

Australian/New Zealand Standard™

**Household and similar electrical
appliances—Safety**

**Part 2.2: Particular requirements for
vacuum cleaners and water-suction
cleaning appliances
(IEC 60335-2-2 Ed 7, MOD)**



AS/NZS 60335.2.2:2020

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 17 June 2020 and by the New Zealand Standards Approval Board on 3 June 2020.

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This Standard was issued in draft form for comment as DR 19914.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 60335.2.2:2020

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2.2: Particular requirements for vacuum cleaners and
water-suction cleaning appliances****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 60335.2.2:2018 three years from the date of publication of this Standard. During this period AS/NZS 60335.2.2:2018 will also remain current. Regulatory authorities that reference this Standard in regulation may apply those requirements at a different time. Users of this Standard should consult with these authorities to confirm their requirements.

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 60335-2-2 Ed 7, prepared by IEC Technical Subcommittee 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.

The principal changes in this edition as compared with the 2018 edition of AS/NZS 60335.2.2 are as follows (minor changes are not listed):

- the text has been aligned with the 2011 edition of Part 1;
- some requirements for appliances for animal grooming have been modified (6.1, 25.7);
- the note in 7.101 has been deleted;
- converted some notes to normative text (7.102, 10.1, 11.3, 13.1, 15.2, 15.101, 19.101, 20.1, 20.2, 21.103, 21.105, 22.5, 25.23);
- clarification that the test of 19.7 is applicable to vacuum cleaners with a motorized brush or similar device;
- modified Annex R for alignment with 22.201 of Annex B;
- modified Annex S in accordance with IEC 60335-2-2:2009/ISH1:2016;
- requirements for mechanical strength of handles have been added (21.106).

This Standard is an adoption with national modifications of the seventh edition of IEC 60335-2-2, *Household and similar electrical appliances – Safety – Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances*. 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 60335.1 *Household and similar electrical appliances – Safety – Part 1: General requirements* and its Amendments. It was established on the basis of AS/NZS 60335.1:2011.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 60335.1 so as to convert it into the Australian/New Zealand Standard: Safety requirements for vacuum cleaners and water-suction cleaning appliances.

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.

The essential safety requirements in AS/NZS 3820¹ that could be applicable to requirements for vacuum cleaners and water-suction cleaning appliances are covered by this standard.

The national variations to IEC 60335-2-2 Ed 7 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).

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

The text of the International Standard IEC 60335-2-2 Ed 7 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

AUSTRALIAN NATIONAL VARIATIONS

The following national variations to this Part 2 are additional to those listed in the national variations in AS/NZS 60335.1:2011.

6 Classification

- p 6.1 *Replace* the requirement by:

Vacuum cleaners and **water-suction cleaning appliances** shall be **class I, class II or class III**.

Vacuum cleaners for animal grooming shall be **class II or class III**.

7 Marking and Instructions

- p 7.1 *Add the following:*

Vacuum cleaner handles containing electrical connections operating at voltage other than **SELV** and accessories operating at voltages other than **SELV**, shall be marked with symbol IEC 60417-5036 and a supplementary safety information text panel which includes a hazard severity panel outlined in ISO 3864-2

The rules for warning signs in ISO 3864-1 apply to symbol IEC 60417-5036 and the rules for supplementary signs in ISO 3864-1 apply to the words "Danger" and "Live Parts Within"

- p 7.6 *Add the following:*



- p 7.12 *Add the following:*

The instructions for appliances with vacuum cleaner handles containing electrical connections operating at voltages other than **SELV** and accessories containing voltages other than **SELV**, shall include the substance of the following

CAUTION: The vacuum cleaner {handle or name of accessory} contains electrical connections the {handle or name of accessory} is not a serviceable part.

- p 7.4 *Add the following:*

The severity panel on the vacuum cleaner handle or accessories shall state "Danger". The supplementary safety information text panel shall state "Live Parts Within".

The words "DANGER" and "Live Parts Within" shall be in letters not less than 5 mm high. The base of the triangle of IEC 60417-5036 shall be not less than 20 mm.

- p 7.102 VOID

22 Construction

- p Add the following new subclause.

22.301 Vacuum cleaner handles containing electrical connections operating at voltages other than **SELV** and accessories operating at voltages other than **SELV**, shall

- be removable from the vacuum cleaner or its current carrying hose; or
- be constructed so that they are permanently secured by one way security screws, rivets or blind clips and cannot be opened without the degradation of the appliance.

Compliance is checked by inspection

24 Components

- p Add the following:

24.1.5 Addition:

*Appliance couplers used for supplying **motorized cleaning heads** operating at other than **SELV** shall comply with the requirements of IEC 60320-1 as far as they reasonably apply.*

NEW ZEALAND NATIONAL VARIATIONS

The following national variations to this Part 2 are additional to those listed in the national variations in AS/NZS 60335.1:2011.

6 Classification

- p **6.1** Replace the requirement by:

Vacuum cleaners and **water-suction cleaning appliances** shall be **class I**, **class II** or **class III**.

Vacuum cleaners for animal grooming shall be **class II** or **class III**.

7 Marking and Instructions

- p **7.1** Add the following:

Vacuum cleaner handles containing electrical connections operating at voltages other than **SELV** and accessories operating at voltages other than **SELV**, shall be marked with symbol IEC 60417-5036 and a supplementary safety information text panel which includes a hazard severity panel outlined in ISO 3864-2

The rules for warning signs in ISO 3864-1 apply to symbol IEC 60417-5036 and the rules for supplementary signs in ISO 3864-1 apply to the words "Danger" and "Live Parts Within"

- p **7.2** Add the following:



- p **7.12** Add the following:

The instructions for appliances with vacuum cleaner handles containing electrical connections operating at voltages other than **SELV** and accessories containing voltages other than **SELV**, shall include the substance of the following

CAUTION: The vacuum cleaner {handle or name of accessory} contains electrical connections the {handle or name of accessory} is not a serviceable part.

p **7.14** *Add the following:*

The severity panel on the vacuum cleaner handle or accessories shall state "Danger". The supplementary safety information text panel shall state "Live Parts Within".

The words "DANGER" and "Live Parts Within" shall be in letters not less than 5 mm high. The base of the triangle of IEC 60417-5036 shall be not less than 20 mm.

p **7.102** VOID

22 Construction

p *Add the following new subclause.*

22.301 Vacuum cleaner handles containing electrical connections operating at voltages other than **SELV** and accessories operating at voltages other than **SELV**, shall

- be removable from the vacuum cleaner or its current carrying hose; or
- be constructed so that they are permanently secured by one way security screws, rivets or blind clips and cannot be opened without the degradation of the appliance.

Compliance is checked by inspection

24 Components

p *Add the following:*

24.1.5 *Addition:*

*Appliance couplers used for supplying **motorized cleaning heads** operating at other than **SELV** shall comply with the requirements of IEC 60320-1 as far as they reasonably apply.*

**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 publication 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>AS/NZS</u>	<u>Year</u>
IEC 60312-1,		<i>Vacuum cleaners for household use – Part 1: Dry vacuum cleaners – Methods for measuring the performance</i>		
IEC 60584-1,		<i>Thermocouples – Part 1: EMF specifications and tolerances</i>		
ISO 216,		<i>Writing paper and certain classes of printed matter – Trimmed sizes – A and B series, and indication of machine direction</i>		
ISO 6344-2		<i>Coated abrasives – Grain size analysis – Part 2: Determination of grain size distribution of macrogrits 12 to P220</i>		
ISO 7010:	2011	<i>Graphical symbols – Safety colours and safety signs – Registered safety Signs</i>		
ISO 14688-1,		<i>Geotechnical investigation and testing – Identification and classification of soil – Part 1: Identification and description</i>		

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances

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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- 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 60335-2-2 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This seventh edition cancels and replaces the sixth edition published in 2009, Amendment 1:2012 and Amendment 2:2016. This edition constitutes a technical revision.

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

- some requirements for appliances for animal grooming have been modified (6.1, 25.7)
- the note in 7.101 has been deleted;
- converted some notes to normative text (7.102, 10.1, 11.3, 13.1, 15.2, 15.101, 19.101, 20.1, 20.2, 21.103, 21.105, 22.32, 25.23);

- clarification that the test of 19.7 is applicable to vacuum cleaners with a motorized brush or similar device;
- modified Annex R for alignment with 22.201 of Annex B;
- modified Annex S in accordance with IEC 60335-2-2:2009/ISH1:2016;
- requirements for mechanical strength of handles have been added (21.106).

The text of this International Standard is based on the following documents:

FDIS	Report on voting
61/5790/FDIS	61/5807/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This Part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This Part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for vacuum cleaners and water-suction cleaning appliances.

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 in Part 1 is to be adapted accordingly.

NOTE 2 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.

NOTE 3 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 the associated noun are also in bold.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE 4 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.

The following differences exist in the countries indicated below.

- 3.1.9: Normal operation is defined differently and any control operating before 20 s is defeated when determining P_i (USA).
- 6.1: Class 0 appliances are allowed (Canada, Japan, USA).
- 6.1: Household vacuum cleaners are required to be class II or class III (Denmark and Norway).
- 6.2: IPX4 is not required (USA).
- 7.1: The additional marking for appliance outlets for accessories is not required (USA).
- 7.1: Appliance and outlet ratings are to be marked in amps. (USA).
- 10.1: The power input of booster settings is taken into account (USA).
- 11.3: Surface temperatures are measured with thermocouples (USA).
- 11.5: Booster settings are activated every 2 min out of 8 min (USA).
- 11.7: The test is carried out with one-third of the cord unreeled until steady conditions are established (USA).
- 11.8: Surface temperature limits are different (USA).
- 15.2: The test is carried out differently (USA).
- 16.3: The test is carried out differently (USA).
- 21.106 The test is carried out differently (USA).

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 persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered 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.

An appliance 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 considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric vacuum cleaners and **water-suction cleaning appliances** for household and similar purposes, including vacuum cleaners for animal grooming, their **rated voltage** being not more than 250 V. It also applies to **centrally-sited vacuum cleaners** and **automatic battery-operated cleaners**.

This standard also applies to **motorized cleaning heads** and current-carrying hoses associated with a particular vacuum cleaner.

Battery-operated appliances and other DC supplied appliances are within the scope of this standard. Dual supply appliances, either mains-supplied or battery-operated, are regarded as **battery-operated appliances** when operated in the battery mode.

Appliances not intended for normal household use, but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops and other premises for normal housekeeping purposes, are within the scope of this standard.

NOTE 101 Examples of such appliances are appliances intended to be used for normal housekeeping purposes in hotels, offices, schools, hospitals and similar premises.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

NOTE 103 This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- wet and dry vacuum cleaners, including power brush, for commercial use (IEC 60335-2-69).