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colour inside

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LUMINAIRES –

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

FOREWORD

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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

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- amended.

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INTRODUCTION to Amendment 1

The light output of LED light sources depends also on the temperature at which it is operated. Typically the temperature is controlled by a heat sink on which it is mounted (e.g. luminaire surface).

For this reason, the calculation of the ratio of the electrical parameter (EOF_x) will be introduced in the LED controlgear standards IEC 61347-2-13 and IEC 61347-2-7, as the direct measurement of EBLF is not practicable.

In particular EOF_t is defined as the ratio of the current in emergency mode from constant current controlgear divided by the nominal current of LED ($I_{normal\ mode}$):

$$EOF_t = I_{emergency} / I_{normal\ mode}$$

Knowing that the light output of an LED light source is nearly[1] directly proportional with the foreward current flowing through it, it is possible to calculate the luminous flux of the luminaire in emergency mode by using the EOF_t or $I_{emergency}$ from constant current controlgear.

This document contains a proposal for the modification of IEC 60598-2-22 to use the factor EOF_t or $I_{emergency}$ in the luminaire.

[1] *Any non-linearity due to the increased efficacy at lower operation temperature leads to an increased tolerance of the light output in the emergency mode but always positive.*

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 ~~indication devices~~ 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~~.~~ ~~Portable sealed rechargeable single cells~~ – 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~~.~~ ~~Portable sealed rechargeable single cells~~ – 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 3864-1:2011, *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*

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

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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



IEC 60598-2-22:2021-12(en-fr)

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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LUMINAIRES –

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

AVANT-PROPOS

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L'IEC 60598-2-22 a été établie par le sous-comité 34D: Luminaires, du comité d'études 34 de l'IEC: Eclairage. Il s'agit d'une Norme internationale.

Cette cinquième édition annule et remplace la quatrième édition parue en 2014 et l'Amendement 1:2017. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) mise à jour des exigences relatives à l'état de repos et l'état de neutralisation;
b) clarification des essais de fonctionnement à température élevée;
c) introduction de nouvelles exigences pour les batteries au lithium;

d) introduction de nouvelles exigences pour les condensateurs électriques à double couche (EDLC);

e) clarification de la résistance à la chaleur, au feu et aux courants de cheminement;

f) clarification des dispositifs d'essai pour les blocs autonomes;

g) clarification de la méthode d'essai pour les mesures du contraste des signaux de sortie.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
34D/1635/FDIS	34D/1642/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

La présente Partie 2-22 doit être utilisée conjointement avec la dernière édition de l'IEC 60598-1 et son ou ses amendements. Elle a été établie sur la base de la neuvième édition (2020) de cette norme.

NOTE 1 L'expression "la Partie 1" utilisée dans le présent norme fait référence à l'IEC 60598-1.

NOTE 2 Dans le présent document, les caractères d'imprimerie suivants sont utilisés:

– déclarations de conformité: *caractères italiques*.

Une liste de toutes les parties de la série IEC 60598, publiées sous le titre général *Luminaires*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu du présent document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

LUMINAIRES –

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

22.1 Domaine d'application

La présente partie de l'IEC 60598 spécifie les exigences applicables aux luminaires d'éclairage de secours à utiliser avec des lampes électriques sur des alimentations de secours qui ne dépassent pas 1 000 V.

Le présent document ne traite pas des effets d'une chute de tension de l'alimentation normale sur les luminaires qui incorporent des lampes à décharge haute pression.

Le présent spécifie les exigences générales applicables aux équipements d'éclairage de secours.

Dans le présent document, le terme "lampe", qui inclut également les "sources lumineuses" le cas échéant, est utilisé.

22.2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60073, *Principes fondamentaux et de sécurité pour l'interface homme-machine, le marquage et l'identification – Principes de codage pour les indicateurs et les organes de commande*

IEC 60155, *Interrupteurs d'amorçage à lueur pour lampes à fluorescence (starters)*

IEC 60598-1, *Luminaires – Partie 1: Exigences générales et essais*

IEC 60896-21, *Batteries stationnaires au plomb – Partie 21: Types étanches à soupapes – Méthodes d'essai*

IEC 61032:1997, *Protection des personnes et des matériels par les enveloppes – Calibres d'essai pour la vérification*

IEC 61056-1, *Batteries d'accumulateurs au plomb-acide pour usage général (types à soupapes) – Partie 1: Exigences générales et caractéristiques fonctionnelles – Méthodes d'essai*

IEC TR 61341, *Méthode de mesure de l'intensité dans l'axe du faisceau et de l'angle (ou des angles) d'ouverture des lampes à réflecteur*

IEC 61347-2-2, *Appareillages de lampes – Partie 2-2: Exigences particulières pour les convertisseurs abaisseurs électroniques alimentés en courant continu ou alternatif pour lampes à incandescence*

IEC 61347-2-3:2011, *Appareillages de lampes – Partie 2-3: Exigences particulières pour les appareillages électroniques alimentés en courant alternatif et/ou en courant continu pour lampes fluorescentes*

IEC 61347-2-7:2011, *Appareillages de lampes – Partie 2-7: Règles particulières relatives aux appareillages électroniques alimentés par batterie pour l'éclairage de secours (autonome)*
IEC 61347-2-7:2011/AMD1:2017
IEC 61347-2-7:2011/AMD2:2021

IEC 61347-2-12, *Appareillages de lampes – Partie 2-12: Exigences particulières pour les ballasts électroniques alimentés en courant continu ou alternatif pour lampes à décharge (à l'exclusion des lampes fluorescentes)*

IEC 61347-2-13, *Appareillages de lampes – Partie 2-13: Exigences particulières pour les appareillages électroniques alimentés en courant continu ou alternatif pour les modules de LED*

IEC 61951-1, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Accumulateurs étanches pour applications portables – Partie 1: Nickel-cadmium*

IEC 61951-2, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Accumulateurs étanches pour applications portables – Partie 2: Nickel-métal hydrure*

IEC 62034, *Systèmes automatiques d'essai pour éclairage de sécurité sur batteries*

IEC 62133-2:2017, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Exigences de sécurité pour les accumulateurs portables étanches, et pour les batteries qui en sont constituées, destinés à l'utilisation dans des applications portables – Partie 2: Systèmes au lithium*

IEC 62391-1:2015, *Condensateurs électriques fixes à double couche utilisés dans les équipements électriques et électroniques – Partie 1: Spécification générique*

IEC 62391-2:2006, *Condensateurs électriques fixes à double couche utilisés dans les équipements électroniques – Partie 2: Spécification intermédiaire – Condensateurs électriques à double couche pour application de puissance*

IEC 62620:2014, *Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Eléments et batteries d'accumulateurs au lithium pour utilisation dans les applications industrielles*

ISO 3864-4:2011, *Symboles graphiques – Couleurs de sécurité et signaux de sécurité – Partie 4: Propriétés colorimétriques et photométriques des matériaux des signaux de sécurité*

ISO 30061:2007, *Eclairage de secours*

CIE 121 SP1, *The Photometry and Goniophotometry of Luminaires – Supplement 1: Luminaires for Emergency Lighting* (disponible en anglais seulement)

CIE S025, *Test Method for LED Lamps, LED Luminaires and LED Modules* (disponible en anglais seulement)