

INTERNATIONAL STANDARD



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



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Part 460: Multiple talkers and multiple listeners – Ethernet interconnection –
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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 47.020.70

ISBN 978-2-8322-2850-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

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

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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

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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 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