

Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 4.16: Testing and measurement techniques—Test for immunity to conducted common mode disturbances in the frequency range 0 Hz to 150 kHz



AS/NZS 61000.4.16:2002

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 27 August 2002 and on behalf of the Council of Standards New Zealand on 20 August 2002.

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The following are represented on Committee EL-034:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Consumers Association
Australian Electrical and Electronic Manufacturers Association
Australian Institute of Petroleum
Bureau of Steel Manufacturers of Australia
Electricity Engineers Association (New Zealand)
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PREFACE

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

This Standard incorporates Amendment No. 1 (May 2012). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to establish a common and reproducible basis for testing electrical and electronic equipment with the application of common mode disturbances to power supply, control, signal and communication ports.

This Standard is identical with and has been reproduced from IEC 61000-4-16:1998, *Electromagnetic compatibility (EMC), Part 4-16: Testing and measurement techniques—Test for immunity to conducted common mode disturbances in the frequency range 0 Hz to 150 kHz* and Amendment No. 1:2001, which is incorporated in the source text, and Amendment 2 (2009), which has been added at the end of the document.

This Standard is Part 4.16 of a series, which, when complete, will consist of the following:

AS/NZS

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|-------|--|
| 61000 | Electromagnetic compatibility (EMC) |
| | Part 1.1: General—Application and interpretation of fundamental definitions and terms |
| | Part 2.2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems |
| | Part 2.3: Environment—Description of the environment—Radiated and non-network-frequency-related conducted phenomena |
| | Part 2.5: Environment—Classification of electromagnetic environments |
| | Part 2.12: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public medium-voltage power supply systems |
| | Part 3.2: Limits—Limits for harmonic current emissions (equipment input current less than or equal to 16 A per phase) |
| | Part 3.3: Limits—Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current less than or equal to 16 A |
| | 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 |
| | Part 3.6: Limits—Assessment of emission limits for distorting loads in MV and HV power systems |
| | Part 3.7: Limits—Assessment of emission limits for fluctuating loads in MV and HV power systems |
| | 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 |
| | 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 |
| | Part 4.1: Testing and measurement techniques—Overview of immunity tests |
| | Part 4.2: Testing and measurement techniques—Electrostatic discharge immunity test |
| | Part 4.3: Testing and measurement techniques—Radiated radio-frequency electromagnetic field immunity test |
| | Part 4.5: Testing and measurement techniques—Surge immunity test |
| | Part 4.6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields |

- Part 4.7: Testing and measurement techniques—General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto
- Part 4.8: Testing and measurement techniques—Power frequency magnetic field immunity test
- Part 4.16: Testing and measurement techniques—Test for immunity to conducted common mode disturbances in the frequency range 0 Hz to 150 kHz (this Standard)
- Part 6.2: Generic standards—Immunity for industrial environments

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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Australian/New Zealand Standard**Electromagnetic compatibility (EMC)****Part 4.16: Testing and measurement techniques—Test for immunity to conducted common mode disturbances in the frequency range 0 Hz to 150 kHz**

1 Scope

This part of AS/NZS 61000 relates to the immunity requirements and test methods for electrical and electronic equipment to conducted, common mode disturbances in the range d.c. to 150 kHz.

The object of this standard is to establish a common and reproducible basis for testing electrical and electronic equipment with the application of common mode disturbances to power supply, control, signal and communication ports.

This standard defines

- test voltage and current waveform;
- range of test levels;
- test equipment;
- test set-up;
- test procedures.

For some types of ports, for example ports intended to be used with highly balanced lines, additional test provisions may be established by product committee specifications.

The test is intended to demonstrate the immunity of electrical and electronic equipment when subjected to conducted, common mode disturbances such as those originating from power line currents and return leakage currents in the earthing/grounding system.

The disturbances produced by 400 Hz mains systems are not included in the scope of this standard.

Actual interference due to these disturbance phenomena is relatively rare, except in industrial plants. Product Committees should therefore consider whether there is a justification for applying this standard in their Product/Product Family standards (see also clause 3).

This test is not relevant for equipment ports intended to be connected to short cables, having a length less than 20 m or less.

The immunity to harmonics and interharmonics, including mains signalling, on a.c. power ports (in differential mode) is not included in the scope of this standard and is covered by IEC 61000-4-13.