AS/NZS 62838:2020

Australian/New Zealand Standard™

LEDsi lamps for general lighting services with supply voltages not exceeding 50 V a.c. r.m.s. or 120 V ripple free d.c. — Safety specifications (IEC 62838:2015 (ED.1.0)/COR1:2017, MOD)

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

AS/NZS 62838:2020

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 17 January 2020 and by the New Zealand Standards Approval Board on 4 December 2019.

This Standard was published on 31 January 2020.

The following are represented on Committee EL-041:

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

This Standard was issued in draft form for comment as DR AS/NZS 62838:2019.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76072 723 9

Australian/New Zealand Standard™

LEDsi lamps for general lighting services with supply voltages not exceeding 50 V a.c. r.m.s. or 120 V ripple free d.c. — Safety specifications (IEC 62838:2015 (ED.1.0)/COR1:2017, MOD)

First published as AS/NZS 62838:2020.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-41, Lamps and Related Equipment.

The objective of this Standard is to specify requirements for LED lamps with integrated means for stable operation, intended for domestic and similar general lighting purposes, having—

(a) a rated power up to 60 W;

(b) a rated voltage equal to or less than 50 V a.c. r.m.s. or equal or less than 120 V ripple free d.c.; and

(c) caps according to Table 1.

For these lamps, this Standard specifies—

(i) safety and interchangeability requirements; and

(ii) test methods and conditions required to show conformance.

The requirements of this Standard relate only to type testing.

This Standard is an adoption with national modifications, and has been reproduced from, IEC 62838:2015, *LEDsi lamps for general lighting services with supply voltage not exceeding 50 V a.c. r.m.s. or 120 V ripple free d.c. — Safety specifications* and its Corrigendum 1 (2017). The modifications are additional requirements and are set out in Appendix ZZ, which has been added at the end of the source text.

Appendix ZZ lists the variations to IEC 62838:2015 for the application of this Standard in Australia and New Zealand.

As this document has been reproduced from an International Standard, the following applies:

(A) In the source text "this International Standard" 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 terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

NOTES

CONTENTS

FOREWORD 3
INTRODUCTION 5
1 Scope 6
2 Normative references 7
3 Terms and definitions 8
4 General requirement and general test requirements 8
5 Marking 8
6 Interchangeability 9
6.1 Cap interchangeability 9
6.2 Bending moment and mass imparted by the lamp at the lampholder 9
7 Protection against accidental contact with live parts 10
8 Insulation resistance and electric strength after humidity treatment 10
8.1 General 10
8.2 Insulation resistance 10
8.3 Electric strength 10
9 Mechanical strength 11
9.1 Pull force 11
10 Cap temperature rise 11
11 Resistance to heat 11
12 Resistance to flame and ignition 11
13 Fault conditions 11
13.1 General 11
13.2 Compliance 11
14 Creepage distances and clearances 11
15 Abnormal operation 11
16 Photobiological safety 12
16.1 UV radiation 12
16.2 Blue light hazard 12
16.3 Infrared radiation 12
17 Ingress protection 12
18 Information for luminaire design 12
Annex A (informative) Information for luminaire design 13
A.1 Water contact 13
A.2 Further impact on luminaires 13
Bibliography 14

Figure 1 – Types of LED lamps with supply voltage ≤ 50V 7
Figure 2 – Lamp not suitable for use under dust and moisture 9

Table 1 – Interchangeability gauges, lamp cap dimensions, bending moment and mass 9
Table 2 – Test voltages for caps 11

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

LEDsi LAMPS FOR GENERAL LIGHTING SERVICES WITH SUPPLY VOLTAGES NOT EXCEEDING 50 V A.C. R.M.S. OR 120 V RIPPLE FREE D.C. – SAFETY SPECIFICATIONS

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.

International Standard IEC 62838 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment

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

FDIS	Report on voting
34A/1852/FDIS	34A/1869/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.

In this standard, the following print types are used:

– requirements proper: 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 website 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.

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 standard provides the requirements and conditions of compliance for the safety of semi-integrated LED lamps with supply voltages equal to or less than 50 V a.c. r.m.s. or equal to or less than 120 V ripple free d.c.

The establishing of this standard does not exclude a future relocation as a sub-part of IEC 60968, self-ballasted lamps, or a merging with the standard for self-ballasted LED lamps with supply voltages greater than 50 V.

LEDsi LAMPS FOR GENERAL LIGHTING SERVICES WITH SUPPLY VOLTAGES NOT EXCEEDING 50 V A.C. R.M.S. OR 120 V RIPPLE FREE D.C. – SAFETY SPECIFICATIONS

1 Scope

This International Standard specifies the safety and interchangeability requirements, together with the test methods and conditions, required to show compliance of LED lamps with integrated means for stable operation, intended for domestic and similar general lighting purposes, having:

– a rated power up to 60 W

– a rated voltage equal to or less than 50 V a.c. r.m.s. or equal or less 120 V ripple free d.c.,

– caps according to Table 1.

NOTE 1 The value of 60 W rated power is under consideration. Heat management may require lower power.

This standard shall be used for products in conjunction with ELV lighting installations.

With reference to IEC 60364-7-715, in ELV lighting installations only SELV sources are applied. Where bare conductors are used, the maximum lamp voltage shall be 25 V a.c. or 60 V d.c.

The requirements of this standard relate only to type testing.

For lamps > 25 V a.c. or 60 V d.c., recommendations for whole production testing or batch testing are given in IEC 60598-1 Table Q.1 column class III luminaire, column 4 or 5.

NOTE 2 Where in this standard the term "lamp(s)" is used, it is understood to stand for semi-integrated LED lamp(s) with supply voltages as in the scope above, except where it is obviously assigned to other types of lamps.

An overview of systems composed of LED modules, lamps and controlgear is given in IEC 62504. Supply voltage does not mean necessarily mains voltage, e.g. 230 V / 50 Hz. A semi-integrated LED lamp can also be driven on a supply voltage with 12 V a.c. or d.c. The control unit in the controlgear in a semi-integrated LED lamp then provides the conversion of 12 V a.c. or d.c. to a special current and voltage to power the LED inside the semi-integrated LED lamp. Schematically, the types of LEDni and LEDsi lamps are shown in Figure 1.