et al. August 2006 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc4604>

INTERNET SOCIETY (ISOC). RFC 5424, *The Syslog Protocol* [online]. Edited by R. Gerhards. March 2009 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc5424>