IEC 60598-2-4

Edition 3.0 2017-04
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INTERNATIONAL STANDARD

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Luminaires –
Part 2-4: Particular requirements – Portable general purpose luminaires

IEC 60598-2-4:2017-04 RLV(en)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.140.40

ISBN 978-2-8322-4254-4

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LUMINAIRES –

Part 2-4: Particular requirements – Portable general purpose luminaires

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International Standard IEC 60598-2-4 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This third edition cancels and replaces the second edition published in 1997. This edition constitutes a technical revision.

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

a) alignment with IEC 60598-1;

b) modification of the scope, classification and requirements to cover portable luminaires for both indoor and outdoor applications, by introducing the requirements already listed in IEC 60598-2-7;

NOTE In this edition of IEC 60598-2-4 all requirements listed in IEC 60598-2-7 have been incorporated. As a consequence, IEC 60598-2-7 will be withdrawn after publication of this standard.

c) modification of the scope to cover all electrical light sources (it was previously limited to tungsten filament, tubular fluorescent and other discharge lamps);

d) introduction of the symbol for luminaires which are other than ordinary, but suitable for indoor applications only (e.g. luminaire using PVC cable);

e) modification in the detail of test to clarify that the stability test on an inclined plane (see 4.7.3) shall be carried out with the light source(s) in place;

f) modification of the minimum degree of protection against dust and moisture for portable luminaires for outdoor use from IPX3 to IPX4 (see 4.5.2); as a consequence, the requirements for cable entry position, as given in IEC 60598-2-7:1982, 7.6.3 were deleted as they are covered by IPX4;

g) modification of the requirements for the acceptance criteria of plug and socket outlet;

h) modification of the IP test requiring the most unfavourable of the overturned positions to cover all classes (and not only class II luminaires as in 7.13.1 of IEC 60598-2-7:1982).

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

FDIS	Report on voting
34D/1257/FDIS	34D/1271/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

This publication is to be read in conjunction with IEC 60598-1: *Luminaires – Part 1: General requirements and tests.* It was established on the basis of the eight edition (2014) of that standard.

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

NOTE In this standard, the following print type is used:

– *compliance statements: in italic type*

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

A bilingual version of this publication may be issued at a later date.

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LUMINAIRES –

Part 2-4: Particular requirements – Portable general purpose luminaires

~~4.1 General~~

4.1 Scope

This part of IEC 60598-2 specifies requirements for portable general purpose luminaires for indoor and/or outdoor use (e.g. garden use), other than handlamps, ~~for use with tungsten filament, tubular fluorescent and other discharge lamps~~ designed to be used with or incorporating electrical light sources on supply voltages not exceeding 250 V. ~~It is to be read in conjunction with those sections of part 1 to which reference is made.~~

4.2 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 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

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

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

4.3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60598-1 as well as the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4.3.1
candlestick luminaire
portable luminaire having series connected lamps permanently mounted and separated on a free-standing frame

Note 1 to entry: Candlestick luminaires ~~may~~ can incorporate E5 or E10 lampholders.

4.4 General test requirements

The provisions of Section 0 of IEC 60598-1 apply. The tests described in each appropriate section of Part 1 shall be carried out in the order listed in this part of IEC 60598-2.

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4.5 Classification of luminaires

Luminaires shall be classified in accordance with the provisions of Section 2 of IEC 60598-1 together with the following additions.

NOTE In Australia and New Zealand, AS/NZS 60598.2.4 introduces Appendix A "Simple Portable Luminaires".

4.5.1 According to the intended use:

- ordinary luminaires are classified for indoor use only;
- luminaires which are other than ordinary are classified "for indoor use only", if they are marked according to 4.6.1;
- luminaires which are other than ordinary (see also 4.5.2) are classified for outdoor use. As the requirements for outdoor use are more severe than those for indoor use, these luminaires are also suitable for indoor use.

4.5.2 According to the degree of protection against dust and moisture, portable luminaires for outdoor use shall be classified IPX4 or higher.

4.5.3 According to the material of the supporting surface, portable luminaires designed for standing on a floor or table shall be classified as suitable for direct mounting on normally flammable surfaces.

4.6 Marking

The provisions of Section 3 of IEC 60598-1 apply, together with the following requirements.

4.6.1 The provisions of 3.3.18 of IEC 60598-1 apply with the following addition.

Luminaires which are other than ordinary, and not suitable for outdoor application (e.g. provided with a PVC supply cord), shall be marked with the appropriate symbol as shown in Figure 1. The symbol shall be explained in the instructions.

[SOURCE: IEC 60417-5957:2004-12]

Figure 1 – Luminaires "For indoor use only"

4.6.2 In addition to the provisions of 3.3.15 of IEC 60598-1, for luminaires for outdoor use, the maximum power calculated from the maximum current rating of the supply cable shall be marked in close proximity to the mains socket-outlet(s) incorporated in the luminaire.

4.7 Construction

The provisions of Section 4 of IEC 60598-1 apply, together with the following requirements.

4.7.1 ~~For~~ Portable luminaires~~, the insulation of flexible cables and cords~~ shall be designed so that the insulation of flexible cables and cords is unlikely to be damaged when moving or adjusting the luminaire or when placing it on its support.

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Compliance shall be checked by inspection.

4.7.2 Wiring shall be fixed by means of wire carriers, clips or similar devices of insulating material, at all places where it might otherwise rub against metal parts in the normal movement of the luminaire, if such rubbing will impair safety. Carriers and clips for flexible cords shall be of insulating material, or shall be provided with a fixed insulating lining if they are accessible or are in contact with accessible metal parts.

Compliance shall be checked by inspection.

4.7.3 Portable luminaires shall have adequate stability.

Compliance shall be checked by placing the luminaire in the most unfavourable adjustment position of normal use on a plane inclined at an angle of:

- *6° to the horizontal for luminaires for indoor use;*
- *15° to the horizontal for luminaires for outdoor use, the surface of the plane being such that the luminaire does not slide.*

Any instructions supplied by the manufacturer with the luminaire shall receive due consideration in respect of the stability test. For the test, the luminaire shall be provided with appropriate light source according to the intended use. The luminaire shall not overturn.

Luminaires which are fastened by clamps or similar devices are not subjected to this test.

4.7.4 Candlestick luminaires shall be provided with a switch.

This switch shall, in candlestick luminaires with E5 or E10 lampholders, switch all lamps on and off simultaneously. The switch shall be part of the luminaire or, if in the cord, shall be within 300 mm of the luminaire.

Compliance is checked by inspection.

4.7.5 E5 lampholders shall be used only if the rated voltage does not exceed 25 V per lampholder and the rated voltage of E10 lampholders (60 V for series connection or 250 V for parallel connection ~~respectively~~) shall be respected. The maximum rated wattage of the luminaire shall not exceed 100 W.

Compliance is checked by inspection.

4.7.6 Portable luminaires for outdoor use shall not be provided with tails. Clause 4.6 of Section 4 of IEC 60598-1 does not apply.

4.7.7 Portable luminaires for outdoor use shall not have more than two cable entries.

Compliance shall be checked by inspection.

4.7.8 In portable luminaires for outdoor use, the connection between the socket-outlet for providing power to other luminaires and the associated plug shall be in accordance with at least the same degree of protection as the luminaires but not less than IPX4. This degree of protection shall be maintained with or without a plug inserted into the socket-outlet.

Mains socket-outlets mounted on Class II luminaires shall comply with IEC, national or regional standards so as to allow connection only to these outlets of other Class II luminaires.

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NOTE It is the intention of this document to disallow the connection of equipment using standard plugs on Class II luminaires as the earthing connection will be lost when connecting Class I luminaires to an outlet on a Class II luminaire.

Mains socket-outlets mounted on Class I luminaires shall allow connection only of Class I or Class II luminaires and shall conform to IEC, national or regional standards:

Compliance shall be checked by inspection.

4.7.9 In portable luminaires for outdoor use, lampholders and plugs shall be of material resistant to tracking.

Compliance shall be checked by the test described in Clause 13.4 of Section 13 of IEC 60598-1.

4.8 Creepage distances and clearances

The provisions of Section 11 of IEC 60598-1 apply.

4.9 Provision for earthing

The provisions of Section 7 of IEC 60598-1 apply.

4.10 Terminals

The provisions of Sections 14 and 15 of IEC 60598-1 apply.

4.11 External and internal wiring

The provisions of Section 5 of IEC 60598-1 apply ~~except that~~ with the following modifications.

4.11.1 The requirement whereby at least one part of the cord anchorage shall be fixed to or be integral with the luminaire does not apply to table lamps for indoor use of glass or ceramic material.

4.11.2 For class I and class II portable luminaires for indoor use with a mass less than 1 kg, a rated current not exceeding 2,5 A and provided with a flexible cable of length not greater than 2 m, the cable shall have a nominal cross-sectional area of copper conductor not less than 0,5 mm^2.

4.11.3 Portable luminaires for outdoor use delivered without a flexible cable or cord and a plug shall be provided with terminals, a cord anchorage and an inlet opening for the proper connection of the flexible cable or cord.

NOTE National wiring rules can require Class II portable luminaires for outdoor use to be provided with a non-detachable flexible cable or cord and a plug.

Compliance shall be checked by inspection and, if necessary, by the pull and torque test required in Section 5 of IEC 60598-1.

4.11.4 For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords shall be not lighter than cords of the type 245 IEC 57.

NOTE In Australia and New Zealand, PVC insulated cables are acceptable for outdoor use.

Compliance shall be checked by inspection.

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4.12 Protection against electric shock

The provisions of Section 8 of IEC 60598-1 apply, together with the following requirements.

Portable Class I luminaires incorporating lampholders for bayonet cap lamps shall either

1) be so designed that the lamp cap is not accessible to the standard test finger when the luminaire is assembled as in normal use, or
2) be provided with a metal lampholder which is earthed.

Compliance shall be checked by inspection and, in addition, for item 1) by a ~~test with the standard test finger shown in IEC 60529~~ jointed test finger shown in figure 2 of IEC 61032:1997.

4.13 Endurance tests and thermal tests

The provisions of Section 12 of IEC 60598-1 apply.

Luminaires with an IP classification greater than IP20 shall be subjected to the relevant tests of Clauses 12.4, 12.5, 12.6 and 12.7 of Section 12 of IEC 60598-1, after the test(s) of Clause 9.2, but before the test(s) of Clause 9.3 of Section 9 of IEC 60598-1, as specified in Clause 4.14 of this document.

Portable luminaires designed for standing on a floor, and pendants, are supported during the test as in normal use.

Portable luminaires designed for standing on a table, and adjustable luminaires, are tested on or above a dull black painted board similar to that described in Annex D of IEC 60598-1.

In addition, for portable luminaires for indoor use designed for standing on a floor or table which overturn when placed in their normal position of use on a plane inclined at an angle of 15° to the horizontal, the test of 12.5.1 of Section 12 of IEC 60598-1 is made with the luminaire on a horizontal surface, in the most unfavourable of the overturned positions that may reasonably be expected in practice.

4.14 Resistance to dust and moisture

The provisions of Section 9 of IEC 60598-1 apply.

For luminaires with an IP classification greater than IP20, the order of the tests specified in Section 9 of IEC 60598-1 shall be as specified in Clause 4.13 of this document.

Portable luminaires for outdoor use shall be tested in the most unfavourable of the overturned positions likely to occur.

4.15 Insulation resistance and electric strength

The provisions of Section 10 of IEC 60598-1 apply.

4.16 Resistance to heat, fire and tracking

The provisions of Section 13 of IEC 60598-1 apply.

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