

Australian/New Zealand Standard™

Luminaires

**Part 2.21: Particular requirements—
Rope lights (IEC 60598-2-21:2014, MOD)**



AS/NZS 60598.2.21:2018

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-041, Lamps and Related Equipment. It was approved on behalf of the Council of Standards Australia on 19 February 2018 and by the New Zealand Standards Approval Board on 5 March 2018.
This Standard was published on 22 March 2018.

The following are represented on Committee EL-041:

Australian Industry Group
Consumers' Federation of Australia
Department of the Environment and Energy
Electrical Compliance Testing Association
Electrical Contractors Association of New Zealand
Electrical Regulatory Authorities Council
Energy Efficiency and Conservation Authority of New Zealand
ES: The Lighting Society
Joint Accreditation System of Australia and New Zealand
Lighting Council Australia
Lighting Council New Zealand
Master Electricians
NSW Fair Trading
Worksafe New Zealand

Additional Interests:

Australasian Fire and Emergency Service Authorities Council
Essential Services Commission
Independent Pricing and Regulatory Tribunal
Institution of Professional Engineers New Zealand

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using the current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com or Standards New Zealand website at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 60598.2.21:2016.

Australian/New Zealand Standard™

Luminaires

Part 2.21: Particular requirements— Rope lights (IEC 60598-2-21:2014, MOD)

First published as AS/NZS 60598.2.21:2018.

COPYRIGHT

© Standards Australia Limited

© The Crown in right of New Zealand, administered by the New Zealand Standards Executive

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6140.

ISBN 978 1 76072 026 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment.

The objective of this Standard is to specify minimum safety requirements for rope lights fitted with series-connected or parallel-connected light sources for use either indoors or outdoors with supply voltages not exceeding 250 V.

The essential safety requirements of AS/NZS 3820, *Essential safety requirements for electrical equipment*, which could be applicable to lighting products within the scope of this Standard, are covered by this Standard.

This Standard is an adoption with national modifications and has been reproduced from IEC 60598-2-21:2014 (ED. 1.0), *Luminaires, Part 2-21: Particular requirements—Rope lights* and its corrigendum IEC 60598-2-21:2014 (ED. 1.0)/COR1:2016. This Standard has been varied as indicated to take account of Australian/New Zealand conditions.

The variations made to IEC 60598-2-21:2014 (ED. 1.0) are specified in Appendix ZZ. The variations described in Appendix ZZ form the Australian and New Zealand variation for the purpose of the IECEE CB Scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme).

This Standard is intended to be read in conjunction with AS/NZS 60598.1, *Luminaires, Part 1: General requirements and tests (IEC 60598-1, Ed. 8.0 (2014), MOD)*.

This Standard is structured as follows:

- (a) Preface.
- (b) IEC 60598-2-21:2014 (ED. 1.0) unedited from the first clause to the Bibliography.
- (c) Appendix ZZ —Australian/New Zealand variations to the source document.

The variations listed in Appendix ZZ address issues including the following:

- (i) Rope lights in accordance with this Standard are also deemed to conform with AS/NZS 60598.2.20:2002.
- (ii) A non-IP-rated plug is acceptable for Australia and New Zealand.
NOTE: See Clause 21.1.4, Table 2.
- (iii) Addition of new Clause 21.3.101.

As this Standard is reproduced from an International Standard, the following applies:

- (A) In the source text ‘this part of IEC 60598’ should read ‘this Australian/New Zealand Standard’.
- (B) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The term ‘normative’ has been used in this Standard to define the application of the annex or appendix to which it applies. A ‘normative’ annex or appendix is an integral part of a Standard.

NOTES

Currently in preview, click buy full vers.

CONTENTS

FOREWORD	4
21.1 Scope	6
21.2 Normative references	6
21.3 Terms and definitions	7
21.4 General test requirements	7
21.5 Classification of luminaires	7
21.5.1 General	7
21.5.2 Protection against electric shock	7
21.5.3 Protection against dust, solid objects and moisture	7
21.6 Marking	8
21.6.1 General	8
21.6.2 Rope light marking	8
21.6.3 Rope light and packing marking	8
21.6.4 Packing or instruction marking	8
21.7 Construction	9
21.7.1 General	9
21.7.2 Terminal blocks	9
21.7.3 Terminals and supply connections	9
21.7.4 Control units	9
21.7.5 Mechanical strength	9
21.8 Creepage distances and clearances	13
21.9 Provisions for earthing	13
21.10 Terminals	13
21.11 External and internal wiring	13
21.11.1 General	13
21.11.2 Cables for rope lights	13
21.11.3 Cord anchorage	14
21.11.4 Plugs and cable length	14
21.11.5 Maximum length of extendable class II rope lights	14
21.12 Protection against electric shock	14
21.13 Endurance tests and thermal tests	14
21.13.1 General	14
21.13.2 Test voltage	15
21.13.3 Short-circuit test of rectifier	15
21.14 Resistance to dust, solid objects and moisture	15
21.15 Insulation resistance and electric strength	15
21.16 Resistance to heat, fire and tracking	15
Annex A (normative) Requirements for interconnecting connectors for use in rope lights	16
Figure 1 – Example of test device suitable for winding a flexible pipe	10
Figure 2 – Cold bend test apparatus	11
Figure 3 – Impact test apparatus	12

Table 1 – Mass of hammer 12
Table 2 – Cables for rope lights 13

Currently in preview, click buy full version

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 comply 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.

International Standard IEC 60598-2-21 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

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

FDIS	Report on voting
34D/1146/FDIS	34D/1154/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 standard is intended to be read in conjunction with IEC 60598-1 Luminaires – Part 1: General requirements and tests.

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

In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

AUSTRALIAN/NEW ZEALAND STANDARD

Luminaires**Part 2.21: Particular requirements—Rope lights
(IEC 60598-2-21:2014, MOD)****21.1 Scope**

This part of IEC 60598 specifies requirements for rope lights (sealed lighting chains) fitted with non-replaceable series- or parallel- or a combination of series/parallel-connected light sources for use either indoors or outdoors on supply voltages not exceeding 250 V.

NOTE 1 In some countries the term "sealed lighting chain" is used instead of "rope light".

NOTE 2 For products where the rope light is fixed to a frame or the like as ornaments like Santa Claus, snowman and similar, relevant clauses of IEC 60598-2-4 and/or IEC 60598-2-7 can also apply.

Rope lights provided with, fixed or detachable, extra attachments of different kinds, e.g. ornamental element in temporary decorative configurations due to festivals, celebrations, etc. or in two or three dimensional reproductions of persons or animals (real or imaginary) are considered to be covered by this standard.

21.2 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 60227-5:2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

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

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 60811-504:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 504: Mechanical tests – Bending tests at low temperature for insulation and sheaths*

IEC 60811-506:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 506: Mechanical tests – Impact test at low temperature for insulations and sheaths*

IEC 60811-508:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 508: Mechanical tests – Pressure test at high temperature for insulation and sheaths*

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