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Australian STANDARD®

STANDARDS Australia

Switches for household and similar fixed electrical installations

Part 2.1: Particular requirements — Electronic switches (IEC 60669-2-1:2021, MOD)



AS 60669.2.1:2026

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Switches for household and similar fixed electrical installations

Part 2.1: Particular requirements — Electronic switches (IEC 60669-2-1:2021, MOD)

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Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

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The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

This Standard is a modified adoption of an International Standard. It makes changes to the international text.

The changes to the international text are shown in boxes in the text. These boxes have the heading "National Variations".

To use this Standard in Australia/New Zealand, the changes in the national variation boxes need to be followed.

Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-004, Electrical Accessories, to supersede AS 60669.2.1:2020, *Switches for household and similar fixed electrical installations Part 2.1: Particular requirements — Electronic switches (IEC 60669 2 1, Ed.4.2. (2015) MOD)*.

The objective of this document is to provide electrical industries with requirements for electronic switches, intended for household and similar fixed electrical installations either indoors or outdoors.

The essential safety requirements in AS/NZS 3820, Essential safety requirements for electrical equipment, which could be applicable to Switches for household and similar fixed electrical installations - electrionic control device, are covered by this document, taken in conjunction with any other relevant requirements affecting safety.

AS 60669.2.1:2020 will also remain current for 24 months after the date of publication of this document and after this time it will be superseded by AS 60669.2.1:2026. Regualtory authorities that reference this document in regulation can apply these requirements at a different time. Users of this document should consult with these authorities to confirm their requirements.

This document is an adoption with national modifications, and has been reproduced from IEC 60669 2 1:2021, *Switches for household and similar fixed electrical installations — Part 2-1: Particular requirements — Electronic control devices*. The modifications are set out in national variations boxes which give instructions where the ISO/IEC text is to be modified for use in Australia. Due to ISO/IEC copyright policy it is not possible to directly modify the ISO/IEC content.

This document is to be used in conjunction with AS/NZS 60669.1:2020 + A1:2022, *Switches for household and similar fixed-electrical installations, Part 1: General requirements*, which provides general requirements on this subject.

As this document has been reproduced from an international document, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Contents

Page

Preface ..... **v**
FOREWORD ..... **xi**
1 Scope **1**
2 Normative references **2**
3 Terms and definitions **5**
4 General requirements **9**
5 General remarks on tests **9**
5.101 Particular requirements 10
6 Ratings **11**
6.1 Rated voltage 11
6.2 Rated current 11
6.3 Preferred combinations of number of poles and ratings 11
6.101 Preferred rated supply frequency 11
7 Classification **11**
8 Marking **13**
8.1 General 13
8.2 Symbols 14
8.3 Visibility of markings 15
8.4 Marking on terminals for phase conductors 16
8.6 Marking of the switch position 16
8.7 Additional requirements for marking 16
9 Checking of dimensions **17**
10 Protection against electrical shock **17**
10.1 Prevention of access to live parts 17
10.2 Requirements for operating parts 17
10.101 Requirements for fuse replacement or adjustment of control setting 18
10.102 Ventilation openings 18
10.103 SELV, PELV or FELV circuits 18
10.104 Protection from touch current 18
10.104.1 General 18
10.104.2 Permissible touch current when touching accessible parts of HBES/BACS switches 18
10.104.3 Limitation of the touch current from the device to the dedicated HBES/ BACS network 19
11 Provision for earthing **19**
11.101 Protective earthing continuity via printed circuit boards 19
12 Terminals **19**
12.1 General 19
12.2 Terminals with screw clamping for external copper conductors 20
13 Constructional requirements **20**
13.4 Openings in normal use 20
13.5 Attachment of knobs 20
13.9 Surface-type switches having an IP code higher than IP20 20
13.15 Requirements for membranes in inlet openings 21
13.15 Requirements for membranes in inlet opening and lenses 21
13.101 Cut-outs 21
13.102 Electronic switches and HBES/BACS switches for the control of the voltage of iron core transformers for extra-low-voltage incandescent lamps 21
13.103 Free ends of leads 21

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14 Mechanism 22
15 Resistance to ageing, protection provided by enclosures of switches and resistance to humidity 22
16 Insulation resistance and electric strength 22
16.1 General 22
17 Temperature rise 24
17.1 General 24
17.101 Looping through circuit 28
18 Making and breaking capacity 28
18.1 General 28
18.2 Overload 30
18.101 Contact mechanism for motor control circuits 30
18.102 Electronic switches and HBES/BACS switches for control of the voltage of iron core transformers for extra-low-voltage incandescent lamps 30
19 Normal operation 30
19.1 General 30
19.101 Contact mechanisms incorporated in electronic switches and HBES/BACS switches intended for incandescent lamp circuits 32
19.102 Contact mechanisms for externally ballasted lamps 32
19.103 Semiconductor switching devices and/or electronic regulating units incorporated in electronic switches and HBES/BACS switches 33
19.104 Mechanical control units incorporated in electronic switches and HBES/BACS switches 34
19.105 Electronic switches and HBES/BACS switches for which a minimum load or current is specified by the manufacturer 34
19.106 Contact mechanisms incorporated in electronic switches and HBES/BACS switches intended for self-ballasted lamps 34
19.107 Electronic switches and HBES/BACS switches designed for heating installations 36
19.108 Contact mechanisms for motor control circuits 37
20 Mechanical strength 37
21 Resistance to heat 37
21.2 Basic heating test 37
22 Screws, current-carrying parts and connections 37
23 Creepage distances, clearances and distances through sealing compound 37
23.1 General 38
23.101 Use of enamel wires 38
23.102 Separation between circuits 38
23.102.1 General 38
23.102.2 Specifications of insulation 41
23.102.3 Dimensioning of clearances of basic, double or reinforced insulation between circuits 41
23.102.4 Dimensioning of creepage distances of basic, double or reinforced insulation between circuits 43
23.102.5 Solid insulation 45
23.102.6 Protective separation of the supply for the SELV/PELV circuit 45
23.102.7 External creepage and clearance distance between clamping units 45
24 Resistance of insulating material to abnormal heat, to fire and to tracking 45
24.1 Glow-wire test 45
25 Resistance to rusting 45
26 EMC requirements 45
26.1 General 45
26.2 Immunity 46
26.2.1 General 46
26.2.2 Voltage dips and short interruptions 47

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26.2.3 Surge immunity test for 1,2/50 wave impulses 48
26.2.4 Electrical fast transient/burst test 49
26.2.5 Electrostatic discharge test 50
26.2.6 Radiated electromagnetic field test 50
26.2.7 Radio-frequency voltage test 51
26.2.8 Power-frequency magnetic field test 52
26.3 Emission 52
26.3.1 Low-frequency emission 52
26.3.2 Conducted radio-frequency emission on main, load/or control terminal 53
26.3.3 Conducted radio frequency emission 0,15 MHz to 30 MHz on TP media and communications terminals 53
26.3.4 Radiated radio frequency emission above 30 MHz 53

101 Abnormal conditions 54
101.1 General 54
101.2 Temperature rise under abnormal conditions 54
101.3 Protection against electric shock after fault conditions 56
101.4 Short circuit in the load circuit 56
101.5 Particular requirements for dimmers 57

102 Components 58
102.1 General 58
102.2 Fuses 59
102.3 Capacitors 59
102.4 Resistors 59
102.5 Automatic protective devices other than fuses 60
102.5.2 Cut-outs 61
102.5.3 Current reducing automatic protective devices 62
102.6 Transformers 62

103 Electromagnetic fields (EMF) 62

Annex A (normative) **68**

Annex B (informative) **Changes planned for the future in order to align IEC 60669–1 with the requirements of IEC 60998 (all parts), IEC 60999 (all parts) and IEC 60228 ..... 69**

Annex C (informative) **Circuit development (19.3) 70**

Annex D (informative) **Additional requirements for insulation-piercing terminals 71**

Annex E (informative) **Additional requirements and tests for switches intended to be used at a temperature lower than −5 °C 72**

Annex AA (informative) **Examples of types of electronic switches or HBES/BACS switches and their functions 77**

Annex BB (informative) **Circuit development: 19.106 explained 78**

Annex CC (normative) **Additional requirements for electronic control devices using DLT-technology in accordance with IEC 62756–1 ..... 83**

Annex DD (informative) **Test set-ups 85**

Annex EE (informative) **Electrical interface specification for phase-cut dimmer in phase-cut dimmed lighting systems 92**

Annex FF (normative) **Requirements for electronic RCS and electronic TDS that provide the function, markings and connection configuration in accordance with IEC 60669–2–2 and IEC 60669–2–3 ..... 127**

Bibliography 132

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List of Figures

Page

Figure 101 – Protective separation between circuits 40
Figure 102 – Current path tested in the looping through circuit 63
Figure 103 – Circuit diagram for testing electronic switches and HBES/BACS switches according to 17.101 and 101.4 63
Figure 104 – Minimum creepage and clearances on printed circuit boards 64
Figure 105 – Surge test 65
Figure 105 a) – Surge test – Test circuit 65
Figure 105 b) – Surge test – Example of a switch to be used in the test circuit 66
Figure 106 – Test pin for checking the protection against electric shock 67
Figure BB.1 – 120 V 15 W (LT spice model) 79
Figure BB.2 – 230 V 15 W (LT spice model) 80
Figure BB.3 – Model for multiple lamp loads 81
Figure BB.4 – I_{peak} and I^2t for multiple lamp loads 82
Figure DD.1 – Test setup for AC mains connection according to IEC 61000–4–4 85
Figure DD.2 – Test setup for bus and DC mains connection according to IEC 61000–4–4 86
Figure DD.3 – Test setup for AC mains connection according to IEC 61000–4–5 87
Figure DD.4 – Test setup for bus and DC mains connection according to IEC 61000–4–5 88
Figure DD.5 – Test setup for the ESD according to IEC 61000–4–2 89
Figure DD.6 – Test setup for AC mains connection according to IEC 61000–4–6 90
Figure DD.7 – Test setup for bus and DC mains connection according to IEC 61000–4–6 91
Figure EE.1 – Example of wiring diagram 95
Figure EE.2 – Timing leading edge dimming method 99
Figure EE.3 – Timing trailing edge dimming method 104
Figure EE.4 – Circuit to test the properties of the phase-cut dimmer during the non-conducting phase (Method 1) 110
Figure EE.5 – Circuit to test the properties of the phase-cut dimmer during the non-conducting phase (Method 2) 112
Figure EE.6 – Circuit to test the properties of the phase-cut dimmer during the transition from the non-conducting to the conducting phase 113
Figure EE.7 – Circuit to test the properties of the phase-cut dimmer during the electronic off-state 116
Figure EE.8 – Waveform of AC voltage source – Leading edge 117
Figure EE.9 – Waveform of AC voltage source – Trailing edge 117
Figure EE.10 – Equivalent circuit for controlgear in the on state to be used during dimmer tests 118
Figure EE.11 – Equivalent circuit for controlgear being in off state 119
Figure EE.12 – Test enclosure 122
Figure EE.13 – Geometry of microphone placement in regard to device under test 123
Figure EE.14 – Test circuit to test stability of phase angle 124
Figure EE.15 – Possibilities for proper triggering 125
Figure EE.16 – Equivalent circuit EC_CG2 126

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List of Tables

Page

Table 1 – Number of specimens needed for the tests 9
Table 15 – Test voltage, points of application and minimum values of insulating resistance for the verification of electric strength 22
Table 101 – Permissible temperature rise values 26
Table 102 – Application of tests for making and breaking capacity and normal operation for electronic switches and HBES/BACS switches according to 7.102.2 29
Table 103 – Relationship between rated current and capacitance 33
Table 104 – Values for I_{peak} and I^2t depending on the type of distribution system 35
Table 105 – Calculated circuit parameters 35
Table 106 – Test loads for HBES/BACS switches for heating installations 36
Table 23 – Creepage distances, clearances and distances through insulating sealing compound 38
Table 107 – Relation between the rated voltage of the HBES/BACS switch, the rated insulation voltage and the rated impulse voltage 41
Table 108 – Minimum clearances without verification test 42
Table 109 – Test voltages and corresponding altitudes 42
Table 110 – Minimum clearances with verification test 43
Table 111 – Minimum creepage distances of basic, supplementary and reinforced insulation without verification test for clearances 43
Table 112 – Minimum creepage distances of basic, supplementary and reinforced insulation with verification test for clearances 44
Table 113 – Immunity tests (overview) 47
Table 114 – Voltage dip and short-interruption test values 48
Table 115 – Surge immunity test voltages 48
Table 116 – Fast transient test values 49
Table 117 – Values for radiated electromagnetic field test of IEC 61000–4–3[a] 51
Table 118 – Measurement methods 53
Table 119 – Protection methods and test conditions 55
Table 120 – Capacitors 59
Table A.101 – Maximum current and minimum cross-sectional area 68
Table E.101 – Energy for impact tests 75
Table AA.1 – Functions overview 77
Table BB.1 – Lamp 78
Table EE.1 – Nominal mains voltage 100 V – Frequency 50 Hz or 60 Hz 100
Table EE.2 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz 100
Table EE.3 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz 100
Table EE.4 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz 101
Table EE.5 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz 101
Table EE.6 – Slew rate for voltage decrease across the phase-cut dimmer 101
Table EE.7 – Nominal mains voltage 100 V – Frequency 50 Hz or 60 Hz 102
Table EE.8 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz 102
Table EE.9 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz 102
Table EE.10 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz 103
Table EE.11 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz 103
Table EE.12 – Nominal mains voltage from 100 V to 277 V – Frequency 50 Hz or 60 Hz 105
Table EE.13 – Nominal mains moltage 100 V – Frequency 50 Hz or 60 Hz 106
Table EE.14 – Nominal mains voltage 120 V – Frequency 50 Hz or 60 Hz 106
Table EE.15 – Nominal mains voltage 200 V – Frequency 50 Hz or 60 Hz 107
Table EE.16 – Nominal mains voltage 230 V – Frequency 50 Hz or 60 Hz 107
Table EE.17 – Nominal mains voltage 277 V – Frequency 50 Hz or 60 Hz 108
Table EE.18 – Currents and voltages for controlgear during the electronic off state 109
Table EE.19 – Parameters for testing purposes 109
Table EE.20 – Parameters for testing purposes 120

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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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International Standard IEC 60669–2–1 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

This fifth edition cancels and replaces the fourth edition published in 2002, Amendment 1:2008 and Amendment 2:2015. This edition constitutes a technical revision.

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

a) incorporation of the requirements for HBES switches, previously included in IEC 60669–2–5;

b) modification of 19.106, test and requirements for switches for LEDs;

c) general indication to cover electronic control devices;

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d) test for looping through.

NATIONAL VARIATION

Fourth paragraph, *delete* "IEC 60669-1:2017" and *replace* with "AS/NZS 60669.1:2020 + A1:2022".

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

FDIS	Report on voting
23B/1326/FDIS	23B/1342/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.

This part of IEC 60669 is to be used in conjunction with IEC 60669–1:2017, hereinafter referred to as Part 1. It lists the changes necessary to convert that standard into a specific standard for electronic control devices.

In this document, the following print types are used:

– requirements proper: in roman type;

– *test specifications: in italic type;*

– notes: in smaller roman type.

Subclauses, figures, tables or notes which are additional to those in Part 1 are numbered starting from 101.

A list of all the parts in the IEC 60669 series, published under the general title *Switches for household and similar fixed electrical installations*, can be found on the IEC website.

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.

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.

The contents of the corrigendum 1 (2024-05) only applies to the French version.

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Australian Standard®

Switches for household and similar fixed electrical installations

Part 2.1: Particular requirements — Electronic switches (IEC 60669-2-1:2021, MOD)

1 Scope

This clause of Part 1 is completely replaced by the following:

This part of IEC 60669 applies to electronic control devices, a general term to cover electronic switches, home and building electronic systems (HBES) / building automation and control systems (BACS) switches and electronic extension units.

It applies to electronic switches and to HBES/BACS switches, for alternating current (AC) only with a rated switching voltage not exceeding 250 V and a rated current not exceeding 16 A, intended for household and similar fixed electrical installations, either indoors or outdoors.

It also applies to electronic extension units with a rated supply voltage not exceeding 250 V AC and 120 V DC, such as sensors and push buttons.

This document also applies to electronic remote control switches (RCS) and electronic time delay switches (TDS). Particular requirements are given in Annex FF.

Switches including only passive components such as resistors, capacitors, inductors, positive temperature coefficient (PTC) and negative temperature coefficient (NTC) components, varistors, printed wiring boards and connectors are not considered as electronic control devices.

This document also applies to electronic switches and HBES/BACS switches for the operation of lighting equipment circuits and the control of the brightness of lighting equipment (dimmers) as well as the control of the speed of motors (for example, those used in ventilating fans) and for other purposes (for example, heating controls).

The operation and/or control as mentioned above can be transmitted by an electronic signal via several media, for example, powerline (mains), twisted pair, optical fibre, radio frequency, infrared, etc. and are performed:

– intentionally by a person via an actuating member, a key, a card, etc., via a sensing surface or a sensing unit, by means of touch, proximity, turn, optical, acoustic, thermal;

– by physical means, for example, light, temperature, humidity, time, wind velocity, presence of people;

– by any other influence.

This document also applies to electronic control devices which include integrated radio receivers and transmitters.

This document covers only those requirements for mounting boxes which are necessary for the tests on the electronic control devices.

Requirements for general purpose mounting boxes are given in the relevant part, if any, of IEC 60670.

Electronic control devices complying with this document are suitable for use at ambient temperature not normally exceeding 25 °C but occasionally reaching 35 °C with a lower limit of the ambient air temperature of −5 °C.

NOTE 1 For lower temperatures, see Annex E.

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Functional safety aspects are not covered by this document. Functional safety requirements are covered by the standards of the controlled devices.

In locations where special conditions prevail, such as in ships, vehicles and the like and in hazardous locations, for example where explosions are liable to occur, special construction and/or additional requirements may be required.

This document is not intended to cover devices which are designed to be incorporated in appliances or are intended to be delivered together with a specific appliance and which are within the scope of IEC 60730 (all parts) or IEC 61058–1.

Examples of designs of electronic switches and HBES/BACS switches and functions are shown in Annex AA.

Additional requirements for electronic control devices using DLT-technology in accordance with IEC 62756–1 are given in Annex CC.

Electrical interface specification for phase-cut dimmer used in phase-cut dimmed lighting systems are given for information only in Annex EE.

NOTE 2 Electronic switches and HBES/BACS switches without a mechanical switch in the main circuit do not provide a "full off-state". Therefore, the circuit on the load side are to be considered to be live.

2 Normative references

NATIONAL VARIATIONS

1. After first paragraph, *add* the following:

The Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC and CISPR normative references and are required for the application of this Standard. All references in the source text to those IEC and CISPR normative references shall be replaced by references to the corresponding Australian/New Zealand Standards. Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably.

2. *Delete* "IEC 60065:2001, *Audio, video and similar electronic apparatus — Safety requirements*" and *replace* with the following:

AS/NZS 60065:2018, *Audio, video and similar electronic apparatus — Safety requirements (IEC 60065:2014 (ED. 8.0) MOD)*

3. *Delete "*IEC 61000-4-11:1994, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 11: Voltage dips, short interruptions and voltage variations immunity tests1)*" and *replace* with the following:

AS/NZS 61000.4.11:2005, *Electromagnetic compatibility (EMC), Part 4.11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11, Ed. 2.0 (2004) MOD)*

4. *Delete "*IEC 61558-2-6, *Safety of power transformers, power supply units and similar — Part 2: Particular requirements for safety isolating transformers for general use*" and *replace* with the following:

AS/NZS 61558.2.6, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V, Part 2.6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers (IEC 61558-2-6 Ed 2, MOD)*

5. *Delete "*CISPR 15:2013, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*" and *replace* with the following:

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