

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Organic light emitting diode (OLED) light sources for general lighting – Safety –
Part 2-2: Particular requirements – Integrated OLED modules**

**Sources lumineuses à diodes électroluminescentes organiques (OLED)
destinées à l'éclairage général – Sécurité –
Partie 2-2: Exigences particulières – Modules OLED intégrés**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ORGANIC LIGHT EMITTING DIODE (OLED) LIGHT SOURCES FOR GENERAL LIGHTING – SAFETY –
Part 2-2: Particular requirements – Integrated OLED modules**FOREWORD**

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International Standard IEC 62868-2-2 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting.

IEC 62868-2-2 has been prepared in parallel with IEC 62868-2-1.

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

| | |
|---------------|------------------|
| FDIS | Report on voting |
| 34A/2193/FDIS | 34A/2200/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.

A list of all parts in the IEC 62868 series, published under the general title *Organic light emitting diode (OLED) light sources for general lighting – Safety*, can be found on the IEC website.

In this document, the following print type is used:

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- withdrawn,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

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

Part 2-2: Particular requirements – Integrated OLED modules

1 Scope

This part of IEC 62868 specifies the safety requirements for integrated organic light-emitting diode (OLED) modules for use on ripple free DC supplies up to 1 000 V or AC supplies up to 1 000 V RMS at 50 Hz or 60Hz.

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 60598-1:2014, *Luminaires – Part 1: General requirements and tests*
IEC 60598-1:2014/AMD1:2017

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

IEC 61347-1:2015, *Lamp controlgear – Part 1: General and safety requirements*
IEC 61347-1:2015/AMD1:2017

IEC 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

IEC 62868-1:2020, *Organic light emitting diode (OLED) Light sources for general lighting – Safety – Part 1: General requirements and tests*

IEC TS 62972, *General lighting – Organic light emitting diode (OLED) products and related equipment – Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62504, IEC 62868-1 and IEC TS 62972 and 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>

3.1

independent OLED module

OLED module designed for mounting or placing separately from a luminaire, from an additional box or enclosure or the like

Note 1 to entry: An independent OLED module provides all the necessary protection regarding safety according to its classification and marking.

3.2

controlgear

<of OLED module> unit inserted between the electrical supply and one or more OLED modules, which serves to supply the OLED module(s) with rated voltage or rated current

Note 1 to entry: The controlgear can consist of one or more separate components and include means for dimming, correcting the power factor and suppressing radio interference, and further control functions.

Note 2 to entry: The terms “control gear” and “controlgear” are interchangeable. In IEC standards, the term “controlgear” is commonly used.

4 General

4.1 General requirements

The requirements of IEC 62868-1:2020, 4.1 apply.

4.2 General test requirements

The requirements of IEC 62868-1:2020, 4.2 apply. The ambient temperature and mounting requirements of IEC 62868-1:2020, 4.2 apply. The tests shall be conducted at the design voltage or current unless otherwise specified in this document.

4.3 Other requirements

In addition to the requirement of this document, independent OLED modules shall comply with IEC 60598-1.

5 Marking

5.1 Contents and location

Marking of the module shall be done according to IEC 62868-1:2020, 5.1.

5.2 Durability and legibility of marking

The requirements of IEC 62868-1:2020, 5.2 apply.

6 Construction

The requirements of IEC 62868-1:2020, Clause 6 apply.

7 Mechanical hazard

The requirements of IEC 62868-1:2020, Clause 7 apply.

8 Fault conditions

The requirements of IEC 61347-1:2015, Clause 14 and IEC 61347-1:2015/AMD1:2017, Clause 14 apply. Additionally, the requirements of IEC 62868-1:2020, Clause 8 apply.

9 Insulation resistance and electric strength after humidity treatment

9.1 General requirements

Insulation resistance and electric strength shall be adequate between live parts of the OLED module and accessible parts of the OLED module.

9.2 Insulation resistance

Insulation shall be adequate between live parts and outer metal parts, including fixing screws and metal foil in contact with outer insulating parts.

The OLED module shall be conditioned for 48 h in a cabinet containing air with a relative humidity between 91 % and 95 %. The temperature of the air shall be maintained within 1 °C of any convenient value between 20 °C and 30 °C.

Insulation resistance shall be measured 1 min after application of a 500 V DC potential.

The test shall be conducted in the humidity cabinet.

Compliance:

The insulation resistance shall be no less than 2 MΩ between live parts and the outer metal parts.

9.3 Electric strength

The requirements of IEC 61347-1:2015, Clause 12 apply.

The part where the electric strength test is carried out shall be between parts specified in 9.2 of this document.

10 Thermal stress

OLED products shall sustain thermal stress.

The thermal stress test shall be conducted at a specified ambient temperature in a climate chamber. The temperature shall be any convenient temperature in the range between 60 °C and 70 °C. The temperature shall be maintained within ± 2 °C during the stabilization and test.

The OLED product shall be operated with rated current. After stabilization the test shall be continued for 60 min.

Compliance is checked by inspection. An OLED product passes this test, if no failure occurs. In case of performance failure, an OLED product is considered to pass this test, if no fire, smoke or flammable gas is produced. Any splintered or broken glass is not accepted.

11 Creepage distances and clearances

The requirements of IEC 61347-1:2015, Clause 16 and IEC 61347-1:2015/AMD1:2017, Clause 16 apply.

12 Resistance to heat and fire

The requirements of IEC 61347-1:2015, Clause 18, apply.

13 Photobiological safety

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

14 Terminals

For screw terminals, the requirements of IEC 60598-1:2014, Section 14, shall be used, if applicable.

For screwless terminals, the requirements of IEC 60598-1:2014, Section 15, shall be used, if applicable.

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

15 Information for luminaire design

Information for luminaire design is given in Annex A.

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 17, apply.

18 Resistance to corrosion

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

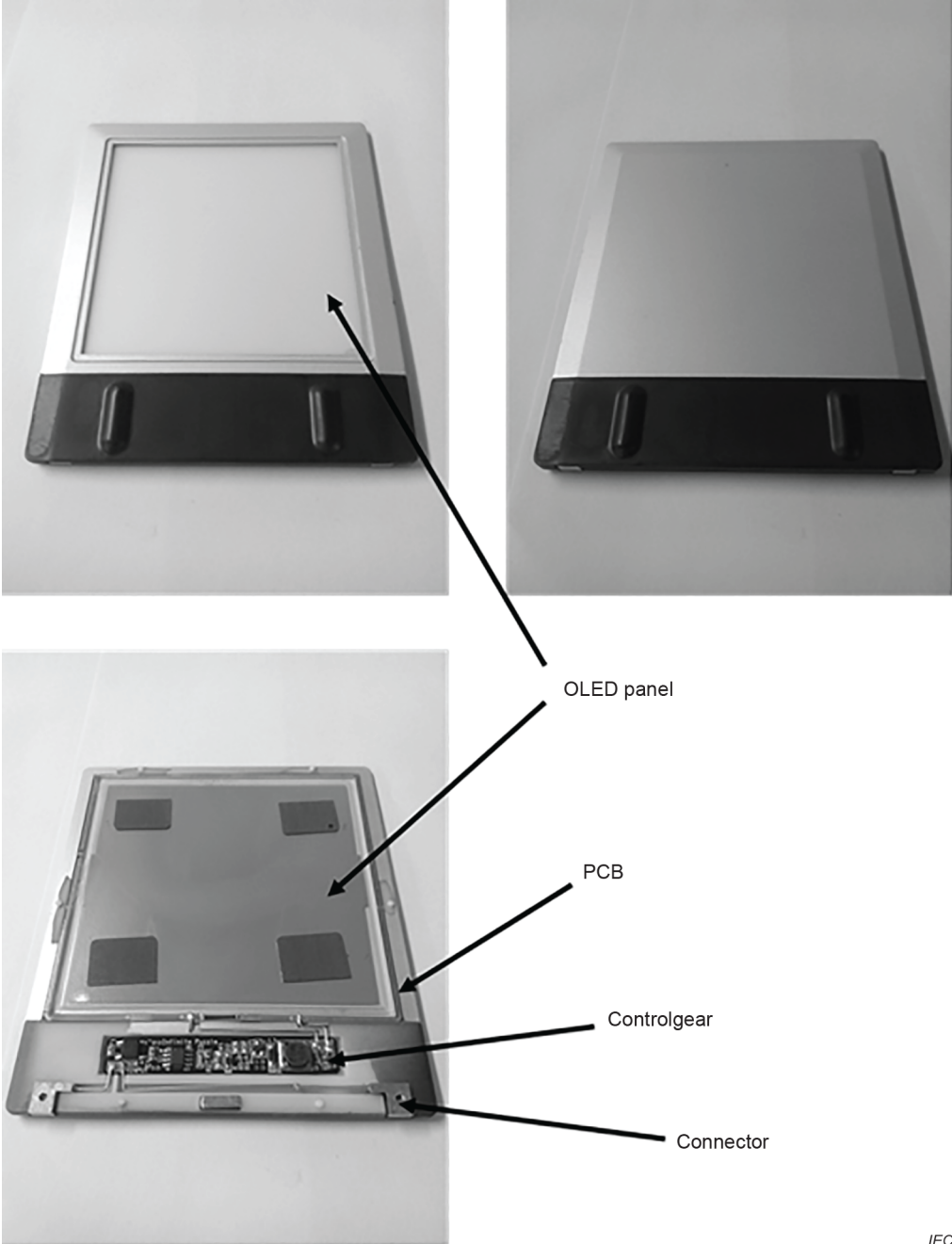
19 Provisions for protective earthing

The requirements of IEC 61347-1:2015, Clause 9 apply.

Annex A
(informative)

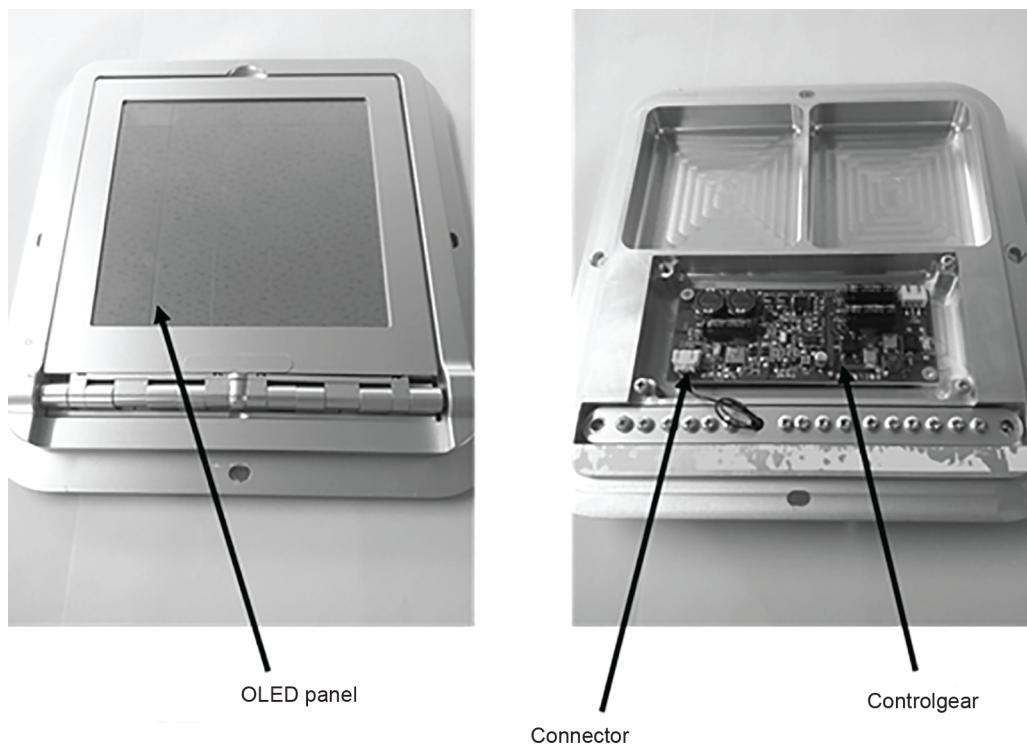
Examples of integrated OLED modules

Figure A.1 and Figure A.2 show typical independent and built-in OLED modules, respectively.



IEC

Figure A.1 – Independent OLED module for luminaire



IEC

Figure A.2 – Built-in OLED module for lighting

Bibliography

IEC 62384, *DC or AC supplied electronic controlgear for LED modules – Performance requirements*

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