



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 19009:2015

## Small craft - Electric navigation lights - Performance of LED lights (ISO 19009:2015)

## I.S. EN ISO 19009:2015

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN ISO 19009:2015

*Published:*

2015-10-07

*This document was published under the authority of the NSAI and comes into effect on:*

2015-10-25

ICS number:

47.080

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN ISO 19009:2015 is the adopted Irish version of the European Document EN ISO 19009:2015, Small craft - Electric navigation lights - Performance of LED lights (ISO 19009:2015)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 19009

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2015

ICS 47.080

English Version

## Small craft - Electric navigation lights - Performance of LED lights (ISO 19009:2015)

Petits navires - Feux de navigation électriques -  
Performance des feux à LED (ISO 19009:2015)

Kleine Wasserfahrzeuge - Elektrische  
Positionslaternen - Leistung von LED-Leuchten (ISO  
19009:2015)

This European Standard was approved by CEN on 13 June 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## **Contents**

Page

<b>European foreword.....</b>	<b>3</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2013/53/EC.....</b>	<b>4</b>

## European foreword

This document (EN ISO 19009:2015) has been prepared by Technical Committee ISO/TC 188 "Small craft".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 19009:2015 has been approved by CEN as EN ISO 19009:2015 without any modification.

**EN ISO 19009:2015 (E)**

**Annex ZA**  
(informative)  
**Relationship between this European Standard and the Essential  
Requirements of EU Directive 2013/53/EC**

This European standard has been prepared under a mandate given to CEN by the European Commission to provide one means of conforming to Essential Requirements of the New Approach Directive 2013/53/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one member state, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

**WARNING** — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.



**INTERNATIONAL  
STANDARD**

**ISO  
19009**

First edition  
2015-09-15

---

---

**Small craft — Electric navigation lights  
— Performance of LED lights**

*Petits navires — Feux de navigation électriques — Performance  
des feux à LED*



Reference number  
ISO 19009:2015(E)

© ISO 2015

**ISO 19009:2015(E)**



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Abbreviated terms</b> .....	<b>2</b>
<b>5 Minimum requirements</b> .....	<b>2</b>
5.1 Luminous intensity and range of visibility.....	2
5.2 Luminous intensity distribution.....	2
5.2.1 Horizontal luminous intensity distribution.....	2
5.2.2 Vertical luminous intensity distribution.....	3
5.3 Colorimetric requirements.....	3
5.4 Flashing light.....	3
5.5 Electrical safety.....	4
5.6 Reflectors.....	4
5.7 Power supply.....	4
5.8 General requirements.....	4
5.8.1 General.....	4
5.8.2 Equipment category.....	4
5.8.3 Vibration.....	5
5.8.4 Rain and spray.....	5
5.8.5 Solar radiation.....	5
5.8.6 Corrosion (salt mist).....	5
5.8.7 Electromagnetic compatibility.....	5
5.8.8 Compass safe distance.....	5
5.8.9 Housing temperature.....	5
5.8.10 Mechanical shock.....	5
5.9 Deviations caused by service life conditions.....	5
5.10 Influence of temperature.....	5
5.10.1 Influence of temperature on chromaticity coordinates and luminous intensity.....	5
5.10.2 Dry heat and low temperature.....	5
5.10.3 Pulse frequency.....	6
<b>6 Testing</b> .....	<b>6</b>
6.1 General.....	6
6.1.1 Validity of IEC 60945:2002.....	6
6.1.2 Performance test and performance check.....	6
6.1.3 Order of the tests.....	6
6.1.4 Documentation.....	6
6.1.5 Light source.....	6
6.2 Photometric and colorimetric tests.....	6
6.2.1 Test voltage.....	6
6.2.2 Photometric test.....	7
6.2.3 Colorimetric test.....	9
6.2.4 Measurement of luminous intensity and chromaticity coordinates under the influence of temperature.....	10
6.2.5 Measurement of flashing lights.....	10
6.3 Explanations, supplements, or amendments to points in IEC 60945:2002.....	11
6.3.1 Corrosion (salt mist).....	11
6.3.2 Extreme power supply.....	11
6.3.3 Dry heat.....	11
6.3.4 Damp heat.....	11
6.3.5 Vibration.....	11

**ISO 19009:2015(E)**

6.3.6	Rain and spray .....	11
6.3.7	Solar radiation .....	12
6.3.8	EMC.....	12
6.4	Tests outside the scope of IEC 60945:2002 .....	12
6.4.1	Shock.....	12
6.4.2	Housing temperature.....	12
<b>7</b>	<b>Marking.....</b>	<b>13</b>
	<b>Bibliography.....</b>	<b>14</b>

## 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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 188, *Small craft*.

## **ISO 19009:2015(E)**

### **Introduction**

This document was developed to provide uniform criteria for the performance, construction, and testing of LED navigation lights. Conflicting national standards might lead to confusion on the part of operators and manufacturers of craft, as well as manufacturers of LED navigation lights. These conflicts could lead to barriers to trade.

If the colour locus of navigation light is within the coordinates specified in this document, the COLREGs, CCNR<sup>[1]</sup> and CEVNI<sup>[2]</sup> requirements relating to colour loci are satisfied.

# Small craft — Electric navigation lights — Performance of LED lights

## 1 Scope

This International Standard applies to requirements and testing for navigation lights with permanently fixed light emitting diode (LED) assemblies for small craft up to 24 m length of the hull.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11664-1, *Colorimetry — Part 1: CIE standard colorimetric observers*

CIE 15, *Colorimetry*

CIE 69, *Methods of characterizing illuminance meters and luminance meters — Performance, characteristics and specifications*

CIE 70:1987, *Measurement of absolute luminous intensity distributions*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

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

IEC 60068-2-27:2008, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock*

COLREGs, *International Regulations for Preventing Collisions at Sea, 1972*

## 3 Terms and definitions

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

### 3.1

#### **flashing light**

light flashing at regular intervals at a frequency of 120 flashes or more per minute

### 3.2

#### **navigation light**

coloured source of illumination used to signal a craft's position, heading, and status

### 3.3

#### **signal light**

light radiated by navigation lights

### 3.4

#### **range of visibility**

distance up to which the light of the navigation light can be seen

### 3.5

#### **rated voltage**

voltage or voltage range specified by the manufacturer for the operation of the navigation light

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-