AS/NZS 62115:2018
IEC 62115 Ed 2

AS/NZS 62115:2018

Australian/New Zealand Standard™

Electric toys—Safety

STANDARDS Australia

STANDARDS NEW ZEALAND
PAEREWA AOTEAROA

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 5 June 2018 and by the New Zealand Standards Approval Board on 6 June 2018.
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The following are represented on Committee EL-002:

Association of Accredited Certification Bodies
Australian Industry Group
National Retailers Association (Australia)
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical Regulatory Authorities, Australia
Electrical consultants
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JAS-ANZ
Testing Interests New Zealand
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New Zealand Electric Fence Energizer Manufacturers' Standards Group

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Australian/New Zealand Standard™

Electric toys—Safety

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 62115:2018

ELECTRIC TOYS –SAFETY

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 62115:2011 three years from the date of publication.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand.

The text of IEC 62115 Ed 2, prepared by IEC Technical Committee TC 61, 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 edition includes the following significant technical changes with respect to the previous edition:

– the general conditions for tests has been rewritten and modified (Clause 5);
– the criteria for reduced testing has been modified (Clause 6);
– warnings for toys using button batteries or coin batteries have been added (7.3.3.2, 7.3.3.3);
– warnings on ride-on toys have been added (7.5);
– the requirements concerning accessibility of batteries have been updated (13.4.1 and 13.4.2);
– added requirements to cover toys placed above a child (13.4.4);
– added requirements to cover toys connected to other equipment (13.9);
– modified the requirements for safety of toys incorporating optical radiation sources (Annex E), to include requirements for using the technical LED data sheet for checking compliance with the specified accessible emission limits (AEL);
– updated the details for measurements of the optical radiation from the toy (Annex E);
– introduced an informative Annex I concerning measurement methods for toys with an integrated field source generating EMF;
– included a normative Annex J concerning safety of remote controls for electric ride-on toys.

This Standard is an adoption with national modifications of the second edition of IEC 62115 *Electric toys – Safety*).

The essential safety requirements in AS/NZS 3820[1] that could be applicable to requirements for electric toys are covered by this standard.

[1] AS/NZS 3820 *Essential safety requirements for electrical equipment*

The national variations to IEC 62115 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).

The text of the International Standard IEC 62115 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 standard.

NEW ZEALAND NATIONAL VARIATIONS

There are no national variations to this standard.

Annex ANZ
(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.

Publication	Year	Title	AS/NZS	Year
IEC 60068-2-75:	2014,	*Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*		
IEC TR 60083,		*Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*		
IEC 60086-2:	2015,	*Primary batteries – Part 2: Physical and electrical specifications*		
IEC 60068 (All Parts),		*Primary batteries*		
IEC 60335-1 IEC 60335-1:2010/AMD1 IEC 60335-1:2010/AMD2:[2]	2010, 2013, 2016,	*Household and similar electrical appliances – Safety – Part 1: General requirements*		
IEC 60335-2-29:	2016,	*Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers*		
IEC 60384-14,		*Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*		
IEC 60417,		*Graphical symbols for use on equipment*		
IEC 60529: IEC 60529/AMD1: IEC 60529/AMD2:[3]	1989, 1999, 2013,	*Degrees of protection provided by enclosures (IP Code)*		
IEC 60695-2-11,		*Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*		

[2] There exists a consolidated edition 5.2 (2016) that includes edition 5 and its Amendment 1 and Amendment

[3] There exists a consolidated edition 2.2 (2013) that includes edition 2 and its Amendment 1 and Amendment 2.

IEC 60695-2-13,		*Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*
IEC 60695-10-2,		*Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*
IEC 60695-11-5:	2005,	*Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*
IEC 60695-11-10,		*Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*
IEC 60730 (All Parts),		*Automatic electrical controls*
IEC 60730-1: IEC 60730-1:2013/AMD1[4]	2013, 2013,	*Automatic electrical controls – Part 1: General requirements*
IEC 60748-1,		*Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification*
IEC 60990:	2016,	*Methods of measurement of touch current and protective conductor current*
IEC 61000-4-2:	2008,	*Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*
IEC 61000-4-3: IEC 61000-4-3/AMD1: IEC 61000-4-3/AMD2:[5]	2006, 2007 2010,	*Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*
IEC 61000-4-4:	2012,	*Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*
IEC 61000-4-5:	2014,	*Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*
IEC 61000:	2013,	*Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

4 There exists a consolidated edition 5.1 (2015) that includes edition 5 and its Amendment 1.

5 There exists a consolidated edition 3.2 (2010) that includes edition 3 and its Amendment 1 and Amendment 2.

IEC 61000-4-11:	2004,	*Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*
IEC 61000-4-13 IEC 61000-4-13/AMD1: IEC 61000-4-13/AMD2:[6]	2002, 2009, 2015,	*Electromagnetic compatibility (EMC) – Part 4-13: Testing andmeasurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*
IEC 61032,		*Protection of persons and equipment by enclosures – Probes for verification*
IEC 61058-1:	2016,	*Switches for appliances – Part 1: General requirements*
IEC 61058-1-1:	2016	*Switches for appliances – Part 1-1: Requirements for mechanical switches*
IEC 61058-1-2:	2016,	*Switches for appliances – Part 1-2: Requirements for electronic switches*
IEC 61180,		*High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*
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*
IEC 61558-2-16,		*Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*
IEC 62133,		*Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications*
IEC 62233:	2005,	*Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure*

[6] There exists a consolidated edition 1.2 (2015) that includes edition 1 and its Amendment 1 and Amendment 2.

IEC 60471:	2006,	*Photobiological safety of lamps and lamp systems*
ISO 3864-1,		*Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*
ISO 8124-1:	2014,	*Safety of toys – Part 1: Safety aspects related to mechanical and physical properties*
ISO 7000,		*Graphical symbols for use on equipment – Registered symbols*
ISO 9772,		*Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

NOTES

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC TOYS – SAFETY

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 62115 has been prepared by subcommittee IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 2003, Amendment 1 (2004) and Amendment 2 (2010). This edition constitutes a technical revision.

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

– the general conditions for tests has been rewritten and modified (Clause 5);
– the criteria for reduced testing has been modified (Clause 6);
– warnings for toys using button batteries or coin batteries have been added (7.3.3.2, 7.3.3.3);
– warnings on ride-on toys have been added (7.5);
– the requirements concerning accessibility of batteries have been updated (13.4.1 and 13.4.2);
– added requirements to cover toys placed above a child (13.4.4);

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– updated the details for measurements of the optical radiation from the toy (Annex E);
– introduced an informative Annex I concerning measurement methods for toys with an integrated field source generating EMF;
– included a normative Annex J concerning safety of remote controls for electric ride-on toys.

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

FDIS	Report on voting
61/5319/FDIS	61/5371/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.

NOTE 1 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. When a definition concerns an adjective, the adjective and associated noun are also in bold.

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 2 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 or later than 36 months from the date of publication.

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

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

As a general rule, electric toys are designed and manufactured for particular categories of children. Their characteristics are related to the age and stage of development of the children and their intended use presupposes certain capabilities.

Accidents are frequently due to an electric toy either being given to a child for whom it is not intended or being used for a purpose other than for which it was designed. This standard does not eliminate parental responsibility for the appropriate selection of electric toys. It is assumed that when choosing an electric toy or a game, account is taken of the physical and mental development of the child who will be playing with it.

The aim of this standard is to reduce risks when playing with electric toys, especially those risks that are not evident to users. However, it has to be recognized that some electric toys have risks inherent in their use that cannot be avoided. Consideration has been given to reasonably foreseeable use, bearing in mind that children are not generally as careful as adults.

While this standard applies to new electric toys, it nevertheless takes into account the wear and tear of electric toys in use.

The fact that an electric toy complies with this standard does not absolve parents and other persons in charge of a child from the responsibility of supervising the child. Supervision is also necessary when children of various ages have access to the same electric toy.

This standard covers the whole range of electric toys from small button battery or coin battery operated lights to large ride-on electric toys powered by rechargeable batteries. This results in different requirements and tests according to the type of electric toy. For some electric toys, testing can be reduced if particular criteria are met (see Clause 6).

Other safety aspects of electric toys are described in the ISO 8124 series of standards.

An electric toy that complies with the text of this standard will not necessarily be judged to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

A electric toy employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the standard.

Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

IEC (http://patents.iec.ch) maintains an on-line database of patents relevant to its standards. Users are encouraged to consult the database for the most up to date information concerning patents.

ELECTRIC TOYS – SAFETY

1 Scope

This International Standard specifies safety requirements for **electric toys** that have at least one function dependant on electricity, **electric toys** being any product designed or intended, whether or not exclusively, for use in play by children under 14 years of age.

NOTE 1 Examples of **electric toys** also within the scope of this standard are

- **constructional sets**;
- **experimental sets**;
- functional **electric toys** (an **electric toy** that performs and is used in the same way as a product, appliance or installation intended for use by adults, and which may be a scale model of such product, appliance or installation);
- **electric toy** computers;
- a doll's house having an interior lamp.

Additional requirements for **experimental sets** are given in Annex A.

Additional requirements for **electric toys** incorporating optical radiation sources are given in Annex E.

Measurement methods for **electric toys** generating electromagnetic fields (EMF) are given in Annex I.

Additional requirements for the safety of **remote controls** for **electric ride-on toys** are given in Annex J.

If the packaging is intended to have play value then it is considered to be part of the **electric toy**.

This International Standard only covers the safety aspects of **electric toys** that relate to an electrical function.

NOTE 2 The ISO 8124 series of standards address other aspects of the safety of **electric toys**. Other horizontal product standards may also apply to **electric toys**.

This standard covers the safety of **electric toys** taking power from any source, such as batteries, transformers, solar cells and inductive connections.

NOTE 3 **Transformers for toys** (IEC 61558-2-7 for linear types or IEC 61558-2-7 and IEC 61558-2-16 for switch mode types), **battery chargers** (IEC 60335-2-29) and **battery chargers** for use by children (IEC 60335-2-29 Annex AA:) are not considered to be part of an **electric toy** even if supplied with an **electric toy**.

NOTE 4 This standard is not intended to assess the safety of batteries however it does address the safety of the **electric toy** with the batteries inserted.

This International Standard does not apply to the following products:

- automatic playing machines, whether coin operated or not, intended for public use (IEC 60335-2-82);
- **toy** vehicles equipped with combustion engines;
- **toy** steam engines;
- slings and catapults;
- electric decorative robots;