



IEC 60598-2-20

Edition 5.0 2022-01  
REDLINE VERSION

# INTERNATIONAL STANDARD



---

**Luminaires –  
Part 2-20: Particular requirements – Lighting chains**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 29.140.40

ISBN 978-2-8322-4239-1

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

## CONTENTS

FOREWORD .....	4
INTRODUCTION .....	2
20.1 Scope .....	7
20.2 Normative references .....	7
20.3 Terms and definitions .....	8
20.4 General test requirements .....	10
20.5 Classification of luminaires .....	10
20.5.1 General .....	10
20.5.2 Protection against electric shock .....	10
20.5.3 Protection against dust, solid objects and moisture .....	10
20.6 Marking .....	10
20.6.1 General .....	10
20.6.2 Lighting chain marking .....	11
20.6.3 Lighting chain and <del>packing</del> packaging marking .....	11
20.6.4 <del>Packing</del> Packaging or instructions marking .....	11
20.7 Construction .....	12
20.7.1 General .....	12
20.7.2 Lampholders .....	12
20.7.3 Terminal blocks .....	12
20.7.4 Terminals and supply connections .....	13
20.7.5 Gaskets .....	13
20.7.6 Mechanical strength .....	13
20.7.7 Lamp bridging devices .....	13
20.7.8 Control units and controlgear .....	13
20.7.9 Lamp rotation .....	14
20.7.10 Lamp insertion <del>and</del> withdrawal force .....	14
20.7.11 Lamp mechanical requirements .....	14
20.7.12 Temporarily installed protected lighting (TPL) chains .....	14
20.8 Creepage distances and clearances .....	15
20.9 Provisions for earthing .....	15
20.10 Terminals .....	15
20.11 External and internal wiring .....	15
20.11.1 General .....	15
20.11.2 Cables for lighting chains .....	15
20.11.3 Cord anchorage test .....	16
20.11.4 Plugs and cable length .....	16
20.11.5 Maximum length of extendable class II lighting chains .....	16
20.12 Protection against electric shock .....	16
20.12.1 General .....	16
20.12.2 Divisible plug .....	17
20.12.3 Electrification of decorations .....	18
20.12.4 Contacts of push-in lampholders .....	18
20.12.5 Blanking plugs .....	20
20.13 Endurance tests and thermal tests .....	20
20.13.1 General .....	20

- 20.13.2 Test voltage ..... 20
- 20.13.3 Lamp bridging devices ..... 21
- 20.13.4 Short-circuit test of rectifier ..... 21
- 20.14 Resistance to dust, solid objects and moisture ..... 21
- 20.15 Insulation resistance and electric strength ..... 21
- 20.16 Resistance to heat, fire and tracking ..... 21
- Annex A (normative) Requirements for interconnecting connectors for use in lighting chains ..... 23
- Bibliography ..... 25
  
- Figure 1 – Examples of different types of lighting chains ..... 10
- Figure 2 – Example of a connector to a divisible plug for lighting chains ..... 18
- Figure 3 – Example of test device suitable for checking security of lampholder contacts ..... 20
  
- Table 1 – Cables or cord types for lighting chains ..... 15
- Table 2 – Conductor size for lighting chains ..... 16

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

## LUMINAIRES –

### Part 2-20: Particular requirements – Lighting chains

#### 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

**This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60598-2-20:2014. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.**

IEC 60598-2-20 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lighting. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2014. This edition constitutes a technical revision.

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

- a) specific provisions for temporarily installed protected lighting (TPL) chains have been added;
- b) new terms and definitions have been added.

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

Draft	Report on voting
34D/1646/FDIS	34D/1651/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 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 [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

This Part 2-20 is to be used in conjunction with the latest edition of IEC 60598-1 and its amendment(s). It was established on the basis of the ninth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this document, it refers to IEC 60598-1.

NOTE 2 In this document, the following print types are used:

- *compliance statements: in italic type.*

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

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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION

This new edition includes the following technical changes:

- a) Inclusion of specific provisions for temporarily installed protected lighting (TPL) chains.

This form of lighting chain was not previously addressed with specific provisions in previous editions of the standard. A temporarily installed protected lighting chain is a physical impact protected rough service lighting chain intended for temporary installation on building sites during the construction or demolition phases of a building project.

- a) Addition of terms and definitions

New terms and definitions have been added to include the expanded typology for lighting chains and to include a connector with breaking capacity (CBC).

- b) Inclusion of graphical depictions of lighting chains

Graphical depictions have been added to clarify and differentiate the construction and installation configurations of the various different types of lighting chains. Word descriptions alone had limitations in clearly and precisely defining the characteristics of the numerous variants in this luminaire sector.

The illustrations show the three main types of lighting chains: permanently installed lighting chains, temporarily installed lighting chains and temporarily installed protected lighting (TPL) chains, as well as further differentiating by installation and/or fixing method where applicable.

## LUMINAIRES –

### Part 2-20: Particular requirements – Lighting chains

#### 20.1 Scope

This part of IEC 60598 specifies requirements for lighting chains fitted with series, parallel or a combination of series/parallel connected light sources for use either indoors or outdoors on supply voltages not exceeding 250 V.

For combinations where rope lights (also known as sealed lighting chains) are included, see IEC 60598-2-21.

Lighting chains provided with fixed or detachable attachments for example ornamental or decorative, are considered to be covered by this document.

For lighting chains fitted with lampholders of the push-in type, the appropriate requirements of this document applies.

~~NOTE 1 A Christmas tree lighting chain is an example of a lighting chain fitted with series or series/parallel connected lamps. A chain for illuminating ski-tracks or promenades is an example of a lighting chain fitted with parallel connected lamps.~~

This document covers the following lighting chains:

- a) permanently installed lighting chains;
- b) temporarily installed lighting chains;
- c) temporarily installed protected lighting (TPL) chains.

NOTE 1 Festoon lighting chain – a lighting chain that is supported by the supply cable or fixed at the lampholder and is permanently connected to the fixed wiring. Festoon lighting chains are primarily suitable for permanent indoor or outdoor lighting applications.

NOTE 2 Decorative lighting chain – a lighting chain that is supported by the supply cable and is temporarily connected to the fixed wiring. Decorative lighting chains are primarily suitable for domestic, indoor or indoor/outdoor temporary lighting applications, see Figure 1 for examples.

NOTE 3 Temporarily installed protected lighting (TPL) chain – a lighting chain where each lampholder is fixed to the building or structure and the light source is enclosed by a protective enclosure and is temporarily connected to the fixed wiring. Temporarily installed protected lighting chains are primarily suitable for use in rough service lighting applications.

For lighting chains with non-standardized lamps (e.g. lamps of the push-in type) the lamps are regarded as a part of the lighting chain and consequently included in the testing.

NOTE 4 For products where the lighting chain is permanently fixed to a frame or pre-lit Christmas tree the relevant clauses of IEC 60598-2-4 and/or IEC 60598-2-7 can also apply.

NOTE 5 In some countries the term "strings" is used instead of "chains".

NOTE 6 Candlestick luminaires are tested according to IEC 60598-2-4.

#### 20.2 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 60227-5:2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

IEC 60238:2016, *Edison screw lampholders*

IEC 60238:2016/AMD1:2017

IEC 60238:2016/AMD2/2020

~~IEC 60245-4:2011, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 4: Cords and flexible cables*~~

IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

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

IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar purposes*

IEC 61184:2017, *Bayonet lampholders*

IEC 61184:2017/AMD1:2019

IEC 61347-2-11, *Lamp controlgear – Part 2-11: Particular requirements for miscellaneous electronic circuits used with luminaires*

IEC 61347-2-13, *Lamp controlgear – Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules*

IEC 61984:2008, *Connectors – Safety requirements and tests*

ISO 4046-4:2002/2016, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

**Luminaires –  
Part 2-20: Particular requirements – Lighting chains**

**Luminaires –  
Partie 2-20: Exigences particulières – Guirlandes lumineuses**

## CONTENTS

FOREWORD .....	4
INTRODUCTION .....	6
20.1 Scope .....	7
20.2 Normative references .....	7
20.3 Terms and definitions .....	8
20.4 General test requirements .....	10
20.5 Classification of luminaires .....	10
20.5.1 General .....	10
20.5.2 Protection against electric shock .....	10
20.5.3 Protection against dust, solid objects and moisture .....	10
20.6 Marking .....	10
20.6.1 General .....	10
20.6.2 Lighting chain marking .....	11
20.6.3 Lighting chain and packaging marking .....	11
20.6.4 Packaging or instructions marking .....	11
20.7 Construction .....	12
20.7.1 General .....	12
20.7.2 Lampholders .....	12
20.7.3 Terminal blocks .....	12
20.7.4 Terminals and supply connections .....	13
20.7.5 Gaskets .....	13
20.7.6 Mechanical strength .....	13
20.7.7 Lamp bridging devices .....	13
20.7.8 Control units and controlgear .....	13
20.7.9 Lamp rotation .....	14
20.7.10 Lamp insertion and withdrawal force .....	14
20.7.11 Lamp mechanical requirements .....	14
20.7.12 Temporarily installed protected lighting (TPL) chains .....	14
20.8 Creepage distances and clearances .....	15
20.9 Provisions for earthing .....	15
20.10 Terminals .....	15
20.11 External and internal wiring .....	15
20.11.1 General .....	15
20.11.2 Cables for lighting chains .....	15
20.11.3 Cord anchorage test .....	16
20.11.4 Plugs and cable length .....	16
20.11.5 Maximum length of extendable class II lighting chains .....	16
20.12 Protection against electric shock .....	17
20.12.1 General .....	17
20.12.2 Divisible plug .....	17
20.12.3 Electrification of decorations .....	17
20.12.4 Contacts of push-in lampholders .....	18
20.12.5 Blanking plugs .....	18
20.13 Endurance tests and thermal tests .....	19
20.13.1 General .....	19

20.13.2 Test voltage ..... 19

20.13.3 Lamp bridging devices ..... 19

20.13.4 Short-circuit test of rectifier ..... 19

20.14 Resistance to dust, solid objects and moisture ..... 19

20.15 Insulation resistance and electric strength ..... 20

20.16 Resistance to heat, fire and tracking ..... 20

Annex A (normative) Requirements for interconnecting connectors for use in lighting chains ..... 21

Bibliography ..... 23

  

Figure 1 – Examples of different types of lighting chains ..... 10

Figure 2 – Example of a connector to a divisible plug for lighting chains ..... 17

Figure 3 – Example of test device suitable for checking security of lampholder contacts ..... 18

  

Table 1 – Cable or cord types for lighting chains ..... 15

Table 2 – Conductor size for lighting chains ..... 16

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

## LUMINAIRES –

### Part 2-20: Particular requirements – Lighting chains

#### 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60598-2-20 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lighting. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2014. This edition constitutes a technical revision.

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

- a) specific provisions for temporarily installed protected lighting (TPL) chains have been added;
- b) new terms and definitions have been added.

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

Draft	Report on voting
34D/1646/FDIS	34D/1651/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 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 [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

This Part 2-20 is to be used in conjunction with the latest edition of IEC 60598-1 and its amendment(s). It was established on the basis of the ninth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this document, it refers to IEC 60598-1.

NOTE 2 In this document, the following print types are used:

– *compliance statements: in italic type.*

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

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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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

## INTRODUCTION

This new edition includes the following technical changes:

- a) Inclusion of specific provisions for temporarily installed protected lighting (TPL) chains.

This form of lighting chain was not previously addressed with specific provisions in previous editions of the standard. A temporarily installed protected lighting chain is a physical impact protected rough service lighting chain intended for temporary installation on building sites during the construction or demolition phases of a building project.

- b) Addition of terms and definitions

New terms and definitions have been added to include the expanded typology for lighting chains and to include a connector with breaking capacity (CBC).

- c) Inclusion of graphical depictions of lighting chains

Graphical depictions have been added to clarify and differentiate the construction and installation configurations of the various different types of lighting chains. Word descriptions alone had limitations in clearly and precisely defining the characteristics of the numerous variants in this luminaire sector.

The illustrations show the three main types of lighting chains: permanently installed lighting chains, temporarily installed lighting chains and temporarily installed protected lighting (TPL) chains, as well as further differentiating by installation and/or fixing method where applicable.

## LUMINAIRES –

### Part 2-20: Particular requirements – Lighting chains

#### 20.1 Scope

This part of IEC 60598 specifies requirements for lighting chains fitted with series, parallel or a combination of series/parallel connected light sources for use either indoors or outdoors on supply voltages not exceeding 250 V.

For combinations where rope lights (also known as sealed lighting chains) are included, see IEC 60598-2-21.

Lighting chains provided with fixed or detachable attachments for example ornamental or decorative, are considered to be covered by this document.

For lighting chains fitted with lampholders of the push-in type, the appropriate requirements of this document applies.

This document covers the following lighting chains:

- a) permanently installed lighting chains;
- b) temporarily installed lighting chains;
- c) temporarily installed protected lighting (TPL) chains.

NOTE 1 Festoon lighting chain – a lighting chain that is supported by the supply cable or fixed at the lampholder and is permanently connected to the fixed wiring. Festoon lighting chains are primarily suitable for permanent indoor or outdoor lighting applications.

NOTE 2 Decorative lighting chain – a lighting chain that is supported by the supply cable and is temporarily connected to the fixed wiring. Decorative lighting chains are primarily suitable for domestic, indoor or indoor/outdoor temporary lighting applications, see Figure 1 for examples.

NOTE 3 Temporarily installed protected lighting (TPL) chain – a lighting chain where each lampholder is fixed to the building or structure and the light source is enclosed by a protective enclosure and is temporarily connected to the fixed wiring. Temporarily installed protected lighting chains are primarily suitable for use in rough service lighting applications.

For lighting chains with non-standardized lamps (e.g. lamps of the push-in type) the lamps are regarded as a part of the lighting chain and consequently included in the testing.

NOTE 4 For products where the lighting chain is permanently fixed to a frame or pre-lit Christmas tree the relevant clauses of IEC 60598-2-4 can also apply.

NOTE 5 In some countries the term "strings" is used instead of "chains".

NOTE 6 Candlestick luminaires are tested according to IEC 60598-2-4.

#### 20.2 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 60227-5:2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

IEC 60238:2016, *Edison screw lampholders*  
IEC 60238:2016/AMD1:2017  
IEC 60238:2016/AMD2/2020

IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

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

IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar purposes*

IEC 61184:2017, *Bayonet lampholders*  
IEC 61184:2017/AMD1:2019

IEC 61347-2-11, *Lamp controlgear – Part 2-11: Particular requirements for miscellaneous electronic circuits used with luminaires*

IEC 61347-2-13, *Lamp controlgear – Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules*

IEC 61984:2008, *Connectors – Safety requirements and tests*

ISO 4046-4:2016, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*



## SOMMAIRE

AVANT-PROPOS .....	26
INTRODUCTION.....	28
20.1 Domaine d'application .....	29
20.2 Références normatives.....	29
20.3 Termes et définitions .....	30
20.4 Exigences générales des essais.....	32
20.5 Classification des luminaires .....	32
20.5.1 Généralités.....	32
20.5.2 Protection contre les chocs électriques .....	32
20.5.3 Protection contre la poussière, les particules solides et l'humidité .....	32
20.6 Marquage .....	32
20.6.1 Généralités.....	32
20.6.2 Marquage de la guirlande lumineuse .....	33
20.6.3 Marquage de la guirlande lumineuse et de l'emballage.....	33
20.6.4 Marquage de l'emballage ou des instructions .....	33
20.7 Construction .....	34
20.7.1 Généralités.....	34
20.7.2 Douilles .....	34
20.7.3 Blocs de jonction.....	35
20.7.4 Bornes et raccordements au réseau .....	35
20.7.5 Joints d'étanchéité .....	35
20.7.6 Résistance mécanique .....	35
20.7.7 Dispositifs de pontage de lampe.....	36
20.7.8 Unités de commande.....	36
20.7.9 Rotation des lampes.....	36
20.7.10 Force d'insertion et de retrait de la lampe.....	36
20.7.11 Exigences mécaniques pour les lampes .....	37
20.7.12 Guirlandes lumineuses protégées installées temporairement (TPL) .....	37
20.8 Lignes de fuite et distances dans l'air .....	37
20.9 Dispositions en vue de la mise à la terre .....	37
20.10 Bornes.....	37
20.11 Câblage externe et interne .....	37
20.11.1 Généralités.....	37
20.11.2 Câbles pour guirlandes lumineuses .....	37
20.11.3 Essai d'ancrage de cordon .....	38
20.11.4 Fiches et longueur de câble.....	39
20.11.5 Longueur maximale des guirlandes lumineuses de classe II extensibles.....	39
20.12 Protection contre les chocs électriques.....	39
20.12.1 Généralités.....	39
20.12.2 Fiche divisible .....	39
20.12.3 Electrification des décorations.....	40
20.12.4 Contacts des douilles à enfoncement .....	40
20.12.5 Fiches d'obturation .....	41
20.13 Essais d'endurance et essais thermiques .....	41
20.13.1 Généralités.....	41

20.13.2	Tension d'essai .....	42
20.13.3	Dispositifs de pontage de lampe.....	42
20.13.4	Essai de court-circuit du redresseur .....	42
20.14	Résistance à la poussière, aux particules solides et à l'humidité .....	42
20.15	Résistance d'isolement et rigidité diélectrique .....	43
20.16	Résistance à la chaleur, au feu et aux courants de cheminement.....	43
Annexe A (normative) Exigences relatives aux connecteurs d'interconnexion utilisés dans les guirlandes lumineuses .....		44
Bibliographie.....		46
Figure 1 – Exemples de différents types de guirlandes lumineuses .....		32
Figure 2 – Exemple de connecteur pour fiche divisible de guirlandes lumineuses .....		40
Figure 3 – Exemple de dispositif d'essai convenable pour le contrôle de la sécurité d'utilisation des contacts de douille .....		41
Tableau 1 – Types de câbles ou de cordons pour guirlandes lumineuses.....		38
Tableau 2 – Taille des conducteurs des guirlandes lumineuses .....		38

# COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

## LUMINAIRES –

### Partie 2-20: Exigences particulières – Guirlandes lumineuses

#### AVANT-PROPOS

- 1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
- 2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
- 3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
- 4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
- 5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
- 6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
- 7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 60598-2-20 a été établie par le sous-comité 34D: Luminaires, du comité d'études 34 de l'IEC: Eclairage. Il s'agit d'une Norme internationale.

Cette cinquième édition annule et remplace la quatrième édition parue en 2014. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) des dispositions spécifiques aux guirlandes lumineuses protégées installées temporairement (TPL) ont été ajoutées;
- b) de nouveaux termes et définitions ont été ajoutés.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
34D/1646/FDIS	34D/1651/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). Les principaux types de documents développés par l'IEC sont décrits plus en détail sous [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

La présente Partie 2-20 doit être utilisée conjointement avec la dernière édition de l'IEC 60598-1 et son ou ses amendements. Elle a été établie sur la base de la neuvième édition (2020) de cette norme.

NOTE 1 L'expression "la Partie 1" utilisée dans le présent document fait référence à l'IEC 60598-1.

NOTE 2 Dans le présent document, les caractères d'imprimerie suivants sont utilisés:

– *déclarations de conformité: caractères italiques.*

Une liste de toutes les parties de la série IEC 60598, publiées sous le titre général *Luminaires*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu du présent document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous [webstore.iec.ch](http://webstore.iec.ch) dans les données relatives au document recherché. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

## INTRODUCTION

La présente nouvelle édition inclut les modifications techniques suivantes:

- a) introduction de dispositions spécifiques aux guirlandes lumineuses protégées installées temporairement (TPL);

Ce type de guirlande lumineuse n'était auparavant pas couvert par des dispositions spécifiques dans les éditions précédentes de la présente norme. Une guirlande lumineuse protégée installée temporairement est une guirlande lumineuse pour conditions sévères d'emploi protégée contre les chocs physiques, prévue pour une installation temporaire sur des chantiers lors de la construction ou de la démolition d'un bâtiment.

- b) ajout de termes et définitions;

De nouveaux termes et définitions ont été ajoutés afin d'inclure de nouveaux types de guirlandes lumineuses et de définir un connecteur avec pouvoir de coupure (CBC).

- c) introduction de représentations graphiques des guirlandes lumineuses.

Des représentations graphiques ont été ajoutées afin de clarifier et de différencier les configurations de construction et d'installation des différents types de guirlandes lumineuses. Les seules descriptions textuelles s'avéraient limitées pour définir de façon claire et précise les caractéristiques des nombreuses variantes que comporte ce groupe de luminaires.

Les illustrations représentent les trois principaux types de guirlandes lumineuses: les guirlandes lumineuses installées en permanence, les guirlandes lumineuses installées temporairement et les guirlandes lumineuses protégées installées temporairement (TPL), ainsi que leurs différentes méthodes d'installation et/ou de fixation, le cas échéant.

## LUMINAIRES –

### Partie 2-20: Exigences particulières – Guirlandes lumineuses

#### 20.1 Domaine d'application

La présente partie de l'IEC 60598 spécifie les exigences applicables aux guirlandes lumineuses équipées de sources lumineuses montées en série, en parallèle ou en combinaison série/parallèle pour utilisation à l'intérieur ou à l'extérieur, pour des tensions d'alimentation qui ne dépassent pas 250 V.

Pour les combinaisons qui contiennent des cordons lumineux (également appelés guirlandes lumineuses scellées), voir l'IEC 60598-2-21.

Les guirlandes lumineuses équipées de fixations permanentes ou amovibles, par exemple ornementales ou décoratives, sont considérées comme couvertes par le présent document.

Les exigences appropriées du présent document sont applicables aux guirlandes lumineuses équipées de douilles du type à enfoncement.

Le présent document traite des guirlandes lumineuses suivantes:

- a) guirlandes lumineuses installées en permanence;
- b) guirlandes lumineuses installées temporairement;
- c) guirlandes lumineuses protégées installées temporairement (TPL).

NOTE 1 Guirlande lumineuse Festoon – guirlande lumineuse soutenue par le câble d'alimentation ou fixée au niveau de la douille et raccordée de manière permanente au câblage fixe. Les guirlandes lumineuses Festoon sont principalement adaptées aux applications d'éclairage permanent à l'intérieur ou à l'extérieur.

NOTE 2 Guirlande lumineuse décorative – guirlande lumineuse soutenue par le câble d'alimentation et raccordée de manière temporaire au câblage fixe. Les guirlandes lumineuses décoratives sont principalement adaptées aux applications d'éclairage domestique temporaire à l'intérieur ou à l'extérieur; voir Figure 1 pour des exemples.

NOTE 3 Guirlande lumineuse protégée installée temporairement (TPL) – guirlande lumineuse sur laquelle chaque douille est fixée au bâtiment ou à la structure, la source lumineuse étant enfermée dans une enveloppe de protection et raccordée de manière temporaire au câblage fixe. Les guirlandes lumineuses protégées installées temporairement sont principalement adaptées aux applications d'éclairage en conditions sévères.

Dans le cas des guirlandes lumineuses équipées de lampes non normalisées (lampes du type à enfoncement, par exemple), les lampes sont considérées comme faisant partie de la guirlande lumineuse et par conséquent incluses dans les essais.

NOTE 4 Pour les produits dans lesquels la guirlande lumineuse est fixée de manière permanente à un bâti ou à un arbre de Noël prééclairé, les articles concernés de l'IEC 60598-2-4 peuvent également s'appliquer.

NOTE 5 Dans certains pays, le terme anglais "strings" est utilisé en lieu et place de "chains" pour désigner les guirlandes.

NOTE 6 Les luminaires de type chandelier sont soumis aux essais selon l'IEC 60598-2-4.

#### 20.2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60227-5:2011, *Conducteurs et câbles isolés au polychlorure de vinyle, de tension assignée au plus égale à 450/750 V – Partie 5: Câbles souples*

IEC 60238:2016, *Douilles à vis Edison pour lampes*  
IEC 60238:2016/AMD1:2017  
IEC 60238:2016/AMD2/2020

IEC , *Fiches, socles fixes de prise de courant, prises mobiles et socles de connecteur pour usages industriels – Partie 1: Exigences générales*

IEC 60320 (toutes les parties), *Connecteurs pour usages domestiques et usages généraux analogues*

IEC 60529, *Degrés de protection procurés par les enveloppes (code IP)*

IEC 60598-1, *Luminaires – Partie 1: Exigences générales et essais*

IEC 60906 (toutes les parties), *Système IEC de prises de courant pour usages domestiques et analogues*

IEC 61184:2017, *Douilles à baïonnette*  
IEC 61184:2017/AMD1:2019

IEC 61347-2-11, *Appareillages de lampes – Partie 2-11: Prescriptions particulières pour circuits électroniques divers utilisés avec les luminaires*

IEC 61347-2-13, *Appareillages de lampes – Partie 2-13: Exigences particulières pour les appareillages électroniques alimentés en courant continu ou alternatif pour les modules de LED*

IEC 61984:2008, *Connecteurs – Exigences de sécurité et essais*

ISO 4046-4:2016, *Papier, carton, pâtes et termes connexes – Vocabulaire – Partie 4: Catégories et produits transformés de papier et de carton*