Maritime navigation and radiocommunication equipment and systems - Cybersecurity - General requirements, methods of testing and required test results

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 63154:2021 sisaldab Euroopa standardi EN IEC 63154:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 63154:2021 consists of the English text of the European standard EN IEC 63154:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.04.2021.	Date of Availability of the European standard is 23.04.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 35.030, 47.020.70

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63154

April 2021

ICS 35.030; 47.020.70

English Version

Maritime navigation and radiocommunication equipment and systems - Cybersecurity - General requirements, methods of testing and required test results (IEC 63154:2021)

Matériels et systèmes de navigation et de radiocommunication maritimes - Sécurité informatique - Exigences générales, méthodes d'essai et résultats d'essai exigés
(IEC 63154:2021)

Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt - Cyber-Security - Allgemeine Anforderungen, Prüfverfahren und geforderte Prüfergebnisse
(IEC 63154:2021)

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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 80/984/FDIS, future edition 1 of IEC 63154, 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 63154:2021.

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) 2022-01-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-04-13

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The text of the International Standard IEC 63154:2021 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 61162-1	NOTE	Harmonized as EN 61162-1
IEC 61162-2	NOTE	Harmonized as EN 61162-2
IEC 61162-3	NOTE	Harmonized as EN 61162-3
IEC 61993-2:2018	NOTE	Harmonized as EN IEC 61993-2:2018 (not modified)
IEC 62443 (series)	NOTE	Harmonized as EN IEC 62443 (series)

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.

Publication	Year	Title	EN/HD	Year
IEC 60945	2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	2002
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 61162-460	2018	Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 460: Multiple talkers and multiple listeners – Ethernet interconnection –Safety and security	EN IEC 61162-460	2018

IEC 63154

Edition 1.0 2021-03

INTERNATIONAL STANDARD

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Maritime navigation and radiocommunication equipment and systems – Cybersecurity – General requirements, methods of testing and required test results

Matériels et systèmes de navigation et de radiocommunication maritimes – Sécurité informatique – Exigences générales, méthodes d'essai et résultats d'essai exigés

IEC 63154:2021-03(en-fr)

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MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – CYBERSECURITY – GENERAL REQUIREMENTS, METHODS OF TESTING AND REQUIRED TEST RESULTS

FOREWORD

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

FDIS	Report on voting
80/984/FDIS	80/989/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English

This document has been drafted in accordance with the ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

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

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INTRODUCTION

IMO resolution MSC.428(98) on maritime cyber risk management in safety management systems affirms the need for cyber risk management on vessels subject to the SOLAS Convention. This document addresses the basic cybersecurity requirements for shipborne navigation and radiocommunication equipment falling within that need.

Shipborne navigation and radiocommunication equipment are generally installed in restricted areas, for example at the bridge where access is defined by the IMO International Ship and Port Facility Security (ISPS) Code or in an electronic locker room or in a closed cabinet. These restricted areas are referred to as secure areas in this document. This is based on the importance of navigation and radiocommunication equipment for the safety of navigation. These restricted areas are considered as areas with implemented security and access measures. These measures are defined in the ship security plan of the individual vessel derived from ISPS code, they are not part of this document and not specified or tested in the context of this document. Accordingly, equipment installed in these physically restricted access areas are understood to benefit from these security measures. This document provides mitigation against the remaining cyber vulnerabilities for equipment installed in such areas.

Following from the above, this document includes consideration of cyber threats from unauthorized users, from removable external data sources (REDS) like USB sticks, from network segments installed outside of the restricted areas including interfaces to external networks, for example ship to shore, ship to ship.

The risk of an incident is different for each equipment/system boundary, and the mitigating security measures required should be appropriate to the identified risk of incident and proportional to the identified adverse consequences. Boundaries take the form of both physical, such as direct access to the equipment via its ports (e.g. network, USB, import of digital files, software installation) and logical (e.g. connections over a network, transfer of data, operator use). A key tenet of cyber security is authentication of who has provided the data and verification that what is being provided has not been tampered with.

To reflect the difference in cyber security risk, the needs for authentication and verification between secure and non-secure areas are illustrated in Figure 1. The methods for achieving authentication and verification are described in each module of this document.

In Figure 1, the colour red means a source requiring authentication and verification. The colour green means a source not requiring authentication and verification.

The explanation of the numbers in Figure 1 is:

1) external communication that requires authentication and verification as the source is not a local secure area and its provenance cannot be trusted;
2) local network message interfacing that does not require authentication and verification as they are part of normal operation defined by configuration in a local secure area, for example VDR binary transfer, IEC 61162 interfacing, internal proprietary data exchange;
3) local message and data import between networks that does not require authentication and verification as they are part of normal operation defined by configuration in local secure areas;
4) external data import by an operator from an external source via REDS that requires authentication and verification of data import; this applies to executable or non-executable data;
5) local serial interface messaging that does not require authentication and verification as it is part of normal operation defined by configuration in a local secure area;
6) updates applied via external data source or REDS in maintenance mode that does not require authentication and verification but does require user authentication to change configuration.

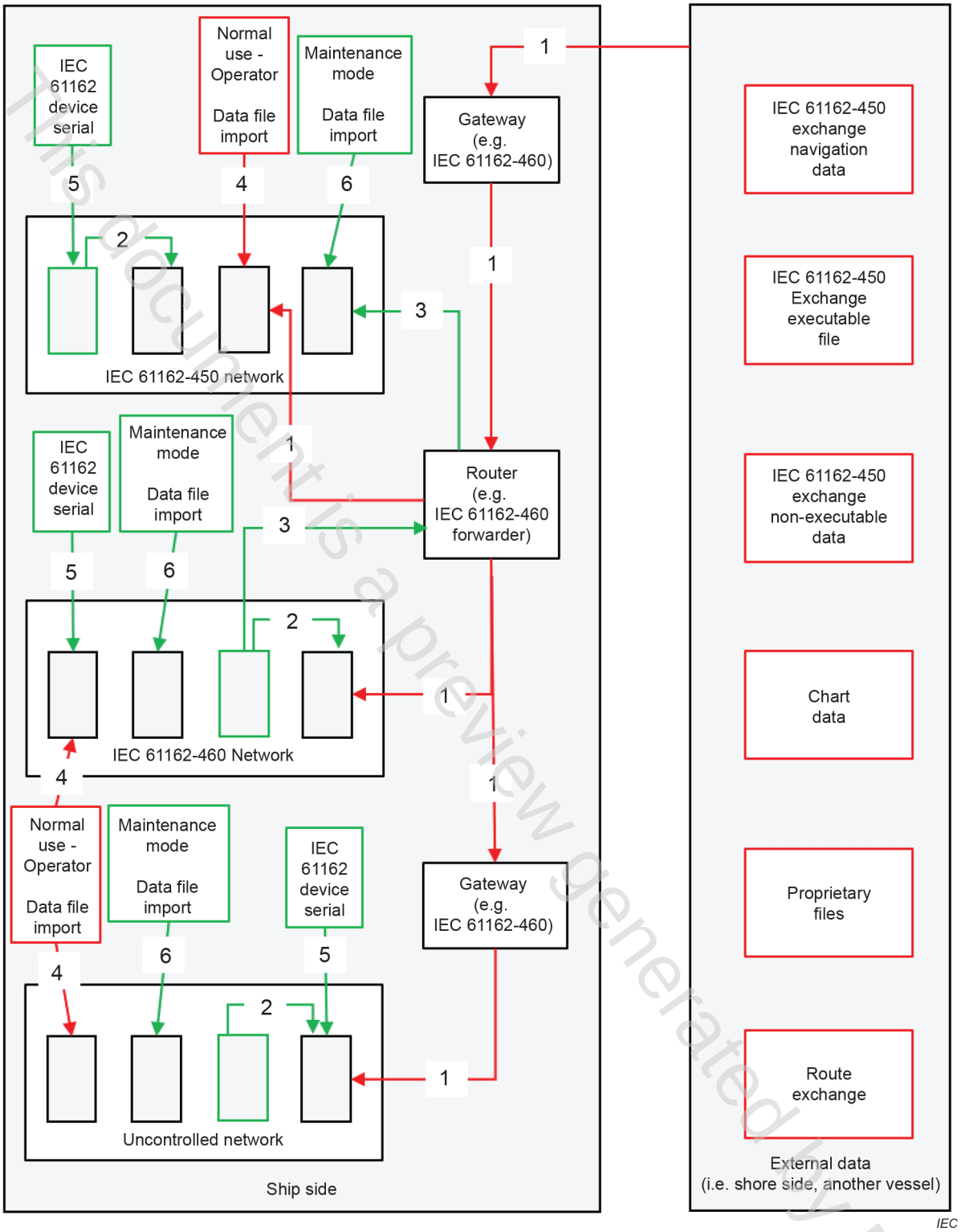

Figure 1 – Some examples of data transfer