

Australian/New Zealand Standard

Self-ballasted LED-lamps for general lighting services by voltage > 50 V – Safety specifications

Superseding AS/NZS IEC 62560:2014

AS/NZS 62560:2017

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The following are represented on Committee EL-041:

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Consumers' Federation of Australia
Department of the Environment and Energy
Electrical Compliance Testing Association
Electrical Contractors Association of New Zealand
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Energy Efficiency and Conservation Authority of New Zealand
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NOTES

Australian/New Zealand Standard

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment, to supersede AS/NZS IEC 62560:2014, 12 months after publication. Until that time, both editions of the Standard will operate in parallel. It is anticipated that the 2014 edition will then be withdrawn.

This Standard incorporates Amendment No. 1 (October 2019). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to specify electrical safety requirements for self-ballasted LED-lamps, intended for general lighting services, with a rated voltage of > 50 V.

This Standard is an adoption with national modifications and has been reproduced from IEC 62560, Ed. 1.1:2015, *Self-ballasted LED-lamps for general lighting services by voltages >50 V—Safety specifications*.

A1 | The objective of Amendment 1 is to add requirements for self-ballasted LED lamps to prevent them being treated by a child as a toy.

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

- (a) Extended Table 1 listing lamp caps.
- (b) Introduced requirements for photobiological safety.
- (c) Revised the mechanical strength requirements (Clause 9).
- (d) Revised the fault conditions and abnormal operation (Clauses 13 and 15).

Variations made to IEC 62560:2011+AMD1:2015 CSV form the Australian and New Zealand variations for the purpose of the IECEE CB Scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme). They are listed in Appendix ZZ.

This Standard is structured as follows:

- (i) Preface.
- (ii) Consolidated version of IEC 62560, Ed. 1.1:2015 and IEC 62560:2011/Amd1:2015/Cor1:2015 (Ed. 1.1:2015) (unedited from the first clause to Bibliography).
- (iii) Appendix ZZ—(Australian/New Zealand) variations to the source document.

As this Standard is 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.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
IEC		AS	
60529	Degrees of protection provided by enclosures (IP Code)	60529	Degrees of protection provided by enclosures (IP Code)
		AS/NZS	
60432	Incandescent lamps—Safety specifications	60432	Incandescent lamps—Safety specifications

60432-1	Part 1: Tungsten filament lamps for domestic and similar general lighting purposes	60432.1	Part 1: Tungsten filament lamps for domestic and similar general lighting purposes
IEC		AS/NZS	
60695	Fire hazard testing	60695	Fire-hazard testing
60695-2-11	Part 2-11: Glowing/hot-wire based test methods—Glow-wire flammability test method for end-products	60695.2.11	Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products
60695-2-12	Part 2-12: Glowing/hot-wire based test methods—Glow-wire flammability test method for materials	60695.2.12	Part 2.12: Glowing/hot wire based test methods—Glow-wire flammability test method for materials
60695-2-13	Part 2-13: Glowing/hot-wire based test methods—Glow-wire ignitability test method for materials	60695.2.13	Part 2.1: Glowing/hot wire based test methods—Glow-wire ignitability test method for materials

Only normative references that have been adopted as Australian or Australian/New Zealand Standard have been listed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex or appendix to which they apply. A ‘normative’ annex or appendix is an integral part of a Standard, whereas an ‘informative’ annex or appendix is only for information and guidance.

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INTRODUCTION

There will be and are already LED products in the market which substitute existing lamps, either as retrofit mains voltage incandescent or self-ballasted fluorescent lamps or as replacement for tungsten halogen lamps below 50 V.

The present document takes up the supply voltage range from $> 50\text{ V}$ up to 250 V . A proposal for a safety standard for LED lamps with voltages $\leq 50\text{ V}$ may follow in due time.

Future work will also consequently comprise performance standards for all kind of LED lamps, including minimum photometric requirements for type testing.

Due to the urgent need of establishing this standard, it will be a stand-alone standard for the time being, not excluding a future relocation as a part of IEC 60968, self-ballasted lamps.

AUSTRALIAN/NEW ZEALAND STANDARD

**Self-ballasted LED-lamps for general lighting services
by voltage > 50 V—Safety specifications
(IEC 62560:2011+AMD1:2015 CSV, MOD)****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 (self-ballasted LED-lamps), intended for domestic and similar general lighting purposes, having:

- a rated wattage up to 60 W;
- a rated voltage of > 50 V up to 250 V;
- caps according to Table 1.

The requirements of this standard relate only to type testing.

Recommendations for whole product testing or batch testing are identical to those given in Annex C of IEC 62031.

NOTE 1 Where in this standard the term “lamp(s)” is used, it is understood to stand for “self-ballasted LED-lamp(s)”, except where it is obviously assigned to other types of lamps.

NOTE 2 This standard includes photobiological safety.

2 Normative references

The following reference documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the reference document (including any amendments) applies.

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1 : Lamp caps*

IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3 : Gauges*

IEC 60360, *Standard method of measurement of lamp cap temperature rise*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60598-1:2008, *Luminaires – Part 1: General requirements and tests*

IEC 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods; Glow-wire apparatus and common test procedure*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products*

IEC 60695-2-12:2000, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods; Glow-wire flammability test method for materials*

IEC 60695-2-13:2000, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods; Glow-wire ignitability test method for materials*

IEC 61199:1999, *Single-capped fluorescent lamps – Safety specifications*

IEC 61347-1:—, *Lamp controlgear – Part 1: General and safety requirements*

IEC 62031:2008, *LED modules for general lighting – Safety requirements*

IEC/TS 62504, *Terms and definitions of LEDs and LED modules in general lighting*¹

IEC TR 62778: 2014, *Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC/TS 62504 (in preparation), IEC 62031 and the following apply.

3.1

self-ballasted LED-lamp

unit which cannot be dismantled without being permanently damaged, provided with a lamp cap and incorporating a LED light source and any additional elements necessary for stable operation of the light source

NOTE Lamp caps are given in IEC 60061-1.

3.2

rated voltage

voltage or voltage range marked on the lamp

3.3

rated wattage

wattage marked on the lamp

3.4

rated frequency

frequency marked on the lamp

3.5

cap temperature rise

Δt_s

surface temperature rise (above ambient) of a standard test lampholder fitted to the lamp, when measured in accordance with the standard method, in case of an Edison screw cap or a bayonet cap

NOTE The standard method for Edison screw cap or bayonet cap is that given in IEC 60360.

3.6

live part

conductive part which may cause an electric shock in normal use

¹ To be published.