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**Ships and marine technology — Night  
vision equipment for high-speed  
craft — Operational and performance  
requirements, methods of testing and  
required test results**

*Navires et technologie maritime — Équipement de vision nocturne  
pour navires à grande vitesse — Exigences opérationnelles et de  
performance, méthodes d'essai et résultats d'essai exigés*



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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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 16273:2003), which has been technically revised.

The main changes compared to the previous edition are as follows:

- definitions 3.5 "performance check", 3.6 "performance check (EMC)", 3.7 "performance test" 3.8 "single operator action", 3.9 "field of view" and 3.10 "instantaneous field of view" have been added;
- 4.8 "Stabilisation of the field of view against the motions of the vessel" has been added;
- 4.10 "Clear view", former 4.11, has been clarified;
- 4.13 "Line of sight" has been added;
- 4.15 "Presentation of information", former 4.16, has been modified;
- 4.22 "Interfacing" has been modified;
- 5.1.2 "Performance test" has been added;
- 5.1.3 "Performance check", former 6.3, has been modified;
- 5.1.4 "Performance check (EMC)" has been added;
- 5.2.3 "Roll and pitch test", former 6.2.2, has been modified;
- 5.4.2.8 "Wind endurance test" has been added;
- 5.4.3 "Test of thermal imaging systems", former 7.2, has been modified;

- [5.4.3.2, Table 2](#) "Atmospheric extinction coefficients for different wavelength ranges" values have been adjusted;
- [5.4.4](#) "Test of active image-intensifier systems", former 7.3, has been modified and testing of non-visible illumination has been added;
- [5.5](#) "Sea trials", former [Clause 8](#), has been modified, the surface of test specimen has been specified;
- [Annex D](#) (normative) "Measurement of MTDP (minimum temperature difference perceived) of thermal imagers" has been added;
- [Annex E](#) (normative) "Stabilisation test for thermal imaging systems" has been added.

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](http://www.iso.org/members.html).

## Introduction

This document has been developed to support the implementation of the International Code of Safety for High-Speed Craft (HSC code), Chapter 13, of the International Maritime Organisation (IMO), and the IMO performance standards for night vision equipment for high-speed craft in the IMO Resolution MSC.94 (72)





# Ships and marine technology — Night vision equipment for high-speed craft — Operational and performance requirements, methods of testing and required test results

## 1 Scope

This document specifies operational and performance requirements and methods of testing for night vision equipment fitted to high-speed craft.

NOTE In this document, the text identical to IMO Resolution MSC.94 (72) is printed in italics; references to the paragraphs concerned in the IMO Resolution are given in brackets.

## 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.

ISO 9335, *Optics and photonics — Optical transfer function — Principles and procedures of measurement*

ISO 15529, *Optics and photonics — Optical transfer function — Principles of measurement of modulation transfer function (MTF) of sampled imaging systems*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems — General requirements — Methods of testing and required test results*

IEC 61162, *Maritime navigation and radiocommunication equipment and systems — Digital Interfaces*

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 62388:2013, *Maritime navigation and radiocommunication equipment and systems — Shipborne radar — Performance requirements, methods of testing and required test results*

IEC 62923, *Maritime navigation and radiocommunication equipment and systems — Bridge alert management (all parts)*

IMO Resolution A.694(17), *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*

IMO Resolution MSC.94(72), *Performance standards for night vision equipment for high speed craft*

IMO Resolution MSC.191(79), *Performance standards for the presentation of navigation-related information on shipborne navigational displays*

IMO Resolution MSC.302(87), *Adoption of performance standards for Bridge Alert Management*

## 3 Terms and definitions

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

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

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