

STN	Svietidlá Časť 2-22: Osobitné požiadavky Svietidlá na núdzové osvetlenie	STN EN IEC 60598-2-22 36 0600
------------	---	---

Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/22

Obsahuje: EN IEC 60598-2-22:2022, IEC 60598-2-22:2021

Oznámením tejto normy sa od 24.06.2025 ruší
STN EN 60598-2-22 (36 0600) z augusta 2016

135511

EUROPEAN STANDARD

EN IEC 60598-2-22

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2022

ICS 29.140.40

Supersedes EN 60598-2-22:2014 + AC:2015 + A1:2020 +
AC:2016-05 + AC:2016-09

English Version

**Luminaires - Part 2-22: Particular requirements - Luminaires for
emergency lighting
(IEC 60598-2-22:2021)**Luminaires - Partie 2-22: Exigences particulières -
Luminaires pour éclairage de secours
(IEC 60598-2-22:2021)Leuchten - Teil 2-22: Besondere Anforderungen - Leuchten
für Notbeleuchtung
(IEC 60598-2-22:2021)

This European Standard was approved by CENELEC on 2022-02-16. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

EN IEC 60598-2-22:2022 (E)**European foreword**

The text of document 34D/1635/FDIS, future edition 5 of IEC 60598-2-22, prepared by SC 34D "Luminaires" of IEC/TC 34 "Lighting" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60598-2-22:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-12-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-06-24

This document supersedes EN 60598-2-22:2014 and all of its amendments and corrigenda (if any).

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

This document is read in conjunction with EN IEC 60598-1.

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

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60598-2-22:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60364-5-56 NOTE Harmonized as HD 60364-5-56

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60073	-	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators	EN 60073	2002
IEC 60598-1	-	Luminaires - Part 1: General requirements and tests	EN IEC 60598-1	2021
IEC 60896-21	-	Stationary lead-acid batteries - Part 21: Valve regulated types - Methods of test	EN 60896-21	2004
IEC 61056-1	-	General purpose lead-acid batteries (valve-regulated types) - Part 1: General requirements, functional characteristics - Methods of test	EN 61056-1	2012
IEC 61347-2-2	-	Lamp controlgear - Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps	EN 61347-2-2	2012
IEC 61347-2-3	-	Lamp controlgear - Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps	EN 61347-2-3	2011
			+AC	2011
			A1	2017
IEC 61347-2-7	-	Lamp controlgear - Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)	EN 61347-2-7	2012
			+ A1	2019
			+ A2	2022

EN IEC 60598-2-22:2022 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61347-2-12	-	Lamp controlgear - Part 2-12: Particular requirements for d.c. or a.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)	EN 61347-2-12	2005
			A1	2010
IEC 61347-2-13	-	Lamp controlgear - Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules	EN 61347-2-13	2014
			A1	2017
IEC 61951-1	-	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Portable sealed rechargeable single cells - Part 1: Nickel-cadmium	EN 61951-1	2017
IEC 61951-2	-	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Portable sealed rechargeable single cells - Part 2: Nickel-metal hydride	EN 61951-2	2017
IEC 62034	-	Automatic test systems for battery powered emergency escape lighting	EN 62034	2012
IEC 62620	2014	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications	EN 62620	2015
IEC 62133-2	2017	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems	EN 62133-2	2017
			+prA1	2020 (in preparation)
IEC 62391-1	2015	Fixed electric double-layer capacitors for use in electric and electronic equipment - Part 1: Generic specification	EN 62391-1	2016
			+AC	2016
			+AC	2019
IEC 62391-2	2006	Fixed electric double-layer capacitors for use in electronic equipment - Part 2: Sectional specification - Electric double-layer capacitors for power application	EN 62391-2	2006
ISO 3864-1	2011	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings	-	-
ISO 3864-4	2011	Graphical symbols - Safety colours and safety signs - Part 4: Colorimetric and photometric properties of safety sign materials	-	-
ISO 30061	2007	Emergency lighting	-	-

EN IEC 60598-2-22:2022 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CIE 121 SPI	-	The Photometry and Goniophotometry of Luminaires - Supplement 1: Luminaires for Emergency Lighting	-	-

EN IEC 60598-2-22:2022 (E)**Annex ZB**
(informative)**A-deviations**

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN-CENELEC national member.

This European Standard falls under Directive 2006/95/EC.

NOTE (from CEN-CENELEC IR Part 2:2011, 2.17) Where standards fall under EU Directives, it is the view of the Commission of the European Communities (OJ No C 59; 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A- deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive or Regulation.

A-deviations in an EFTA-country are valid instead of the relevant provisions of the European Standard in that country until they have been removed.

<u>Clause</u>	<u>Deviation</u>
22.6.18	<p>France Ministry of the Interior, Overseas and Local Authorities - Order of 11 December 2009 approving various provisions supplementing and amending Regulation for fire hazard safety for buildings open to the public - Clause EL 10 paragraph 1.</p> <p>In premises open to the public, electrical installations shall have only permanent fittings.</p>
22.11.1	<p>France Ministry of the Interior, Overseas and Local Authorities - Order of 11 December 2009 approving various provisions supplementing and amending Regulation for fire hazard safety for buildings open to the public - Clause EL 10 paragraph 1.</p> <p>In premises open to the public, electrical installations shall have only permanent fittings.</p>
22.6.15	<p>France Ministry of the Interior - Order of 19 November 2001 approving various provisions supplementing and amending regulation for fire hazard safety for buildings open to the public - Clauses EC 9 and EC 10.</p> <p>The required photometric characteristics of products are only based on the “rated lumen output” as defined in 22.3.14, which shall be measured. Therefore the photometric data distribution of the luminaire may not to be provided or checked.</p>
22.17.1	<p>France Ministry of the Interior - Order of 19 November 2001 approving various provisions supplementing and amending regulation for fire hazard safety for buildings open to the public - Clauses EC 9 and EC 10.</p> <p>The required photometric characteristics of products are only based on the “rated lumen output” as defined in 22.3.14, which shall be measured. Therefore the photometric data distribution of the luminaire may not to be provided or checked.</p>

Annex ZZ (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

**Table ZZ.1 — Correspondence between this European standard and Annex I of Directive
2014/35/EU [2014 OJ L96]**

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1. General conditions		
a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document;	22.6 22.17	
b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected;	All	
c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained.	See item 2 and 3 of this table	
2. Protection against hazards arising from the electrical equipment		
Measures of a technical nature shall be laid down in accordance with point 1, in order to ensure that:		
a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact;	22.7 22.8 22.9 22.10 22.11 22.12 22.15 22.20	

EN IEC 60598-2-22:2022 (E)

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
b) temperatures, arcs or radiation which would cause a danger, are not produced;	22.7 22.8 22.13 22.15	
c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience;	22.7 22.15 22.8 22.18 22.20 22.21	
d) the insulation is suitable for foreseeable conditions.	22.8 22.14 22.15 22.20	
3. Protection against hazards which may be caused by external influences on the electrical equipment		
Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment:		
a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered;	22.6 22.7	
b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered;	22.14 22.16 22.19	
c) does not endanger persons, domestic animals and property in foreseeable conditions of overload.	22.7 22.13 22.16 22.19 22.20	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.



IEC 60598-2-22

Edition 5.0 2021-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Luminaires –
Part 2-22: Particular requirements – Luminaires for emergency lighting**

**Luminaires –
Partie 2-22: Exigences particulières – Luminaires pour éclairage de secours**





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2021 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 60598-2-22

Edition 5.0 2021-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Luminaires –
Part 2-22: Particular requirements – Luminaires for emergency lighting**

**Luminaires –
Partie 2-22: Exigences particulières – Luminaires pour éclairage de secours**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.40

ISBN 978-2-8322-1053-8

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	3
22.1 Scope	5
22.2 Normative references	5
22.3 Terms and definitions	6
22.4 General test requirements	10
22.5 Classification of luminaires	11
22.6 Marking	11
22.7 Construction	13
22.8 Creepage distances and clearances	16
22.9 Provision of earthing	16
22.10 Terminals	16
22.11 External and internal wiring	16
22.12 Protection against electric shock	17
22.13 Endurance test and thermal test	17
22.14 Resistance to dust and moisture	19
22.15 Insulation resistance and electric strength	19
22.16 Resistance to heat, fire and tracking	19
22.17 Photometric data	20
22.18 Changeover operation	21
22.19 High temperature operation	21
22.20 Battery chargers for self-contained emergency luminaires	22
22.21 Test devices for emergency operation	22
Annex A (normative) ESSSs for self-contained emergency luminaires	23
Annex B (normative) Luminaire classification	28
Annex C (normative) Luminance measurements	30
Annex D (informative) Rest mode and remote inhibiting mode facilities	31
Annex E (normative) Requirements for self-contained portable emergency luminaires	33
Bibliography	38
Figure C.1 – Typical example of measurement positions	30
Table 1 – Voltage per cell to which the battery is discharged	18
Table D.1 – Time scale rest mode and inhibiting mode versus status of normal mains supply	31

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LUMINAIRES –

Part 2-22: Particular requirements – Luminaires for emergency lighting

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.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60598-2-22 has been prepared by subcommittee 34D: Luminaires of IEC technical committee 34: Lighting. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2014 and Amendment 1:2017. This edition constitutes a technical revision.

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

- a) update of requirements for rest mode and inhibiting mode;
- b) clarification of high temperature operation tests;
- c) introduction of new requirements for lithium batteries;
- d) introduction of new requirements for electric double layer capacitors (EDLCs);

- e) clarification of resistance to heat, fire and tracking;
- f) clarification of test facilities for self-contained luminaires;
- g) clarification of the test method for contrast measurements of exit signs.

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

Draft	Report on voting
34D/1635/FDIS	34D/1642/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/standardsdev/publications.

This Part 2-22 is to be used in conjunction with the latest edition of IEC 60598-1 and its amendment(s). It was established on the basis of the ninth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this document, it refers to IEC 60598-1.

NOTE 2 In this document, the following print type is used:

- compliance statements: *in italic type*.

A list of all parts in the IEC 60598 series, published under the general title *Luminaires*, 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.

LUMINAIRES –

Part 2-22: Particular requirements – Luminaires for emergency lighting

22.1 Scope

This part of IEC 60598 specifies requirements for emergency luminaires for use with electrical lamps on emergency power supplies not exceeding 1 000 V.

This document does not cover the effects of non-emergency voltage reductions on luminaires incorporating high pressure discharge lamps.

This document gives general requirements for emergency lighting equipment.

In this document, the term "lamp" which also includes "light source(s)" where appropriate, is used.

22.2 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 60073, *Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators*

IEC 60155, *Glow-starters for fluorescent lamps*

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

IEC 60896-21, *Stationary lead-acid batteries – Part 21: Valve regulated types – Methods of test*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61056-1, *General purpose lead-acid batteries (valve-regulated types) – Part 1: General requirements, functional characteristics – Methods of test*

IEC TR 61341, *Method of measurement of centre beam intensity and beam angle(s) of reflector lamps*

IEC 61347-2-2, *Lamp controlgear – Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps*

IEC 61347-2-3:2011, *Lamp control gear – Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps*

IEC 61347-2-7:2011, *Lamp controlgear – Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)*

IEC 61347-2-7:2011/AMD1:2017

IEC 61347-2-7:2011/AMD2:2021

IEC 61347-2-12, *Lamp controlgear – Part 2-12: Particular requirements for d.c. or a.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)*

IEC 61347-2-13, *Lamp controlgear – Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules*

IEC 61951-1, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary sealed cells and batteries for portable applications – Part 1: Nickel-Cadmium*

IEC 61951-2, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary sealed cells and batteries for portable applications – Part 2: Nickel-metal hydride*

IEC 62034, *Automatic test systems for battery powered emergency escape lighting*

IEC 62133-2:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems*

IEC 62391-1:2015, *Fixed electric double-layer capacitors for use in electric and electronic equipment – Part 1: Generic specification*

IEC 62391-2:2006, *Fixed electric double-layer capacitors for use in electronic equipment – Part 2: Sectional specification – Electric double-layer capacitors for power application*

IEC 62620:2014, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for use in industrial applications*

ISO 3864-4:2011, *Graphical symbols – Safety colours and safety signs – Part 4: Colorimetric and photometric properties of safety sign materials*

ISO 30061:2007, *Emergency lighting*

CIE 121 SP1, *The Photometry and Goniophotometry of Luminaires – Supplement 1: Luminaires for Emergency Lighting*

CIE S025, *Test Method for LED Lamps, LED Luminaires and LED Modules*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN