

Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current less than or equal to 16A per phase and not subject to conditional connection

AS/NZS 61000.3.3:2003

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality to supersede AS/NZS 61000.3.3:1998.

The objective of this Standard is to provide manufacturers, and suppliers of electricity and users of electrical equipment intended for connection to an electrical network, with limits for voltage disturbances and flicker produced by that equipment and the methods for ascertaining compliance to them in order to maintain electromagnetic compatibility within the electrical network.

This Standard is identical with and has been reproduced from IEC 61000-3-3:2002, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.*

This Standard is Part 3.3 of a series, which currently consists of the following:

AS/NZS

61000	Electromagnetic compatibility (EMC)
61000.1.1	Part 1.1: General—Application and interpretation of fundamental definitions and terms
61000.2.2	Part 2.2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems
61000.2.3	Part 2.3: Environment—Description of the environment—Radiated and non-network-frequency-related conducted phenomena
61000.2.5	Part 2.5: Environment—Classification of electromagnetic environments
61000.2.12	Part 2.12: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public medium-voltage power supply systems
61000.3.2	Part 3.2: Limits—Limits for harmonic current emissions (equipment input current less than or equal to 16 A per phase)
61000.3.3	Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current less than or equal to 16 A per phase and not subject to conditional connection (this Standard)
61000.3.5	Part 3.5: Limits—Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 16 A
61000.3.6	Part 3.6: Limits—Assessment of emission limits for distorting loads in MV and HV power systems
61000.3.7	Part 3.7: Limits—Assessment of emission limits for fluctuating loads in MV and HV power systems
61000.3.11	Part 3.11: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems—Equipment with rated current less than or equal to 75 A and subject to conditional connection
61000.4.1	Part 4.1: Testing and measurement techniques—Overview of immunity tests
61000.4.2	Part 4.2: Testing and measurement techniques—Electrostatic discharge immunity test
61000.4.3	Part 4.3: Testing and measurement techniques—Radiated radio-frequency electromagnetic field immunity test

61000.4.5	Part 4.5:	Testing and measurement techniques—Surge immunity test
61000.4.6	Part 4.6:	Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields
61000.4.7	Part 4.7:	Testing and measurement techniques—General guide on harmonics and interharmonics measures and instrumentation, for power supply systems and equipment connected thereto
61000.4.8	Part 4.8:	Testing and measurement techniques—Power frequency magnetic field immunity test
61000.4.16	Part 4.16:	Testing and measurement techniques—Test for immunity to conductor common mode disturbances in the frequency range 0 Hz to 150 kHz
61000.6.2	Part 6.2:	Generic standards—Immunity for industrial environments

This Standard is concerned with the limitation of voltage fluctuations and flicker impressed on a low-voltage electricity supply system. It specifies limits of voltage changes from equipment such as motor-driven appliances, cooking appliances, lighting equipment, direct water heaters, air conditions, refrigeration equipment, arc welding equipment and audio-frequency amplifiers with rated current less than or equal to 16 A under specified conditions. The tests and conditions are included.

This Standard should be read in conjunction with the regulations, service rules and installation rules of the supply authority approving the connection.

A reference to an International Standard identified in the Normative References Clause by strikethrough (~~example~~) is replaced by a reference to the Australian or Australian/New Zealand Standard(s) listed immediately thereafter and identified by shading (**example**). Where the struck-through referenced document and the referenced Australian or Australian/New Zealand Standard are identical, this is indicated in parenthesis after the title of the latter.

In this Standard, the following print types are used:

- requirements proper: in arial type;
- *test specifications: in italic type;*
- explanatory matter: in smaller arial type.

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

- (a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text ‘this standard’ should read ‘this Australian/New Zealand Standard’.
- (c) A full point should be substituted for a comma when referring to a decimal marker.

The term ‘normative’ has been used in this Standard to define the application of the annex to which it applies. A ‘normative’ annex is an integral part of a Standard.

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AUSTRALIA/NEW ZEALAND

Australian/New Zealand Standard**Electromagnetic compatibility (EMC)****Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current less than or equal to 16A per phase and not subject to conditional connection**

1 Scope

This part of AS/NZS 61000.3 is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

It specifies limits of voltage changes which may be produced by an equipment tested under specified conditions and gives guidance on methods of assessment.

This part of AS/NZS 61000 is applicable to electrical and electronic equipment having an input current equal to or less than 16 A per phase, intended to be connected to public low-voltage distribution systems of between 220 V and 250 V line to neutral at 50 Hz, and not subject to conditional connection.

Equipment which does not comply with the limits of this part of AS/NZS 61000 when tested with the reference impedance Z_{ref} of 6.4, and which therefore cannot be declared compliant with this part, may be retested or evaluated to show conformity with IEC 61000-3-11. Part 3-11 is applicable to equipment with rated input current ≤ 75 A per phase and subject to conditional connection.

The tests according to this part are type tests. Particular test conditions are given in annex A and the test circuit is shown in figure 1.

NOTE The limits in this part of AS/NZS 61000 are based mainly on the subjective severity of flicker imposed on the light from 230 V/60 W coiled-coil filament lamps by fluctuations of the supply voltage. For systems with nominal voltage less than 220 V line to neutral and/or frequency of 60 Hz, the limits and reference circuit values are under consideration.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of the IEC and the ISO maintain registers of currently valid International Standards.

References to International Standards that are struck through in this Clause are replaced by references to equivalent Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is appropriately identified.

IEC 60050(161): *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*