

## Australian/New Zealand Standard™

A1 | **Safety of transformers, reactors, power supply units and combinations thereof**

**Part 2.9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps**



### **AS/NZS 61558.2.9:2011**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 4 April 2011 and on behalf of the Council of Standards New Zealand on 21 April 2011.

This Standard was published on 29 April 2011.

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The following are represented on Committee EL-002:

Australian Industry Group  
Australian Retailers Association  
Business New Zealand  
Consumer Electronic Suppliers Association, Australia  
Consumers' Federation of Australia  
Electrical Regulatory Authorities, Australia  
Electrical Compliance Testing Association  
Electrical consultants  
Engineers Australia  
Energy Networks Australia  
Ministry of Economic Development, New Zealand  
New Zealand Electric Fence Energizer Manufacturers' Standards Group

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*This Standard was issued in draft form for comment as DR 10920.*

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### **Safety of transformers, reactors, power supply units and combinations thereof**

### **Part 2.9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps**

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

## AS/NZS 61558.2.9:2011

**Safety of transformers, reactors, power supply units and combinations thereof –****Part 2.9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps****Foreword**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002 - Safety of Household and Similar Electrical Appliances and Small Power Transformers to supersede AS/NZS 61558.2.9:2003 and its amendments three years from the date of its publication. During this period it is anticipated that regulatory authorities will approve transformers and power supply units for class III handlamps for tungsten filament lamps to either standard.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements for the design, manufacture and testing of transformers and power supply units for class III handlamps for tungsten filament lamps which can form the basis for approval by regulatory authorities.

The text IEC 61558-2-9 Ed 2, prepared by IEC Technical Committee 96, was submitted to the Standards Australia/Standards New Zealand Combined Procedure (dual public comment and committee vote) for adoption of the IEC standard as a Standards Australia/Standards New Zealand joint standard.

This Standard incorporates Amendment No. 1 (June 2012). The changes required by the amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected. Where an application date other than immediate is applicable to an amendment the date of application (DOA) and the date of withdrawal (DOW) if relevant, is indicated by the marginal bar against the part affected.

This Standard is an adoption with national modifications of the second edition of IEC 61558-2-9, *Safety of transformers, reactors, power supply units and combinations thereof – Part 2-9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps*. It has been varied as indicated to take account of Australian and New Zealand conditions.

This part 2 has to be used in conjunction with the latest edition of AS/NZS 61558.1 *Safety of Power Transformers, Power Supplies, Reactors and Similar Products – Part 1: General requirements and tests* and its amendments. It was established on the basis of the 2008 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

The main changes consist of updating this part in accordance with AS/NZS 61558.1:2008 and adding power supply units to the scope.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 61558.1 so as to convert it into the Australian/New Zealand Standard: *Safety requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps*.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ.

NOTE 2 The following print types are used:

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

Words in **bold** in the text are defined in Clause 3.

p NOTE 3 In this document, p is used in the margin to indicate instructions for preparing a consolidated version.

A1 | The essential safety requirements in AS/NZS 3820<sup>1</sup> that could be applicable to requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps are covered by this standard.

The national variations to the IEC 61558-2-9 Ed 2 form the Australian and New Zealand national variations for purposes of the IECEE scheme for recognition of results of testing to standards for safety of electrical equipment (the CB scheme).

There are no national variations from the IEC Standard from which this standard is adopted, other than those listed in Annex ZZ to AS/NZS 61558.1.

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<sup>1</sup> AS/NZS 3820 *Essential safety requirements for low voltage electrical equipment*

The text of the International Standard IEC 61558-2-9 Ed 2 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

### **AUSTRALIAN NATIONAL VARIATIONS**

There are no national variations to this Part 2 other than those listed in Annex ZZ to AS/NZS 61558.1.

### **NEW ZEALAND NATIONAL VARIATIONS**

There are no national variations to this Part 2 other than those listed in Annex ZZ to AS/NZS 61558.1.

## **Annex AZA (normative)**

### **Normative references to international publications with their corresponding joint Australia/New Zealand publications**

The following referenced 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 referenced document (including any amendments) applies.

NOTE When an international publication has been modified by national variations the relevant joint Australia/New Zealand publications applies if the national variations are needed to ensure the safety of the appliance for Australia/New Zealand conditions. These international publications are indicated by (mod). If an international publication is not so indicated, then either it or the listed Australia/New Zealand publication may be used.

<b><u>Publication</u></b>	<b><u>Year</u></b>	<b><u>Title</u></b>	<b><u>AS/NZS</u></b>	<b><u>Year</u></b>
IEC 61558-1 (mod)	2005	<i>Safety of power transformers, power supplies, reactors and similar products –</i>	AS/NZS 61558.1	2009
+ A1	2009	<i>Part 1: General requirements and tests</i>	+ A1	2009

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## **SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND COMBINATIONS THEREOF –**

### **Part 2-9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps**

#### 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.
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- 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 61558-2-9 has been prepared by IEC technical committee 96: Transformers, reactors, power supply units and combinations thereof.

This second edition cancels and replaces the first edition published in 2002. It constitutes a technical revision. The main changes consist of updating this part in accordance with IEC 61558-1:2005, and adding power supply units to the scope.

This part has the status of a group safety publication in accordance with IEC Guide 104: 1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*.

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

FDIS	Report on voting
96/355/FDIS	96/362/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 part is intended to be used in conjunction with the latest edition of IEC 61558-1 and its amendments. It is based on the second edition (2005) of that standard.

This part supplements or modifies the corresponding clauses in IEC 61558-1, so as to convert that publication into the IEC standard: *Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps*.

A list of all parts of the IEC 61558 series, under the general title: *Safety of transformers, reactors, power supply units and combinations thereof*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

Where a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adopted accordingly.

In this part, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- explanatory matters: in smaller roman type.

In the text of this part, the words in **bold** are defined in Clause 3.

Subclauses additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

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.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months from the date of publication.

## SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND COMBINATIONS THEREOF –

### Part 2-9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps

#### 1 Scope

##### *Replacement:*

This part of IEC 61558 deals with the safety of **transformers for class III handlamps for tungsten filament lamps** and **power supply units incorporating transformers for class III handlamps for tungsten filament lamps**. **Transformers incorporating electronic circuits** are also covered by this standard.

NOTE 1 Safety includes electrical, thermal, mechanical and chemical aspects.

Unless otherwise specified, from here onward, the term **transformer** covers **transformers for class III handlamps for tungsten filament lamps** and **power supply units incorporating transformers for class III handlamps for tungsten filament lamps**.

This part is applicable to **stationary** or **portable** single-phase air-cooled (natural or forced) **independent** or **associated dry-type transformers**. The windings may be encapsulated or non-encapsulated.

This standard is applicable to **transformers** and **power supply** (linear) with **internal operational frequencies** not exceeding 500 Hz.

This standard used in combination with Part 2-16 for **switch mode power supply (SMPS)** units is also applicable to power supplies with **internal operational frequencies** higher than 500 Hz. Where the two requirements are in conflict, the most severe take precedence.

The **rated supply voltage** does not exceed 1 000 V a.c., and the **rated supply frequency** and the **internal operational frequencies** do not exceed 500 Hz.

**Transformers for class III handlamps for tungsten filament lamps** have the following additional characteristics:

- **the no-load output voltage** and the **rated output voltage** do not exceed 50 V a.c. or 120 V ripple-free d.c.;
- there is only a small difference between the **no-load voltage** and the **rated output voltage**.

The **rated output** does not exceed:

- 10 kVA.

This part is not applicable to external circuits and their components intended to be connected to the input terminals and output terminals of the **transformers**.

**Transformers** covered by this part are used in applications where **double or reinforced insulation** between circuits is required by the installation rules or by the end product standard.

NOTE 2 Attention is drawn to the following:

- for **transformers** intended to be used in vehicles, on board ships, and aircraft, additional requirements (from other applicable standards, national rules, etc.) may be necessary;
- measures to protect the **enclosure** and the components inside the **enclosure** against external influences such as fungus, vermin, termites, solar-radiation, and icing should also be considered;