AS/NZS 61558.2.7:2008
IEC 61558-2-7 Ed 2, IDT
(Incorporating Amendment No. 1)



Australian/New Zealand Standard™

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# Safety of power transformers, power supplies, reactors and similar products

# Part 2.7: Particular requirements and tests for transformers and power supplies for toys


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 2 September 2008 and on behalf of the Council of Standards New Zealand on 3 September 2008.
This Standard was published on 31 October 2008.

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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
A1 | Energy Networks Australia
Ministry of Economic Development, New Zealand
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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 either Standards Australia or Standards New Zealand at the address shown on the back cover.

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# Part 2.7: Particular requirements and tests for transformers and power supplies for toys

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# A1 FOREWORD

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002 - Safety of Household and Similar Electrical Appliances and Small Power Transformers, to supersede, AS/NZS 61558.2.7:2001, two years from publication.

A1 The main changes consist of updating this Part 2.7, in accordance with Part 1, 2008, and adding power supplies to the scope.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements for the design, A1 manufacture and testing of transformers and power supplies for toys which can form the basis for approval by regulatory authorities.

A1 This Standard forms the second edition of AS/NZS 61558.2.7 *Safety of power transformers, power supplies, reactors and similar products - Part 2.7: Particular requirements and tests for transformers and power supplies for toys.*

A1 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.

A1 This Standard is an adoption with national modifications and contains the full text of the second edition of IEC 61558-2-7, *Safety of power transformers, power supplies, reactors and similar products - Part 2.7: Particular requirements and tests for transformers and power supplies for toys* and has been varied as indicated to take account of Australian and New Zealand conditions. It is to be used in conjunction with the latest edition of AS/NZS 61558.1 and its amendments. It was established on the basis of the second edition (2008) of that standard.

A1 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 supplies for toys*.

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

NOTE 1 Subclauses, notes, tables and figures which are additional to those in part 1 are numbered starting from 101. Annexes, which are additional to those in part 1 are lettered AA, BB, etc.

Annex ZZ is for information only.

NOTE 2 In this Standard the following print types are used:

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

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

The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 61558-2-7 Ed 2. To allow for the introduction of additional material by the IEC, the numbers 101 to 200 have been reserved. To allow for additional material to be introduced by Australia and New Zealand, the numbers 201 to 300 are used to number further clauses, subclauses, notes, tables and figures in part 1. The numbers 301 to 400 are used to number further

clauses, subclauses, notes, tables and figures in this part 2. Additional annexes are lettered ZA, ZB and so on.

This scheme has been introduced to reduce the likelihood of the IEC and Australia and New Zealand using the same identifier for different purposes.

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

(a) Its number does not appear on each page of text and its identity is shown on the cover and title page only.

(b) In the source text "this International Standard" should read "this Australian/New Zealand Standard".

(c) A full point substitutes for a comma when referring to a decimal marker.

Variations to IEC 61558-2-7 Ed 2 are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC tables, figures and passages of text which, for the purposes of this Australian/New Zealand standard are deleted. Where Australian/New Zealand tables, figures or passages of text are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

Variations made to IEC 61558-2-7 Ed 2 form the Australian and New Zealand variations for the purposes of the IECEE scheme for recognition of testing to standards for safety of electrical equipment (the CB scheme). These variations have been incorporated in the body of the standard. They are listed in Annex ZZ for easy reference.

The essential safety requirements in AS/NZS 3820 that could be applicable to transformers and power supplies for toys are covered by this standard.

# SAFETY OF POWER TRANSFORMERS, POWER SUPPLIES, REACTORS AND SIMILAR PRODUCTS –

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## Part 2-7: Particular requirements and tests for transformers and power supplies for toys

## 1 Scope

*Replacement:*

This part of IEC 61558 deals with safety aspects of **transformers for toys** and **power supplies** incorporating **transformers for toys** such as electrical, thermal and mechanical safety.

This Part 2-7 is applicable to **transformers for toys** and **power supplies** incorporating both **transformers for toys** and **electronic circuits**. This Part 2-7 is not applicable to external circuits and their components intended to be connected to the input terminals, output terminals or socket-outlets of the **transformers** and **power supplies**.

This Part 2-7 applies to **stationary** and **portable**, single-phase, air-cooled (natural or forced), **transformers for toys** and **power supplies** incorporating **transformers for toys**, having a **rated supply voltage** not exceeding 250 V a.c., a **rated supply and internal operating frequency** not exceeding 500 Hz, a **rated output** not exceeding 200 VA and a **rated output current** not exceeding 10 A.

This Part 2-7 is applicable to **independent transformers** and **transformers for specific use**.

This Part 2-7 is applicable to **dry-type transformers for toys**. The windings may be encapsulated or non-encapsulated.

The **no-load output voltage** does not exceed 33 V a.c. for **transformers for toys** and **power supplies** incorporating **transformers for toys**, or 46 V ripple-free d.c. for **power supplies** incorporating **transformers for toys,** and the **rated output voltage** does not exceed 24 V a.c. for **transformers** and **power supplies**, or 33 V ripple-free d.c. for **power supplies**.

In general, this Part 2-7 does not take into consideration children playing with the **transformers for toys** and **power supplies** incorporating **transformers for toys**.

NOTE 1 Attention is drawn to the following:

– for **transformers for toys** and **power supplies** incorporating **transformers for toys** 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;

– the different conditions for transportation, storage, and operation of the **transformers for toys** and **power supplies** incorporating **transformers for toys** should also be considered;

– additional requirements in accordance with other appropriate standards and national rules may be applicable to **transformers for toys** and **power supplies** incorporating **transformers for toys** intended for use in special environments, such as tropical environments.

NOTE 2 Future technological development of **transformers** and **power supplies** may necessitate a need to increase the upper limit of the frequencies; until then, this Part 2-7 may be used as a guidance document.