AS/NZS 60335.1:2020

Australian/New Zealand Standard™

Household and similar electrical appliances — Safety

Part 1: General requirements (IEC 60335-1 Ed 5.2, MOD)

AS/NZS 60335.1:2020

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 and Power Supplies. It was approved on behalf of the Council of Standards Australia on 13 November 2020 and by the New Zealand Standards Approval Board on 7 October 2020.

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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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Australian/New Zealand Standard™

Household and similar electrical appliances — Safety

Part 1: General requirements (IEC 60335-1 Ed 5.2, MOD)

Originated in Australia and New Zealand as AS/NZS 60335.1:2002.
Jointly revised and redesignated AS/NZS 60335.1:2011.
Jointly revised and redesignated AS/NZS 60335.1:2020.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 60335.1:2020

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

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 60335.1:2011 and its amendments from the date of publication.

NOTE: Regulatory authorities that reference this Standard in regulation may apply these 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 60335-1 Ed 5.2, prepared by IEC Technical Committee 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 2011 edition of AS/NZS 60335.1 and its amendments are as follows (minor changes are not listed):

– reference to AS/NZS 3112 has been made an undated reference;
– figures, subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ;
– reference to AS/NZS 3112 has been included as a variation to subclause 5.2;
– subclause 22.3 is made VOID because its contents are covered by AS/NZS 3112;
– the national variations for 22.201 are updated and renumbered as AZ.22.201;
– the New Zealand national variation for the first dashed item of 7.1 has been modified by deletion of “at least”.

This Standard is an adoption with national modifications of the fifth edition of IEC 60335-1, *Household and similar electrical appliances – Safety – Part 1: General requirements* including its

- corrigendum 1 (July 2010);
- amendment 1 (2013) including its corrigendum 1 (January 2014);
- corrigendum 1 (April 2014) to IEC 60335-1 edition 5.1;
- amendment 2 (2016) including its corrigendum 1 (September 2016) and its ISH1 (April 2020)

It has been varied as indicated to take account of Australian and New Zealand conditions.

This part is to be used in conjunction with the appropriate Part 2 of AS/NZS 60335. The Parts 2 contain clauses to supplement or modify the corresponding clauses in this part to provide the relevant requirements for each type of appliance.

The National Variations in the 2020 edition of AS/NZS 60335.1 apply to all of the AS/NZS 60335 series parts 2.

NOTE 1 The following annexes contain provisions suitably modified from other IEC standards:

– Annex E Needle-flame test IEC 60695-11-5
– Annex F Capacitors IEC 60384-14
– Annex G Safety isolating transformers IEC 61558-1 and IEC 61558-2-6
– Annex H Switches IEC 61058-1
– Annex J Coated printed circuit boards IEC 60664-3
– Annex N Proof tracking test IEC 60112
– Annex R Software evaluation IEC 60730-1

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.;
– figures, subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ.

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.

p NOTE 4 In this document, p is used in the margin to indicate instructions for preparing a consolidated version.

The essential safety requirements in AS/NZS 3820[1] that could be applicable to household and similar electrical appliances are covered by this standard taken in conjunction with any other relevant requirements affecting safety.

The national variations to IEC 60335-1 Ed 5.2 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).

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

The text of the International Standard IEC 60335-1 Ed 5.2 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

AUSTRALIAN NATIONAL VARIATIONS

CLAUSE

p AZ.3.1.201 After Clause 3.1.12 *add* the following variation:

AZ.3.1.201

outlet load

maximum allowed load that may be connected to appliance outlets and socket outlets accessible to the user

Note to entry 1 A USB outlet is not considered to be an appliance outlet

p 5.2 *Add* the following variation:

If the tests of AZ.22.201 need to be performed they are carried out on separate appliances, the number of appliances is that required by AS/NZS 3112.

p 5.8.1 *Replace* with the following variation:

5.8.1 *Appliances for a.c. only are tested with a.c. at 50 Hz, and those for a.c. and d.c. are tested at a.c. 50 Hz or d.c., whichever is the more unfavourable supply.*

p AZ.5.201 After Clause 5.19 *add* the following variation:

AZ.5.201 *For appliances, other than **class III appliances**, that are intended for connection to the supply mains and that are not marked with*

- *a **rated voltage** of at least 240 V for single-phase appliances and at least 415 V for three-phase appliances, or*
- *a **rated voltage range** that includes 240 V for single-phase appliances and 415 V for three-phase appliances,*

*the **rated voltage** is equal to 240 V for single-phase appliances and 415 V for three-phase appliances, and the upper limit of the **rated voltage range** is equal to 240 V for single-phase appliances and 415 V for three-phase appliances. In addition, the **rated current** or **rated power input** is equal to the calculated value corresponding to 240 V for single-phase appliances and 415 V for three-phase appliances as appropriate.*

NOTE 1 Example of calculation

If the appliance is marked with a **rated voltage** of 230 V and a **rated current** "A" or a **rated power input** "P", it will be tested as if it is marked with a **rated voltage** of 240 V and a **rated current** of A x (240/230) or a **rated power input** of P x $(240/230)^2$.

p 6.1 *Replace* the requirement with the following variation:

Appliances shall be of one of the following classes with respect to protection against electric shock:

class I, **class II**, **class III**.

p 7.1 After the first paragraph of the requirement *insert* the following variation:

Appliances intended for connection to the supply mains, other than **class III appliances**, shall be marked with

– a **rated voltage** of at least:

- 230 V for single-phase appliances;
- 400 V for poly-phase appliances.

or

– a **rated voltage range** that includes:

- 230 V for single-phase appliances;
- 400 V for poly-phase appliances.

For appliance outlets and socket outlets accessible to the user

– that are incorporated in appliances connected to the supply mains; and
– that operate at **rated voltage;**

the appliance shall be marked with their maximum **outlet load** in watts.

p 7.13 *Replace* the requirement with the following variation:

Instructions and other text required by this standard shall be written in English.

p 7.15 After the last paragraph of the requirement *insert* the following variation:

The marking of the maximum **outlet load** shall be close to the appliance outlet or socket outlet.

p 10.1 After the last paragraph of the test specification *insert* the following variation:

Appliance outlets and socket outlets accessible to the user

– *that are incorporated in appliances connected to the supply mains; and*
– *that operate at **rated voltage;***

*are not loaded during the test, however their contribution to the power input is considered to be the marked **outlet load** per appliance outlet or socket-outlet.*

p 11.7 After the first paragraph of the test specification *insert* the following variation:

*Appliance outlets and socket outlets accessible to the user are loaded with a resistive load that gives the marked **outlet load** in watts.*

p 11.8 After the first paragraph of the test specification *insert* the following variation:

The pins of plug connectors inserted into appliance outlets accessible to the user and plugs inserted into socket outlets accessible to the user shall have a temperature rise not exceeding 45 K.

p 19.13 After the seventh paragraph of the test specification *insert* the following variation:

During and after the tests the no-load output voltage of an accessible safety extra-low voltage outlet or connector or Universal Serial Bus (USB) outlet shall not have increased by more than 3 V or 10% of its no-load output voltage in normal use, whichever is higher.

p 22.2 After the first paragraph of the requirement *insert* the following variation:

For stationary appliances permanently connected to the fixed wiring, compliance with this requirement is considered to be met if the instruction concerning disconnection incorporated in the fixed wiring is in accordance with AS/NZS 3000.

p 22.3 *Replace* the text with the following variation:

VOID

p 22.33 *Delete* the last sentence of the first paragraph of the requirement and introduce it as a new first paragraph of the requirement.

p AZ.22.201 After Clause 22.52 *add* the following variation:

AZ.22.201 Appliances having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112.

Compliance is checked as specified in Appendix J of AS/NZS 3112

p AZ.22.202 After AZ.22.201 *add* the following variation:

AZ.22.202 Appliance outlets and socket outlets accessible to the user

– that are incorporated in appliances connected to the supply mains; and
– that operate at **rated voltage;**

shall be single-phase and have a current rating not exceeding 16 A.

The socket outlets shall

– comply with AS/NZS 3112;
– accept a 3-pin, flat-pin plug as described in Figure 2.1(a1) of AS/NZS 3112.

The appliance outlets and socket outlets shall be protected by one of the following protection devices that has a current rating not exceeding the current rating of the appliance outlet or socket-outlet:

– a circuit breaker for equipment complying with IEC 60934;
– a manually resettable trip-free or cycling trip-free overcurrent **protection device**;
– a non-user replaceable fuse-link.

The protection device shall be placed behind a **non-detachable cover**. The actuating member of the circuit breaker and the manually resettable **protection device** may be accessible.

The current rating of the appliance outlets and socket outlets is obtained from the marked **outlet load** in watts divided by the **rated voltage**.

*Compliance is checked by inspection and for a manually resettable trip-free or cycling trip-free overcurrent **protection device** by the following tests.*

*The device shall be operated at **rated voltage** at 136% of its current rating, in an ambient temperature of 23°C ± 2°C in a draught-free environment.*

The device shall operate to interrupt the current within 2 h.

*The device shall be operated at **rated voltage** at 600% of its current rating in an ambient temperature of 23°C ± 2°C in a draught-free environment.*

The device shall operate to interrupt the current within 5 s.

Immediately following the overcurrent tests, the test of clause 16.3 shall be applied, and the device shall comply with the specified requirements of the test.

The device shall comply with the ball pressure test of 30.1 carried out at 160 °C.

The device shall comply with the glow-wire test of 30.2.3.1 with a test severity of 960 °C.

p 24.1 Before Note 1, *insert* the following variation.

NOTE 201 The relevant IEC standard may be replaced with the relevant Australia/New Zealand standard where applicable.

p 24.1.7 *Add the following variation to the test specification:*

Telecommunication interface circuitry must comply with the Telecom Labelling Notice issued under the Telecommunications Act instead of IEC 62151.

NOTE 201 The Telecommunications Act is administered by the Australian Media and Communications Authority.

p 25.1 After the requirement *insert* the following variation.

Supply cords for single-phase **portable appliances** intended for direct connection to the supply mains, shall be fitted with an appropriate plug complying with AS/NZS 3112.

p Table 11 In footnote *a insert* the following variation:

However, they cannot be used in **class I appliances**.

NEW ZEALAND NATIONAL VARIATIONS

p AZ.3.1.201 After Clause 3.1.12 *add* the following variation:

AZ.3.1.201

outlet load

maximum allowed load that may be connected to appliance outlets and socket outlets accessible to the user

Note to entry 1 A USB outlet is not considered to be an appliance outlet

p 5.2 *Add* the following variation:

If the tests of AZ.22.201 need to be performed they are carried out on separate appliances, the number of appliances is that required by AS/NZS 3112.

p 5.8.1 *Replace* with the following variation:

5.8.1 *Appliances for a.c. only are tested with a.c. at 50 Hz, and those for a.c. and d.c. are tested at a.c. 50 Hz or d.c., whichever is the more unfavourable supply.*

p 6.1 *Replace* the requirement with the following variation:

Appliances shall be of one of the following classes with respect to protection against electric shock:

class I, **class II**, **class III**.

p 7.1 After the first paragraph of the requirement *insert* the following variation:

Appliances intended for connection to the supply mains, other than **class III appliances**, shall be marked with

– a **rated voltage** of:

- 230 V for single-phase appliances;
- 400 V for poly-phase appliances.

or

– a **rated voltage range** that includes:

- 230 V for single-phase appliances;
- 400 V for poly-phase appliances.

For appliance outlets and socket outlets accessible to the user

– that are incorporated in appliances connected to the supply mains; and

– that operate at **rated voltage;**

the appliance shall be marked with their maximum **outlet load** in watts.

p 7.13 *Replace* the requirement with the following variation:

Instructions and other text required by this standard shall be written in English.

p 7.15 After the last paragraph of the requirement *insert* the following variation:

The marking of the maximum **outlet load** shall be close to the appliance outlet or socket outlet.

p 10.1 After the last paragraph of the test specification *insert* the following variation:

Appliance outlets and socket outlets accessible to the user

– *that are incorporated in appliances connected to the supply mains; and*

– *that operate at **rated voltage;***

*are not loaded during the test, however their contribution to the power input is considered to be the marked **outlet load** per appliance outlet or socket-outlet.*

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*Appliance outlets and socket outlets accessible to the user are loaded with a resistive load that gives the marked **outlet load** in watts.*

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p 22.3 *Replace* the text with the following variation:

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p 22.33 *Delete* the last sentence of the first paragraph of the requirement and introduce it as a new first paragraph of the requirement.

p AZ.22.201 After Clause 22.52 *add* the following variation:

AZ.22.201 Appliances having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112.

Compliance is checked as specified in Appendix J of AS/NZS 3112

p. AZ.22.202 After AZ.22.201 *add* the following variation:

AZ.22.202 Appliance outlets and socket outlets accessible to the user

– that are incorporated in appliances connected to the supply mains; and

– that operate at **rated voltage;**

shall be single-phase and have a current rating not exceeding 16 A.

The socket outlets shall