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colour inside

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INSTALLATIONS IN SHIPS –

Part 306: Equipment – Luminaires and lighting accessories

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60092-306:2009. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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

This fifth edition cancels and replaces the fourth edition published in 2009. This edition constitutes a technical revision.

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

a) additional technical and environmental requirements have been included;
b) Table 2 "Standard types of lamp holders" has been amended;
c) Subclause 4.3.2 has been amended with a new title "Distribution systems" and a reference to IEC 60092-201 has been added;
d) environmental requirements and tests, especially regarding shock and vibration have been changed, and references to IEC 60092-101 and IEC 60092-504 have been added;
e) requirements on coating thickness have been deleted, material requirements in 4.2.2 being sufficient;
f) the high voltage test has been amended with regard to electronic parts.

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

Draft	Report on voting
18/1786/FDIS	18/1790/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 was drafted in accordance with 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/publications.

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 website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 60092 (all parts) 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 part of IEC 60092 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 document also applies to lighting accessories associated with the wiring and current consuming appliance of an installation.

This document 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.~~

Annex A provides EMC considerations for system integrators.

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 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 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

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 60092-353, *Electrical installations in ships – Part 353: Power cables for rated voltages 1 kV and 3 kV*

IEC 60092-360, *Electrical installations in ships – Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables*

IEC 60092-401, *Electrical installations in ships – Part 401: Installation and test of completed installation*

IEC 60092-504, *Electrical installations in ships – Part 504: Automation, control and instrumentation*

IEC 60155, *Glow-starters for fluorescent lamps*

IEC 60238, *Edison screw lampholders*

IEC 60309 (all parts), *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes*

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 60417, *Graphical symbols for use on equipment, available at http://www.graphical-symbols.info/equipment*

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

IEC 60533, *Electrical and electronic installations in ships – Electromagnetic compatibility (EMC) – Ships with a metallic hull*

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

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

IEC 60695-7-2, *Fire hazard testing – Part 7-2: Toxicity of fire effluent – Summary and relevance of test methods*

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

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

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 61300-3-2, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-2: Examination and measurements – Polarization dependent loss in a single-mode fibre optic device*

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*

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

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

IEC 62742, *Electrical and electronic installations in ships – Electromagnetic compatibility (EMC) – Ships with a non-metallic hull*

IEC TR 62778, *Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires*

~~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 thermosetting coating powder*

~~1 To be published.~~

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 hot dip galvanized or sherardised steel products for construction purposes*

EN 13032-4, *Light and lighting – Measurement and presentation of photometric data of lamps and luminaires – Part 4: LED lamps, modules and luminaires*

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

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INTERNATIONAL STANDARD

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



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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*

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IEC 60238*, Edison screw lampholders*

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

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

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

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IEC 61184*, Bayonet lampholders*

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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*

IEC 62444, *Cable glands for electrical installations*

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

IEC 62742, *Electrical and electronic installations in ships – Electromagnetic compatibility (EMC) – Ships with a non-metallic hull*

IEC TR 62778, *Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires*

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*

EN 12206-1, *Paints and varnishes – Coating of aluminium and aluminium alloys for architectural purposes – Part 1: Coatings prepared from thermosetting 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 hot dip galvanized or sherardised steel products for construction purposes*

EN 13032-4, *Light and lighting – Measurement and presentation of photometric data of lamps and luminaires – Part 4: LED lamps, modules and luminaires*