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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation and ship operations*.

This second edition cancels and replaces the first edition (ISO 19697:2016), which has been technically revised.

The main changes are as follows:

— the normative references have been updated;

— alert management requirements have been added in 5.4;

— failure or reduction in power supply has been added in 7.12;

— Annex C has been replaced with a new Annex on IEC 61162 interfaces;

— new Annex D has been added on alerts definition, including alert identifiers.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

In accordance with IMO Resolution MSC.363 (92), Article 2.1, *electronic inclinometers are intended to support the decision-making process on board in order to avoid dangerous situations, as well as assist in* and facilitate *maritime casualty investigation*. The requirements in this document take into account human factors, ergonomic principles and advances in technology. The electronic inclinometers are mainly composed of a set of sensors, a signal processor, a display, an input device and an interface to other systems.

Electronic inclinometers provide information about:

— actual heel angle;

— roll amplitude;

— roll period;

— stability.

Any text in this document which is a citation from the IMO Resolution MSC.363 (92) appears in italics. Within these citations, any changes to the original wording of the IMO Resolution MSC.363 (92), are written in upright font.

NOTE The relationship between ship stability and the measured natural frequency of roll motion using an electronic inclinometer is explained in Annex A.

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Ships and marine technology — Navigation and ship operations — Electronic inclinometers

1 Scope

This document specifies the performance requirements, methods of testing and test results of electronic inclinometers required by the performance standard, IMO resolution MSC.363 (92), in addition to the general requirements contained in IMO Resolution A.694 (17).

This document does not apply to the electronic inclinometers installed for purposes which are outside the scope of this document, e.g. monitoring of cargo status.

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

IEC 61162-2, *Maritime navigation and radiocommunication equipment and systems — Digital interfaces — Part 2: Single talker and multiple listeners, high-speed transmission*

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

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 62923-1:2018, *Maritime navigation and radiocommunication equipment and systems — Bridge alert management — Part 1: Operational and performance requirements, methods of testing and required test results*

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

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

IMO Resolution MSC.466(101), *Amendments to the performance standards for the presentation of navigationrelated information on shipborne navigational displays (*Resolution MSC.191(79)*)*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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