IEC 62868-1

Edition 1.0 2025-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Organic light emitting diode (OLED) Light sources for general lighting – Safety – Part 1: General requirements and tests

Sources lumineuses à diodes électroluminescentes organiques (OLED) destinées à l'éclairage général – Sécurité – Partie 1: Exigences générales et essais

IEC 62868-1:2020-05/AMD1:2025-02(en-fr)

IEC Secretariat
3, rue de Varembé
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 It also gives information on projects, replaced and withdrawn publications.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 Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. 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 22 500 terminological entries in English and French, with equivalent terms in 25 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 Products & Services Portal - products.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. 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 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

IEC 62868-1

Edition 1.0 2025-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Organic light emitting diode (OLED) Light sources for general lighting – Safety – Part 1: General requirements and tests

Sources lumineuses à diodes électroluminescentes organiques (OLED) destinées à l'éclairage général – Sécurité – Partie 1: Exigences générales et essais

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.99

ISBN 978-2-8327-0205-5

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ORGANIC LIGHT EMITTING DIODE (OLED) LIGHT SOURCES FOR GENERAL LIGHTING – SAFETY –

Part 1: General requirements and tests

AMENDMENT 1

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to IEC 62868-1:2020 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting.

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

Draft	Report on voting
34A/2421/FDIS	34A/2433/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 Amendment 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/publications/.

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, or
- revised.

_____

*Throughout the document, replace the term "*product*" with "*light source*" with the exception of the instances of the term "*product*" in the second and third columns of Table 1, and in the Normative references, where the term "*product*" is kept.*

*Throughout the document, replace "*IEC 60598-1:2014 and IEC 60598-1:2014/AMD1:2017*" with* "IEC 60598-1:2020*".*

1 Scope

Replace the existing two paragraphs and notes with the following new paragraphs and notes:

This part of IEC 62868 specifies general safety requirements of organic light emitting diode (OLED) light sources (tiles, panels and modules and OLED lamps) for use on DC supplies up to 1 000 V or AC supplies up to 1 000 V at 50 Hz or 60 Hz for indoors and similar general lighting purposes.

Where an appropriate part of the IEC 62868-2 series for an OLED light source does not exist, the applicable part with the nearest configuration of the IEC 62868-2 series can be used as a guide to the requirements and tests in conjunction with this document.

NOTE 1 The OLED lighting system consisting of OLED panels or modules is illustrated in Annex D.

NOTE 2 This document applies to OLED light sources (tiles, panels, modules and lamps), and it is intended so that the OLED light source in accordance with this document fits in the IEC 60598 series as a component of lighting equipment, in combination with other components.

2 Normative references

Replace the existing reference to IEC 60598-1:2014 and IEC 60598-1:2014/AMD1:2017 with the following new reference:

IEC 60598-1:2020, *Luminaires – Part 1: General requirements and tests*

Add the following new references:

IEC 60598 (all parts), *Luminaires*

IEC 60838-2-2, *Miscellaneous lampholders – Part 2-2: Particular requirements – Connectors for LED-modules*

3 Terms and definitions

In both terminological entries 3.1 (organic light emitting diode) and 3.4 (OLED module), delete the Note 1 to entry.

Replace the existing terminological entry 3.7 with the following new entry 3.7:

3.7
integral OLED
OLED, designed to form a non-replaceable component of a luminaire

Note 1 to entry: Refer to Annex D.

Replace the existing terminological entry 3.8 with the following new entry 3.8:

3.8
built-in OLED
OLED, designed to form a replaceable component to be built into a luminaire and into a module

Note 1 to entry: Refer to Annex D.

Replace the existing terminological entry 3.9 with the following new entry 3.9:

3.9
independent OLED
OLED, designed for being mounted or placed separately from a luminaire, from an additional box or enclosure or the like

Note 1 to entry: Refer to Annex D.

Note 2 to entry: Independent OLED light sources can be considered as an OLED luminaire.

4.1 General requirements

Delete the last paragraph.

4.2 General test requirements

Add, before the first paragraph, the following new paragraph:

Tests according to this document are type tests.

Add, at the end of the existing last paragraph, the following two new paragraphs:

Integral OLED light sources shall be regarded as integral components of luminaires according to IEC 60598-1:2020, 0.5.1.

In addition to the requirements of this document, independent OLED light sources shall comply with the IEC 60598 series.

5 Marking

5.2 Durability and legibility of marking

Replace the existing second paragraph with the following new paragraph:

Compliance is checked by the following.

1) *Presence and legibility of the marking required in 5.1 – by visual inspection.*
2) *The durability of the marking is checked by trying to remove it by rubbing lightly for 15 s with a piece of cloth soaked in water. After the test, the marking shall be legible, marking labels shall not be easily removable and they shall show no curling.*
3) *Availability of information required in 5.1 – by visual inspection.*

6 Construction

6.2 Mechanical strength

Replace the existing Subclause 6.2 with the following new Subclause 6.2:

6.2 Mechanical strength

6.2.1 Requirements

The OLED panel shall have sufficient mechanical strength which shall be checked in accordance with 6.2.2.

6.2.2 Vibration test

The OLED light source shall have sufficient mechanical strength.

The following vibration test shall be performed.

Compliance is checked by the vibration test.

For the vibration test, the OLED light source shall be mounted in accordance with 4.2.

A sinusoidal vibration test is conducted in accordance with IEC 60068-2-6 with the following parameters:

– displacement: 0,35 mm;
– acceleration: 50 m/s^2;
– frequency range: 10 Hz to 500 Hz;
– axes of vibration: 3;
– duration: 3 × 10 cycles (10 times per axis).

After completion of the vibration test, the OLED light source shall be operated for 15 min under the conditions specified in 4.2.

Compliance is checked as follows:

After the test, the OLED light source is checked by inspection. Any splintered or broken glass is not accepted. Fire, smoke or flammable gas shall not be produced. The OLED light source shall have no loosened parts which could impair safety.

8 Fault conditions

Replace the existing Clause 8 with the following new Clause 8:

8 Fault conditions

8.1 General

An OLED light source shall not impair safety under fault conditions that may occur during the intended use. The fault condition test shall be conducted at an ambient temperature of (25 ± 5) °C unless otherwise specified by the manufacturer or responsible vendor. The temperature shall be maintained within ±2 °C during the test.

Compliance is checked by the overload test.

8.2 Overload condition

The OLED light source shall be operated with rated current and the power monitored (at the input side) and the input power shall be increased until 150 % of the rated current or power is reached. The test shall be continued for 15 min.

Compliance is checked by inspection. An OLED light source passes this fault test if there is no emission of flames or molten material during the test. Any hot material from the sample shall not ignite a tissue paper, as specified in 4.187 of ISO 4046-4:2016, spread below the OLED light source. Any splintered or broken glass is not accepted.

8.3 Input stability test

The OLED light source shall be operated with the rated current. The input power and voltage shall be monitored at the input side. The test shall be continued for 15 min.

Compliance is checked as follows:

The voltage shall remain within the range of the rated voltage ±10 % during the test.

9 Insulation resistance and electric strength

Replace the existing Subclauses 9.1 and 9.2 with the following new Subclauses 9.1, 9.2 and 9.3:

9.1 General requirements

The requirements of IEC 60598-1:2020, 10.1 and 10.2 apply.

9.2 Insulation resistance

The requirements of IEC 60598-1:2020, 10.2.1 apply.

9.3 Electric strength

The requirements of IEC 60598-1:2020, 10.2.2 apply.

11 Creepage distances and clearances

Replace the existing paragraph with the following new paragraph:

The requirements of IEC 60598-1:2020, Section 11 apply to individual OLED light sources.

12 Resistance to heat and fire

12.2 Resistance to fire

Replace the existing title of 12.2 with the following new title:

12.2 Resistance to flame and ignition

13 Photobiological safety

Replace the existing paragraph with the following new paragraph:

OLED light sources are not expected to reach a level of UV, infrared or blue light hazard that requires marking, or measurement.

14 Terminals

Add, at the end of the last paragraph, the following new paragraph:

For connectors, the requirements of IEC 60838-2-2 shall be used, if applicable.

Add, at the end of Clause 15, the following new Clause 16, Clause 17, Clause 18 and Clause 19:

16 Protection against accidental contact with live parts

The requirements of IEC 61347-1:2015, Clause 10 and IEC 61347-1:2015/AMD1:2017, Clause 10 apply.

17 Screws, current-carrying parts and connections

The requirements of IEC 61347-1:2015, Clause 14 and IEC 61347-1:2015/AMD1:2017, Clause 14 apply.

18 Resistance to corrosion

The requirements of IEC 61347-1:2015, Clause 19 apply.

19 Provisions for protective earthing

The requirements of IEC 61347-1:2015, Clause 8 and IEC 61347-1:2015/AMD1:2017, Clause 8 apply.

Delete Annex A and Annex E.