AS 60598.2.22:2019

Australian STANDARD

Luminaires

Part 2.22: Particular requirements—Luminaires for emergency lighting (IEC 60598-2-22:2017 (ED.4.1) MOD)

STANDARDS Australia

This Australian Standard® was prepared by Committee EL-041, Lamps and Related Equipment. It was approved on behalf of the Council of Standards Australia on 14 May 2019. This Standard was published on 25 June 2019.

The following are represented on Committee EL-041:

- Australian Industry Group
- Consumers' Federation of Australia
- Department of the Environment and Energy (Australian Government)
- Electrical Compliance Testing Association of Australia
- Electrical Regulatory Authorities Council
- IES: The Lighting Society
- Joint Accreditation System of Australia and New Zealand
- Lighting Council Australia
- Master Electricians Australia
- NSW Fair Trading

This Standard was issued in draft form for comment as DR AS 60598.2.22:2018.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard®

Luminaires

Part 2.22: Particular requirements—Luminaires for emergency lighting (IEC 60598-2-22:2017 (ED.4.1) MOD)

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment, to supersede AS/NZS 60598.2.22:2005.

AS/NZS 60598.2.22:2005, *Luminaires*, *Part 2.22*: *Particular requirements—Luminaires for emergency lighting (IEC 60598-2-22, Ed. 3.1 (2002) MOD)* will also remain current for 24 months from the date of publication of this Standard. After this time it will be superseded by AS 60598.2.22:2019. Regulatory authorities that reference this Standard in regulation may apply these requirements at a different time. Users of this Standard should consult with these authorities to confirm their requirements.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify particular requirements for emergency lighting luminaires for use on emergency power supplies up to 1000 V.

This Standard is an adoption with national modifications and has been reproduced from IEC 60598-2-22:2017 (ED. 4.1), *Luminaires*, *Part 2-22*: *Particular requirements—Luminaires for emergency lighting*. The modifications set out in Appendix ZZ, ZA, and ZC are additional requirements, which have been added at the end of the source text.

The essential safety requirements of AS/NZS 3820, *Essential safety requirements for electrical equipment*, which could be applicable to lighting products within the scope of AS 60598.2.22, are covered by AS 60598.2.22.

Appendix ZZ lists the variations to IEC 60598-2-22:2017 (ED. 4.1) for the application of this Standard in Australia.

Appendix ZA specifies the batteries for emergency luminaires.

Appendix ZB provides classifications for emergency luminaires.

Appendix ZC specifies luminance measurements for illuminated emergency exit signage.

This Standard is intended to be read in conjunction with AS/NZS 60598.1, *Luminaires, Part 1: General requirements and tests (IEC 60598-1, ED.8.0 (2014), MOD)*.

The major changes in this edition are as follows:

(a) Provisions for new battery types (Li-ion).

(b) Improved alignment with performance requirements in AS/NZS 2293.3.

(c) Additional emergency luminaire classifications.

This Standard is structured as follows:

(i) Preface.

(ii) IEC 60598-2-22:2017, (ED. 4.1), which incorporates Corrigenda 1 (2015) and 2 (2016) and Amendment No. 1 (2017) unedited from the first clause to the Bibliography.

(iii) Appendix ZZ—Australian variations to the source document.

(iv) Appendix ZA—Australian battery specifications for emergency luminaires.

(v) Appendix ZB—Australian classifications for emergency luminaires.

(vi) Appendix ZC—Australian luminance measurements for illuminated emergency exit signage.

As this Standard is reproduced from an International Standard, the following applies:

(A) In the source text ‘this part of IEC 60598’ should read ‘this Australian Standard’.

(B) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms ‘normative’ and ‘informative’ are used in Standards to define the application of the annex or appendix to which they apply. A ‘normative’ annex or appendix is an integral part of a Standard, whereas an ‘informative’ annex or appendix is only for information and guidance.

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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.
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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.
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This Consolidated version of IEC 60598-2-22 bears the edition number 4.1. It consists of the fourth edition (2014-06) [documents 34D/1119/FDIS and 34D/1131/RVD], its corrigenda 1 (2015-03) and 2 (2016-04), and its amendment 1 (2017-09) [documents 34D/1296/FDIS and 34D/1304/RVD]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60598-2-22 has been prepared by subcommittee 34D: Luminaires of IEC technical committee 34: Lamp and related equipment.

This fourth edition constitutes a technical revision.

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

a) Clause 22.3, addition of definitions for PELF and Self-contained portable emergency luminaire;
b) Clause 22.5, updated with the introduction of requirements for non-replaceable lamp and batteries;
c) Clause 22.6, improved requirements to confirm that the charge indication is correctly connected to the circuit together with other clarifications regarding the controlgear and the remote box with its connecting cabe to the emergency luminaire;
d) Clause 22.12, improved requirements to ensure that the luminaire shall not become unsafe;
e) Clause 22.16, full revision of the photometric testing to align with ISO and CIE;
f) Clause 22.17, now only references the requirements which are now covered in IEC 61347-2-7;
g) Clause 22.19, now only references the requirements which are now covered in IEC 61347-2-7;
h) Annex A, now includes nickel metal hydride batteries and reference to cell types in IEC 61951-1;
i) Annex B, minor changes to the classifications;
j) Annex C, Figure C.1 deleted in favour of a revised text;
k) Annex E, the additional requirements covering self-contained portable emergency luminaires

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

This standard is to be read in conjunction with IEC 60598-1 *Luminaires – Part 1: General requirements and tests*.

A list of all parts in the IEC 60598 series, published under the general title *Luminaires*, can be found on the IEC website.

In this standard, the following print types are used:

– requirements: in roman type
– *test specifications: in italic type*
– notes: in small roman type.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability 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.

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

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

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_I 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_I 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.*

AUSTRALIAN STANDARD

Luminaires

Part 2.22:
Particular requirements—Luminaires for emergency lighting
(IEC 60598-2-22:2017 (ED.4.1) MOD)

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

This part gives general requirements for emergency lighting equipment.

This part continues to use the term “lamp” which also includes “light source(s)" where appropriate.

22.2 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.

IEC 60073, *Basic and safety principles for man-machine interface, marking and identification – Coding principles for indication devices 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 61056-1, *General purpose lead-acid batteries (valve-regulated types) - Part 1: General requirements, functional characteristics - Methods of test*

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

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

