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INTERNATIONAL STANDARD

Electrical installations in ships –
Part 306: Equipment – Luminaires and lighting accessories

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FOREWORD

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International Standard IEC 60092-306 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

This fourth edition cancels and replaces the third edition published in 1980. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

a) Title has been amended;
b) Scope has been stated more precisely;
c) Requirements on mechanical design and materials have been amended and stated more precisely;
d) Table 2 – Standard types of lampholders, has been amended;
e) Environmental tests, especially regarding shock and vibration have been added;

f) Requirements and tests concerning special chemical and physical attributes have been added;

g) Standard has been editorially revised.

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

FDIS	Report on voting
18/1137/FDIS	18/1143/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60092 series, published under the general title *Electrical installations in ships,* can be found on the IEC web site.

The committee has decided that the contents of this publication will remain unchanged until the maintenance 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

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- withdrawn;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

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

IEC 60092 forms a series of international standards for electrical installations in sea-going ships, incorporating good practice and coordinating, as far as possible, existing rules.

These standards form a code of practical interpretation and amplification of the requirements of the International Convention for the Safety of Life at Sea, a guide for future regulations which may be prepared and a statement of practice for use by shipowners, shipbuilders and appropriate organizations.

ELECTRICAL INSTALLATIONS IN SHIPS –

Part 306: Equipment – Luminaires and lighting accessories

1 Scope

This International Standard applies to luminaires and lighting accessories for use in ships. It applies primarily to luminaires for illumination purposes.

NOTE Boats, submarines (except naval submarines), watercraft and floating equipment are ships to which this standard applies.

This standard also applies to lighting accessories associated with the wiring and current consuming appliance of an installation.

This standard does not apply to portable luminaires, navigation lights, search lights, daylight signalling lamps, signal lights including the relevant control and monitoring equipment and other lights used for navigation in channels, harbours, etc.

For navigation lights, see EN 14744, for search lights, see ISO 17884, for daylight signalling lamps, see ISO 25861.

2 Normative references

The following referenced documents are indispensable for the application 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 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-52, *Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium, chloride solution)*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60079 (all parts), *Equipment for explosive atmospheres*

IEC 60092-101, *Electrical installations in ships – Part 101: Definitions and general requirements*

IEC 60092-201:1994, *Electrical installations in ships – Part 201: System design – General*

IEC 60092-352, *Electrical installations in ships – Part 352: Choice and installation of electrical cables*

IEC 60155, *Glow-starters for fluorescent lamps*

IEC 60238, *Edison screw lampholders*

IEC 60332-1-2:2004, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60400, *Lampholders for tubular fluorescent lamps and starterholders*

IEC 60529, Degrees *of protection provided by enclosures (IP Code)*

IEC 60533, *Electrical and electronic installations in ships – Electromagnetic compatibility*

IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

IEC 60684-2, *Flexible insulating sleeving – Part 2: Methods of test*

IEC/TR 60721-4-6, *Classification of environmental conditions – Part 4-6: Guidance for the correlation and transformation of environmental condition classes of IEC 60721-3 to the environmental tests of IEC 60068 – Ship environment*

IEC 60695-2-11*, Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60754-1, *Test on gases evolved during combustion of materials from cables – Part 1: Determination of the amount of halogen acid gas*

IEC 60838-1, *Miscellaneous lampholders – Part 1: General requirements and tests*

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

IEC 61184, *Bayonet lampholders*

IEC 61347-2-1, *Lamp controlgear – Part 2-1: Particular requirements for starting devices (other than glow starters)*

IEC 61995-1, *Devices for the connection of luminaires for household and similar purposes – Part 1: General requirements*

IEC 61995-2, *Devices for the connection of luminaires for household and similar purposes – Part 2: Standard sheets for DCL*

ISO 2409, *Paints and varnishes – Cross-cut test*

ISO 3882, *Metallic and other inorganic coatings – Review of methods of measurement of thickness*

ISO 4892-2, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 4892-3, *Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps*

ISO 9001, *Quality management systems – Requirements*

ISO 17884, *Ships and marine technology – Searchlights for high-speed craft*

ISO 25861 *Ships and marine technology – Navigation – Daylight signalling lamps*

Defence Standard 02-713, *Determination of the Toxicity Index of the Products of Combustion from Small Specimens of Materials*

EN 12206-1, *Paints and varnishes – Coating of aluminium and aluminium alloys for architectural purposes – Part 1: Coatings prepared from coating powder*

EN 13032-1, *Light and lighting – Measurement and presentation of photometric data of lamps and luminaires – Part 1: Measurement and file format*

EN 13438, *Paints and varnishes – Powder organic coatings for galvanized or sherardised steel products for construction purposes*

EN 14744, *Inland navigation vessels and sea-going vessels – Navigation light*

IEC 62444, *Cable glands for electrical installations*[1]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60598-1 and the following apply.

3.1
lamp
source made in order to produce an optical radiation, usually visible

[IEV 845-07-03]

3.2
lighting accessories
additional parts which are needed for mounting or for electrical connection and which are usually delivered together with the luminaire

NOTE Examples are ceiling rose, cable gland, plug, socket-outlet.

4 Requirements on luminaires

4.1 General

Luminaires shall comply with the requirements of IEC 60598-1 and with the additional requirements included in this standard. Luminaires in accordance with this standard shall be suitable for continuous operation.

4.2 Mechanical requirements

4.2.1 Design

The design of luminaires shall comply with the requirements of IEC 60092-101 and with the following additional requirements.

a) Luminaires shall have sufficient mechanical resistance for the intended use. The mechanical properties shall be in accordance with intended purpose and installation location. To meet the requirement of mechanical resistance, the equipment shall withstand the respective shock and vibration conditions given in the Tables 3 and 4.

b) Luminaires shall be designed, dimensioned and equipped with mounting devices in such a way that they will present no hazard to persons, in particular during operation and maintenance work.

c) The minimum degrees of IP protection in accordance with IEC 60529 required in the different environmental conditions related to locations are given in IEC 60092-201:1994, Table 5.

d) Luminaires shall be so constructed as to provide for adequate dissipation of heat from lamps and related components. The temperature rise of terminals for connection of supply cables shall not exceed 40 °C. Insulation material of internal parts shall be of a temperature class which corresponds to the maximum temperature within the luminaires.

e) The temperature of surface parts which can be touched during operation shall not exceed 60 °C. If this is not possible, e. g. in case of floodlights or discharge lamps, these

1 *To be published.*