AS/NZS 61000.4.13:2012
IEC 61000-4-13, Ed.1.1 (2009)

AS/NZS 61000.4.13:2012

Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 4.13: Testing and measurement techniques—Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

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 4 May 2012 and on behalf of the Council of Standards New Zealand on 26 April 2012.
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The following are represented on Committee EL-034:

Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Information Industry Association
Bureau of Steel Manufacturers of Australia
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Electrical Regulatory Authorities Council
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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 or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 61000.4.13.

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Electromagnetic compatibility (EMC)

Part 4.13: Testing and measurement techniques—Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

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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 61000.4.13:2006, *Electromagnetic compatibility (EMC)*—Part 4.13*: Testing and measurement techniques—Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*.

The objective of this Standard is to establish a common reference for evaluating the functional immunity of electrical and electronic equipment when subjected to harmonics and interharmonics and mains signalling frequencies.

This Standard is identical with, and has been reproduced from IEC 61000-4-13, Ed.1.1 (2009), *Electromagnetic compatibility (EMC)*—Part 4-13: *Testing and measurement techniques—Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*.

IEC 61000-4-13, Ed.1.1 (2009) consists of the IEC 61000-4-13, Ed.1.0 (2002) and its Amendment 1 (2009). A vertical line in the margin of the source document shows where the base publication has been modified by Amendment 1.

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

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text ‘this part of IEC 61000’ should read ‘this part of AS/NZS 61000’.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
IEC		AS/NZS	
61000	Electromagnetic compatibility (EMC)	61000	Electromagnetic compatibility (EMC)
61000-2-2	Part 2-2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	61000.2.2	Part 2.2: Environment—Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems
61000-3-2	Part 3-2: Limits—Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	61000.3.2	Part 3.2: Limits—Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
61000-4-7	Part 4-7: Testing and measurement techniques—General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	61000.4.7	Part 4.7: Testing and measurement techniques—General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto

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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FOREWORD

This consolidated version of IEC 61000-4-13 consists of the first edition (2002) and its amendment 1 (2009).

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

AUSTRALIAN/NEW ZEALAND STANDARD

Electromagnetic compatibility (EMC)

Part 4.13:
Testing and measurement techniques—Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

1 Scope and object

This part of IEC 61000 defines the immunity test methods and range of recommended basic test levels for electrical and electronic equipment with rated current up to 16 A per phase at disturbance frequencies up to and including 2 kHz (for 50 Hz mains) and 2,4 kHz (for 60 Hz mains) for harmonics and interharmonics on low voltage power networks.

It does not apply to electrical and electronic equipment connected to 16 2/3 Hz , or to 400 Hz a.c. networks. Tests for these networks will be covered by future standards.

The object of this standard is to establish a common reference for evaluating the functional immunity of electrical and electronic equipment when subjected to harmonics and inter-harmonics and mains signalling frequencies. The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of an equipment or system against a defined phenomenon. As described in IEC Guide 107, this is a basic EMC publication for use by product committees of the IEC. As also stated in Guide 107, the IEC product committees are responsible for determining whether this immunity test standard should be applied or not, and if applied, they are responsible for determining the appropriate test levels and performance criteria. TC 77 and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular immunity tests for their products.

The verification of the reliability of electrical components (for example capacitors, filters, etc.) is not in the scope of the present standard. Long term thermal effects (greater than 15 min) are not considered in this standard.

The levels proposed are more adapted for residential, commercial and light industry environments. For heavy industrial environments the product committees are responsible for the definition of a class X with the necessary levels. They have also the possibility of defining more complex waveforms for their own need. Nevertheless, the simple waveforms proposed have been mainly observed on several networks (flat curve more often for single phase system) and also on industrial networks (overswing curve more for three phase systems).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050(161), *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electro-magnetic compatibility*

IEC 61000-2-2, *Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems*