

Edition 1.1 2025-02 CONSOLIDATED VERSION

# INTERNATIONAL STANDARD

Organic light emitting diode (OLED) light sources for general lighting – Safety – Part 2-3: Particular requirements – Flexible OLED tiles and panels

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 29.140.99 ISBN 978-2-8327-0279-6

Warning! Make sure that you obtained this publication from an authorized distributor.

# CONTENTS

FC	REWO	RD	4			
1	Scop	e	6			
2	Norm	Normative references				
3	Term	s and definitions	6			
4	Gene	eral	7			
	4.1	General requirements				
	4.2	General test requirements				
5	Mark	ing				
	5.1	Contents and location	8			
	5.2	Durability and legibility of marking				
6	Cons	truction	8			
	6.1	General	8			
	6.2	Mechanical strength	8			
	6.2.1	Requirements	8			
	6.2.2					
	6.2.3	9				
	6.3	Internal short circuit				
	6.4	Wireways				
_	6.5	Resistance to dust, solid objects and moisture				
7		nanical hazard				
8		conditions				
	8.1	General				
	8.2	Overpower-Overload condition				
	8.3	Input stability test				
	8.4	Overbending				
9	8.5	Excess bending cycles				
9		ation resistance and electric strength				
	9.1 9. <del>1</del> 2	General requirements  Insulation resistance				
		Electric strength				
10		mal stress				
11		page distances and clearances				
12		stance to heat and fire				
12						
	12.1 12.2	Resistance to heat				
13		Resistance to fire flame and ignition				
14		inals				
		mation for luminaire design				
15		-				
16		ection against accidental contact with live parts				
17		ws, current-carrying parts and connections				
18		stance to corrosion				
19		sions for protective earthing				
An	Annex A (informative) Construction of flexible OLED tiles and panels1					
Δn	nex B (	normative) Classification of flexible OLED tiles and panels	15			

IEC 62868-2-3:2021+AMD1:2025 CSV — 3 — © IEC 2025	REDLINE VERSION
Bibliography	16
Figure A.1 – Schematic diagram of glass flexible OLED tile for lighting	14
Figure A.2 – Schematic diagram of film flexible OLED panel for lighting	14
Table 1 – Additional marking	8
Table 2 – Mechanical attributes and measurement methods	9
Table B.1 – Flexible OLED classification	15

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

\_\_\_\_\_

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

# Part 2-3: Particular requirements – Flexible OLED tiles and panels

#### **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.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62868-2-3 edition 1.1 contains the first edition (2021-10) [documents 34A/2254/FDIS and 34A/2261/RVD] and its amendment 1 (2025-02) [documents 34A/2424/FDIS and 34A/2434/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

- 5 -

IEC 62868-2-3 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting. It is an International Standard.

The language used for the development of this International Standard 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 <a href="https://www.iec.ch/members\_experts/refdocs">www.iec.ch/members\_experts/refdocs</a>. The main document types developed by IEC are described in greater detail at <a href="https://www.iec.ch/standardsdev/publications">www.iec.ch/standardsdev/publications</a>.

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.

This International Standard is to be used in conjunction with IEC 62868-1:2020.

In this document, the following print type is used:

compliance statements: in italic type.

The committee has decided that the contents of this document and its amendment 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.

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

# Part 2-3: Particular requirements – Flexible OLED tiles and panels

# 1 Scope

This part of IEC 62868 specifies the safety requirements for flexible organic light emitting diode (OLED) tiles and panels for use on supplies up to 120 V ripple free DC for indoor and similar general lighting purposes and designed for being bent during the manufacturing process of curved luminaires.

NOTE The construction of flexible OLED tiles and panels is given in Annex A.

## 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 61747-40-1:2019, Liquid crystal display devices – Part 40-1: Mechanical testing of display cover glass for mobile devices – Guidelines

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

IEC 62715-6-3:2020, Flexible display devices – Part 6-3: Mechanical test methods – Impact and hardness tests

IEC 62868-1:2020, Organic light emitting diode (OLED) light sources for general lighting – Safety – Part 1: General requirements and tests IEC 62868-1:2020/AMD1:2024

IEC TS 62972:2016, General lighting – Organic light emitting diode (OLED) products and related equipment – Terms and definitions

# CONTENTS

FOF	REWO	RD	4				
1	Scop	e	6				
2	Norm	Normative references6					
3	Term	s and definitions	6				
4	ral	7					
4	.1	General requirements	7				
4	2	General test requirements					
5	Marki	ng	8				
5	5.1	Contents and location	8				
5	5.2	Durability and legibility of marking	8				
6	Cons	truction	8				
6	5.1	General	8				
6	5.2	Mechanical strength	8				
	6.2.1	Requirements					
	6.2.2						
_	6.2.3	Strength and impact test					
	5.3	Internal short circuit					
_		Wireways					
_	5.5 Maab	Resistance to dust, solid objects and moistureanical hazard					
7							
8		conditions					
	5.1	General					
_	5.2	Overload condition					
	3.3 3.4	Input stability test  Overbending					
	5.4 5.5	Excess bending cycles					
9	_	ation resistance and electric strength					
	).1	General requirements					
	2	Insulation resistance					
9	.3	Electric strength					
10	Therr	nal stress					
11	Cree	page distances and clearances	11				
12		stance to heat and fire					
	2.1	Resistance to heat					
	2.2	Resistance to flame and ignition					
13	Photo	obiological safety					
14	Term	inals	12				
15	Inforr	nation for luminaire design	12				
16		ction against accidental contact with live parts					
17		vs, current-carrying parts and connections					
18		stance to corrosion					
19		sions for protective earthing					
	Annex A (informative) Construction of flexible OLED tiles and panels13						
	·						
Ann	Annex B (normative) Classification of flexible OLED tiles and panels14						

IEC 62868-2-3:2021+AMD1:2025 CSV — 3 — © IEC 2025	FINAL VERSION
Bibliography	15
Figure A.1 – Schematic diagram of glass flexible OLED tile for lighting	13
Figure A.2 – Schematic diagram of film flexible OLED panel for lighting	13
Table 1 – Additional marking	8
Table 2 – Mechanical attributes and measurement methods	9
Table B.1 – Flexible OLED classification	14

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

# ORGANIC LIGHT EMITTING DIODE (OLED) LIGHT **SOURCES FOR GENERAL LIGHTING - SAFETY -**

# Part 2-3: Particular requirements – Flexible OLED tiles and panels

#### **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.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62868-2-3 edition 1.1 contains the first edition (2021-10) [documents 34A/2254/FDIS and 34A/2261/RVD] and its amendment 1 (2025-02) [documents 34A/2424/FDIS and 34A/2434/RVD].

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.

- 5 -

IEC 62868-2-3 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting. It is an International Standard.

The language used for the development of this International Standard 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 <a href="https://www.iec.ch/members\_experts/refdocs">www.iec.ch/members\_experts/refdocs</a>. The main document types developed by IEC are described in greater detail at <a href="https://www.iec.ch/standardsdev/publications">www.iec.ch/standardsdev/publications</a>.

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.

This International Standard is to be used in conjunction with IEC 62868-1:2020.

In this document, the following print type is used:

compliance statements: in italic type.

The committee has decided that the contents of this document and its amendment 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.

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

# Part 2-3: Particular requirements – Flexible OLED tiles and panels

## 1 Scope

This part of IEC 62868 specifies the safety requirements for flexible organic light emitting diode (OLED) tiles and panels for use on supplies up to 120 V ripple free DC for indoor and similar general lighting purposes and designed for being bent during the manufacturing process of curved luminaires.

NOTE The construction of flexible OLED tiles and panels is given in Annex A.

## 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 61747-40-1:2019, Liquid crystal display devices – Part 40-1: Mechanical testing of display cover glass for mobile devices – Guidelines

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

IEC 62715-6-3:2020, Flexible display devices – Part 6-3: Mechanical test methods – Impact and hardness tests

IEC 62868-1:2020, Organic light emitting diode (OLED) light sources for general lighting – Safety – Part 1: General requirements and tests IEC 62868-1:2020/AMD1:2024

IEC TS 62972:2016, General lighting – Organic light emitting diode (OLED) products and related equipment – Terms and definitions