AS/NZS 61000.2.2:2003
IEC 61000-2-2:2002

Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 2.2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-034, Power Quality. It was approved on behalf of the Council of Standards Australia on 10 June 2003 and on behalf of the Council of Standards New Zealand on 24 June 2003. It was published on 24 July 2003.

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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality.

The objective of this Standard is to specify compatibility levels for electromagnetic disturbances of the type which can be expected in public low-voltage power supply systems.

This Standard is identical with and has been reproduced from IEC 61000-2-2:2002, *Electromagnetic compatibility (EMC)*—Part 2-2: *Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems.*

This Standard is Part 2.2 of a series, which, when complete, will consist 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 (this Standard)
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
61000.3.5	Part 3.5:	Limits—Limitation of voltage fluctuations and flicker in low-voltage 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
61000.3.12	Part 3.12:	Limits—Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A
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 made disturbances in the frequency range 0 Hz to 150 kHz
61000.6.2	Part 6.2:	Generic standards—Immunity for industrial environments

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 ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

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1 Scope and object

This standard is concerned with conducted disturbances in the frequency range from 0 kHz to 9 kHz, with an extension up to 148,5 kHz specifically for mains signalling systems. It gives compatibility levels for public low voltage a.c. distribution systems having a nominal voltage up to 420 V, single-phase or 690 V, three-phase and a nominal frequency of 50 Hz or 60 Hz.

The compatibility levels specified in this standard apply at the point of common coupling. At the power input terminals of equipment receiving its supply from the above systems the severity levels of the disturbances can, for the most part, be taken to be the same as the levels at the point of common coupling. In some situations this is not so, particularly in the case of a long line dedicated to the supply of a particular installation, or in the case of a disturbance generated or amplified within the installation of which the equipment forms a part.

Compatibility levels are specified for electromagnetic disturbances of the types which can be expected in public low voltage power supply systems, for guidance in:

– the limits to be set for disturbance emission into public power supply systems (including the planning levels defined in 3.1.5).
– the immunity limits to be set by product committees and others for the equipment exposed to the conducted disturbances present in public power supply systems.

The disturbance phenomena considered are:

– voltage fluctuations and flicker;
– harmonics up to and including order 50;
– inter-harmonics up to the 50^{th} harmonic;
– voltage distortions at higher frequencies (above the 50^{th} harmonic);
– voltage dips and short supply interruptions;
– voltage unbalance;
– transient overvoltages;
– power frequency variation;
– d.c. components;
– mains signalling.

Most of these phenomena are described in IEC 61000-2-1. In cases where it is not yet possible to establish compatibility levels, some information is provided.