

INTERNATIONAL STANDARD

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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**

**Matériels et systèmes de navigation et de radiocommunication maritimes –
Interfaces numériques –
Partie 460: Émetteurs multiples et récepteurs multiples – Interconnexion
Ethernet – Sécurité et sécurité**



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Ethernet – Sécurité et sécurité**

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ICS 47.020.70

ISBN 978-2-8322-7770-6

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REDLINE VERSION

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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**

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61162-460 edition 2.1 contains the second edition (2018-05) [documents 80/879/FDIS and 80/884/RVD] and its amendment 1 (2020-01) [documents 80/943/FDIS and 80/951/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

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

This second 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.

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 the base publication and its amendment 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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Introduction to the Amendment

This amendment provides greater clarity to the external security requirements in 6.3, updates the alert management in 8.2.7 and associated tests in 10.11.6 to comply with bridge alert management and provides an improved test of firewalls in 10.8.4.

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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*~~

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

IEC 62923-2, *Maritime navigation and radiocommunication equipment and systems – Bridge alert management – Part 2: Alert and cluster identifiers and other additional features*

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*

INTERNET SOCIETY (ISOC). RFC 792, *Internet Control Message Protocol (ICMP), Standard STD0005 (and updates)* [online]. Edited by J. Postel. September 1981 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc792>

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>

INTERNET SOCIETY (ISOC). RFC 1157, *A Simple Network Management Protocol (SNMP)* [online]. Edited by J. Case et al. May 1990 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc1157>

INTERNET SOCIETY (ISOC). RFC 2021, *Remote Network Monitoring Management Information Base* [online]. Edited by S. Waldbusser. January 1997 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc2021>

INTERNET SOCIETY (ISOC). RFC 2236, *Internet Group Management Protocol, Version 2* [online]. Edited by W. Fenner. November 1997 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc2236>

INTERNET SOCIETY (ISOC). RFC 2819, *Remote Network Monitoring Management Information Base* [online]. Edited by S. Waldbusser. May 2000 [viewed 2018-01-08]. Available at <https://tools.ietf.org/html/rfc2819>

INTERNET SOCIETY (ISOC). RFC 3411, *An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks* [online]. Edited by D. Harrington. December 2002 [viewed 2018-01-08]. Available at <https://www.ietf.org/rfc/rfc3411.txt>

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>

3 Terms and definitions

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

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