

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

Luminaires – **STANDARD PREVIEW**  
Part 2-12: Particular requirements – Mains socket-outlet mounted nightlights  
(standards.iteh.ai)

Luminaires –  
Partie 2-12: Exigences particulières – Veilleuses montées sur des socles de  
prise de courant réseau



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## LUMINAIRES –

**Part 2-12: Particular requirements –  
Mains socket-outlet mounted nightlights**

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International Standard IEC 60598-2-12 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition published in 2006. It constitutes a technical revision for harmonization of thermal tests in 12.13 to relevant parts of 10.12.1 of IEC 60598-2-10.

The text of this standard is based on the following documents:

FDIS	Report on voting
34D/1091A/FDIS	34D/1098/RVD

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

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

This publication is intended to be read in conjunction with IEC 60598-1: *Luminaires – Part 1: General requirements and tests*. It was established on the basis of the seventh edition (2008) of that standard.

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

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## LUMINAIRES –

### Part 2-12: Particular requirements – Mains socket-outlet mounted nightlights

#### 12.1 Scope

This part of IEC 60598 specifies requirements for mains socket-outlet mounted nightlights for use with electric light sources, on supply voltages not exceeding 250 V a.c. 50/60 Hz. It is to be read in conjunction with those sections of Part 1 to which reference is made.

NOTE This part does not cover luminaires for surveillance lighting.

#### 12.2 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/TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

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

IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

IEC 60950-1, *Information technology equipment – Safety – Part 1: General requirements*

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

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

#### 12.3 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.

Multiple functions products, e.g. night light and socket adaptor etc., shall be assessed against several standards for the appropriate function.

NOTE In Australia and New Zealand, the nightlight/socket-outlet combination is not permitted.

#### 12.4 Definitions

For the purposes of this document, the definitions given in Section 1 of IEC 60598-1 and the following apply:

#### 12.4.1

##### **mains socket-outlet mounted nightlight**

luminaire intended to provide a source of low-level illuminance in areas not normally illuminated at night

Note 1 to entry: Such mains socket-outlet mounted nightlights are normally installed in locations which are accessible to young children. For this reason additional features to those prescribed for other mains socket-outlet mounted luminaires, normally installed out of reach of young children, are considered.

Note 2 to entry: In some countries, "mains socket-outlet mounted nightlights" are known as "direct plug-in nightlights".

#### 12.4.2

##### **electroluminescent panel**

solid phosphor layer contained between two electrodes that emits light when subjected to alternating current

### 12.5 Classification of mains socket-outlet mounted nightlights

Mains socket-outlet mounted nightlights shall be classified in accordance with the provisions of Section 2 of IEC 60598-1 except that mains socket-outlet mounted nightlights shall be classified as ordinary and suitable for direct mounting on normally flammable surfaces.

NOTE As such, mains socket-outlet mounted nightlights are not required to be provided with a warning notice.

#### 12.6 Marking

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Marking shall be in accordance with Section 3 of IEC 60598-1.

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#### 12.7 Construction

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

**12.7.1** The plug portion of a mains socket-outlet mounted nightlight shall comply with the appropriate national standard sheets of IEC/TR 60083.

*Compliance is checked by inspection, by measurement and where appropriate, by the use of gauges in accordance with the National Standard.*

**12.7.2** The plug portion of a mains socket-outlet mounted nightlight shall comply in all other respects with the appropriate constructional requirements of IEC 60884-1 or applicable National Standard.

*Compliance is checked by application of the applicable tests of IEC 60884-1 or the applicable National Standard*

**12.7.3** The mechanical strength tests of 4.13.1 of IEC 60598-1 shall be applied utilizing the forces prescribed in Table 4.3 of IEC 60598-1 for portable luminaires for children.

**12.7.4** Covers of mains socket-outlet mounted nightlights shall be so designed that when assembled as in normal use, the ability of the mains socket-outlet nightlight to resist penetration of the cover shall be verified by the following test:

*Compliance is checked by, during the test of 12.4.1 of IEC 60598-1, measuring the temperatures of the places where the possibility of a failure exists. Immediately following the test, the sample is placed in a heating cabinet as used in 13.2.1 of IEC 60598-1 such that the highest of the temperatures measured is achieved.*



*Whilst maintained at these temperatures the test probe 19 of IEC 61032:1997 is applied to the accessible surface with a force of  $30_{-5}^0$  N. It shall not be possible to touch live parts and, for Class II socket-outlet mounted nightlights, parts with basic insulation.*

**12.7.5** It shall not be possible to change a lamp whilst the mains socket-outlet mounted nightlight is connected to the supply.

The means of retention of any cover on a mains socket-outlet mounted nightlight shall be such that the cover cannot be removed when the mains socket-outlet mounted nightlight is inserted in a corresponding socket-outlet. Any cover fixing screw shall be captive or, alternatively, where lamp replacement is not to be undertaken by the user, be of a special type requiring the use of a special tool.

*Compliance is checked by inspection.*

**12.7.6** The base and cover of a mains socket-outlet mounted nightlight shall be firmly secured to each other.

NOTE In Australia and New Zealand, additional requirements apply.

*Compliance is checked by the following test, as applicable, immediately following the test of 12.4.1 of IEC 60598-1 with the sample maintained at the temperatures attained during that test in a heating cabinet as used in 13.2.1 of IEC 60598-1.*

- a) *Each cover fixing screw has a pull of  $90_{-2}^{+2}$  N exerted upon it for  $60 s_{-0}^{+5}$ .*

NOTE It may be necessary to perform the test with the cover removed and the cover fixing device inserted to the same extent as with the cover fitted in normal use.

*At the end of the test, any cover fixing screw shall be serviceable and the cover remaining in place so that it shall not be possible to touch internal live parts of the mains socket-outlet mounted nightlight with test probe 19 of IEC 61032:1997 applied with a force of  $5_{-0,5}^0$  N.*

- b) *For mains socket-outlet mounted nightlights having covers fixed by means other than screws, for example rivets, mechanical clips, adhesive or ultrasonic welding, all the plug pins are clamped together in a suitable jig and subjected to a pull force of  $90_{-2}^{+2}$  N exerted upon it for  $60 s \pm 5 s$  whilst suspending the plug cover by a suitable means to suit the cover profile.*

*At the end of the test, it shall not be possible to touch internal live parts of the mains socket-outlet mounted nightlight with test probe 19 of IEC 61032:1997 applied with a force of  $5_{-1}^0$  N.*

**12.7.7** The mass and design of a mains socket-outlet mounted nightlight shall be such that it does not impose undue strain on an appropriate socket-outlet.

*Compliance is checked by inserting the mains socket-outlet mounted nightlight into a socket-outlet complying with the relevant standard sheet of IEC/TR 60083. The socket-outlet is then pivoted about its horizontal axis, 8 mm behind its engagement face and parallel with it, with its centre equidistant from pin centres. The additional torque which has to be applied to the socket-outlet to maintain the engagement face in the vertical plane shall not be greater than 0,25 Nm.*

**12.7.8** Mains socket-outlet mounted nightlights shall not have a cover that is shaped and/or decorated so that it is likely to be treated as a toy by children.

*Compliance is checked by inspection.*

**12.7.9** Where integral plug-pins are of a type where the corresponding plug incorporates a fuse, the mains socket-outlet mounted nightlight shall also incorporate a suitable fuse to provide overcurrent protection.

*Compliance is checked by inspection.*

**12.7.10** Series resistors in mains socket-outlet mounted nightlights with neon lamps shall not be of the “composition” or “carbon film” type.

*Compliance is checked by inspection.*

**12.7.11** Mains socket-outlet mounted nightlights incorporating an electroluminescent panel shall be capable of withstanding a voltage surge.

*Compliance is checked by placing the sample on a white tissue-paper-covered pine wood surface, the sample in turn covered with a single layer of bleached cotton cheesecloth in accordance with IEC 60950-1 and connected to a supply circuit of rated voltage. The earth terminal, if any, shall be connected to the supply neutral and any switch in the ‘ON’ position.*

*The sample is then submitted to 10 applications of a 3 kV 1,2/50  $\mu$ s surge impulse at approximately 60 s intervals. Each application of surge voltage is to be random with respect to polarity. The sample shall show no risk of fire or electric shock.*

A risk of electric shock is considered to exist if:

- a) there is glowing, charring or ignition of the cheesecloth or tissue-paper; or
- b) there is breakdown of the insulation between live parts of the panel and accessible metal parts during test or when submitted to the electric withstand test of Section 10 of IEC 60598-1.

It is acceptable that, as a result of the test, the sample is no longer operable.

The surge generator used for the test shall be according to IEC 61000-4-5 using a 1,2/50 combination wave generator.

**12.7.12** For mains socket-outlet mounted nightlights incorporating a socket outlet, the test of 4.14.6 of IEC 60598-1 shall be performed in such a way that the incorporated socket-outlet shall be fitted with a relevant plug complete with 1 m of 0,75 mm<sup>2</sup> circular flexible cable according to IEC 60227 (designation 60227 IEC 52, the number of conductors should be the same as that of the poles of the relevant plug, see IEC 60884-1).

## **12.8 External and internal wiring**

The provisions of Section 5 of IEC 60598-1 are replaced by the following:

Mains socket-outlet mounted nightlights shall be provided with integral plug-pins for connection to the supply.

Mains socket-outlet mounted nightlights incorporated with a socket-outlet, shall comply with relevant safety requirements of applicable socket-outlet standard IEC 60884-1.

*Compliance is checked by inspection and by conformity with the requirements of 12.7.1 and 12.7.2 of this part of IEC 60598.*

Mains socket-outlet mounted nightlights shall not incorporate means for the connection of external wiring or connection of other electrical devices except mains socket outlet.

*Compliance is checked by inspection.*

## 12.9 Provision for earthing

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

## 12.10 Protection against electric shock

The provisions of Section 8 of IEC 60598-1 apply together with the following:

It shall not be possible to gain access to the lampholder or other internal live parts with the mains socket-outlet mounted nightlight inserted in an appropriate socket-outlet.

*Compliance is checked by inspection and by application of test probe 19 of IEC 61032:1997 applied in all directions with a force of  $5 \begin{smallmatrix} 0 \\ -1 \end{smallmatrix}$  N.*

## 12.11 Resistance to dust, solid objects and moisture

The provisions of 9.3 of Section 9 of IEC 60598-1 apply.

## 12.12 Insulation resistance and electric strength

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

## 12.13 Creepage distances and clearance

The provisions of Section 11 of IEC 60598-1 apply together with the following:

Any metal parts of mains socket-outlet mounted nightlight other than the plug-pins, which are exposed on the engagement face of the mains socket-outlet mounted nightlight and are in contact with live parts shall be recessed at least 3 mm below the engagement surface.

*Compliance is checked by inspection and by measurement.*

## 12.14 Endurance test and thermal test

The provisions of Section 12 of IEC 60598-1 apply together with the following:

**12.14.1** During the tests of Section 12, the maximum permissible temperature of plug-pins shall be as specified in the appropriate National Standard referenced within IEC/TR 60083, and the maximum temperature of the socket-outlet engagement face shall not exceed 65 °C.

*Compliance is checked by measurement during the tests of Section 12.*

**12.14.2** During the tests of Section 12, the maximum temperature of accessible parts of mains socket-outlet mounted nightlights shall be

a) 55 °C for metal parts, and