IEC 62923-1

Edition 1.0 2018-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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

Matériels et systèmes de navigation et de radiocommunication maritimes – Gestion des alertes a la passerelle –
Partie 1: Exigences d'exploitation et de fonctionnement, méthodes d'essai et résultats d'essai exigés

IEC 62923-1:2018-08(en-fr)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 47.020.70

ISBN 978-2-8322-5993-1

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CONTENTS

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MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – BRIDGE ALERT MANAGEMENT –

Part 1: Operational and performance requirements, methods of testing and required test results

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The text of this document is based on the following documents:

FDIS	Report on voting
80/892/FDIS	80/897/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.

A list of all parts in the IEC 62923 series, published under the general title *Maritime navigation and radiocommunication equipment and systems – Bridge alert management*, 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

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INTRODUCTION

IEC 62923-1 has been written in pursuit of IMO resolution MSC.302(87), to further detail the technical requirements of bridge alert management and to enable testing of any equipment against the requirements of bridge alert management.

Bridge alert management (BAM) is the IMO defined overall concept for the management, handling and harmonized presentation of alerts on the bridge.

This document has been written in such a way that this form of alert management can be applied ship wide, next to, and in cooperation with, cluster(s) on the bridge.

Individual equipment that applies the BAM principles uses

- harmonized states for its alerts,
- harmonized presentation for presentation of its alerts, and
- harmonized alert communications for
  - communication with other equipment (VDR and equipment with more knowledge, as applicable), and
  - communication with a central alert management (CAM) system, if provided on board.

A CAM system, including its human machine interface(s) (HMI),

- uses harmonized states for its alerts,
- uses harmonized presentation for presentation of all alerts generated on the bridge,
- uses harmonized alert communications for communication with other equipment (VDR, alert source equipment),

- provides the function to silence all audible alerts on the bridge, and
- provides the function to individually acknowledge all alerts generated on the bridge for which additional decision support information is not required;

A CAM system may be standalone or combined with other equipment, for example in the case of an integrated navigation system (INS).

All equipment that applies the BAM principles may provide intelligence to deal with the processing of non-BAM "legacy" alarm communications for harmonized presentation at its HMI.

This document provides the harmonization requirements.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – BRIDGE ALERT MANAGEMENT –

Part 1: Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 62923 specifies the operational and performance requirements, methods of testing, and required test results for the bridge alert management (BAM) in support of IMO resolution MSC.302(87). It is applicable to all alerts presented on and transferred to the bridge.

NOTE All text of this document whose wording is identical to that of IMO resolution MSC.302(87) is printed in italics, and the resolution and associated performance standard paragraph numbers are indicated in brackets.

(MSC.302/2) *To enhance the safety of operation,* the *Performance standards* given in resolution MSC.302(87) *provide requirements for the harmonized presentation and treatment of alerts on the bridge and specify a central alert management (CAM)* system.

Annex E provides guidance on design principles that, when applied, will achieve the desired enhancement of safety.

(MSC.302/3*) Module A* (Clause 6) of this document *describes the general concept of the BAM and the presentation of alerts on the bridge equipment. Modules B* (Clause 7) *and D* (Clause 9) *contain requirements for the CAM and the CAM-HMI. Module C* (Clause 8) *describes the interface requirements for BAM.*

BAM is a concept that imposes requirements on equipment that handles and presents alerts on the bridge, including equipment that provides central alert management (CAM) system functionalities.

- Equipment is BAM compliant if it meets Module A – Presentation and handling of alerts on the bridge and Module C – Interfacing of this document.
- Equipment is CAM system compliant if it is BAM compliant equipment and, in addition, meets Module B – Central alert management system functionality and Module D – System and equipment documentation for CAM system of this document.

To support retrofitting a ship with BAM compliant equipment handling alert related communication with remaining non-BAM compliant equipment (referred to as "legacy alert sources"), this document includes guidance on how to interface BAM compliant equipment with remaining devices that are not BAM compliant (see 4.4 and Annex H).

IEC 62923-2 provides standardized alert and cluster identifiers and other additional features.

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 60945:2002, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

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

IEC 61924-2, *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, *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 62923-2:2018, *Maritime navigation and radiocommunication equipment and systems – Bridge alert management – Part 2: Alert and cluster identifiers and other additional features*

IMO MSC.302(87), *Performance standards for bridge alert management (BAM)*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms, definitions and abbreviated terms apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Terms and definitions

3.1.1
active alert
alert that is not in state "normal"

3.1.2
aggregated header alert
(MSC.302/A) *alert indicating the existence of multiple individual alerts* of the same kind, transmitted by the aggregation source with alert state and alert ID determined by the associated aggregation-member alerts, with alert instance 0 and with, in the alert title and/or alert description text, an aggregation header representing the aggregation

3.1.3
aggregation
(MSC.302/A) single *combination of* an aggregated header alert and associated *individual* aggregation-member *alerts* that all have the same alert identifier and the same aggregation source, *to provide one alert (one* aggregated header *alert represents plenty of individual* aggregation-member *alerts)*

3.1.4
aggregation header
title of an aggregation, under which the associated aggregation-member alerts are sorted, indicating the generic part of the aggregation-member alerts, and defined by the aggregation source

Note 1 to entry: The header may contain the current number of aggregation-member alerts in that aggregation (see 8.1.5).

3.1.5
aggregation source
BAM compliant equipment that defines an aggregation of (some of) its alerts

3.1.6
aggregation-member alert
individual alert that is defined by its source as part of an aggregation

3.1.7
alarm
high-priority alert
(MSC.302/A) *condition requiring immediate attention and action by the bridge team, to maintain the safe navigation and safe operation of the ship*

3.1.8
alert
(MSC.302/A) *announcement of abnormal situations and conditions requiring attention*

Note 1 to entry: *Alerts are divided in four priorities: emergency alarms, alarms, warnings and cautions. An alert provides information about a defined state change in connection with information about how to announce this event in a defined way to the system and the operator.*

3.1.9
alert announcements
(MSC.302/A) *visual and acoustical presentation of alerts*

3.1.10
alert history list
(MSC.302/A) *accessible list of past alerts*

3.1.11
alert management
(MSC.302/A) *concept for the harmonized regulation of the monitoring, handling, distribution and presentation of alerts on the bridge*

3.1.12
alert source
equipment generating and managing alerts

3.1.13
audible indication
sound from the EUT that is not associated with raising an alert of priority alarm or warning in the list of active alerts of the EUT

EXAMPLE 1 A sound indicating a change of control position.

EXAMPLE 2 Table 7.1.1 of IMO Resolution A.1021(26):2009, "Code on Alerts and Indicators".

3.1.14
bridge alert management
BAM
(MSC.302/A) *overall concept for management, handling and harmonized presentation of alerts on the bridge*

3.1.15
BAM compliant equipment
equipment compliant with Modules A and C of MSC.302(87)

3.1.16
central alert management
CAM
(MSC.302/A) *functionality for the management of the presentation of alerts on the CAM-HMI, the communication of alert states between CAM-HMI and navigational systems and sensors*

Note 1 to entry: *The functions may be centralized or partly centralized in subsystems and interconnected via a standardized alert-related communication.*

3.1.17
central alert management HMI
CAM-HMI
(MSC.302/A) *human machine interface for* centralized *presentation and handling of alerts on the bridge*

3.1.18
central alert management system
CAM system
combined functionality of CAM and CAM-HMI

3.1.19
category A alert
(MSC.302/A) *alert for which graphical information at the task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation of the alert related condition*

3.1.20
category B alert
(MSC.302/A) *alert where no additional information for decision support is necessary besides the information which can be presented at the central alert management HMI*

3.1.21
category C alert
(MSC.302/A) *alert that cannot be acknowledged on the bridge but for which information is required about the status and treatment of the alert*

Note 1 to entry: If the bridge alert management is applied in another cluster than the bridge (see Annex E), this definition applies mutatis mutandis.

3.1.22
caution
lowest-priority alert
(MSC.302/A) *awareness of a condition which does not warrant an alarm or warning condition, but still requires attention out of the ordinary consideration of the situation or of given information*

3.1.23
cluster
(MSC.302/A) *group of functions on a high level, e.g., navigation, automation*

Note 1 to entry: For guidance on the use of clusters, see Annex E.

3.1.24
converted alert
alert resulting from translation of a legacy alert into BAM compliant alert