

Australian/New Zealand Standard™

**Information technology equipment—  
Radio disturbance characteristics—  
Limits and methods of measurement**



## **AS/NZS CISPR 22:2009**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TE-003, Electromagnetic Interference. It was approved on behalf of the Council of Standards Australia on 12 June 2009 and on behalf of the Council of Standards New Zealand on 26 June 2009.

This Standard was published on 21 August 2009.

---

The following are represented on Committee TE-003:

Association of Consulting Engineers Australia  
Australian Broadcasting Corporation  
Australian Chamber of Commerce and Industry  
Australian Communications and Media Authority  
Australian Industry Group  
Australian Information Industry Association  
Australian Subscription Television and Radio Association  
Consumer Electronics Suppliers Association  
Department of Defence (Australia)  
Electrical Compliance Testing Association  
Energy Networks Association  
Engineers Australia  
Free TV Australia  
Ministry of Economic Development (New Zealand)  
National Measurement Institute  
SingTel Optus Pty Limited  
Society of Automotive Engineers- Australasia  
Telstra Corporation Limited  
University of Western Australia  
Wireless Institute Australia

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at [www.saiglobal.com.au](http://www.saiglobal.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

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 09024.*

---

## Australian/New Zealand Standard™

# Information technology equipment— Radio disturbance characteristics— Limits and methods of measurement

Originated as AS/NZS CISPR 22:2006.  
Second edition 2009.  
Reissued incorporating Amendment No. 1 (December 2010).

### **COPYRIGHT**

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE-003, Electromagnetic Interference to supersede AS/NZS CISPR 22:2006, as one of a series of Standards intended to facilitate control of electromagnetic interference and the compatibility of electrical and electronic equipment.

*This Standard incorporates Amendment No. 1 (December 2010). 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 specify uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

A1 | This Standard is identical with, and has been reproduced from, CISPR 22, Ed. 6.0 (2008), *Information technology equipment—Radio disturbance characteristics—Limits and methods of measurement*.

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 International 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 terms ‘normative’ and ‘informative’ are used to define the application of the Annex to which it applies. A normative annex is an integral part of a Standard, whereas an informative Annex is only for information and guidance.

## CONTENTS

	<i>Page</i>
Introduction .....	v
1 Scope and object .....	1
2 Normative references .....	1
3 Definitions .....	3
4 Classification of ITE .....	4
4.1 Class B ITE .....	4
4.2 Class A ITE .....	5
5 Limits for conducted disturbance at mains terminals and telecommunication ports .....	5
5.1 Limits of mains terminal disturbance voltage .....	5
5.2 Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports ) .....	6
6 Limits for radiated disturbance .....	7
6.1 Limits below 1 GHz .....	7
6.2 Limits above 1 GHz .....	7
6.3 Conditional testing procedure: .....	8
7 Interpretation of CISPR radio disturbance limit .....	8
7.1 Significance of a CISPR limit .....	8
7.2 Application of limits in tests for conformity of equipment in series production .....	8
8 General measurement conditions .....	9
8.1 Ambient noise .....	9
8.2 General arrangement .....	10
8.3 EUT arrangement .....	12
8.4 Operation of the EUT .....	14
9 Method of measurement of conducted disturbance at mains terminals and telecommunication ports .....	15
9.1 Measurement detectors .....	15
9.2 Measuring receivers .....	16
9.3 Artificial mains network (AMN) .....	16
9.4 Ground reference plane .....	16
9.5 EUT arrangement .....	16
9.6 Measurement of disturbances at telecommunication ports .....	18
9.7 Recording of measurements .....	22
10 Method of measurement of radiated disturbance .....	22
10.1 Measurement detectors .....	22
10.2 Measuring receiver below 1 GHz .....	22
10.3 Antenna below 1 GHz .....	22
10.4 Measurement site below 1 GHz .....	23
10.5 EUT arrangement below 1 GHz .....	24
10.6 Radiated emission measurements above 1 GHz .....	24
10.7 Recording of measurements .....	25
10.8 Measurement in the presence of high ambient signals .....	25
10.9 User installation testing .....	25
11 Measurement uncertainty .....	26
Annex A (normative) Site attenuation measurements of alternative test sites .....	38

Annex B (normative) Decision tree for peak detector measurements .....	44
Annex C (normative) Possible test set-ups for common mode measurements.....	45
Annex D (informative) Schematic diagrams of examples of impedance stabilization networks (ISN) .....	52
Annex E (informative) Parameters of signals at telecommunication ports .....	61
Annex F (informative) Rationale for disturbance measurements and methods on telecommunications ports.....	64
Annex G (informative) Operational modes for some types of ITE .....	73
Bibliography .....	74

## INTRODUCTION

The scope is extended to the whole radio-frequency range from 9 kHz to 400 GHz, but limits are formulated only in restricted frequency bands, which is considered sufficient to reach adequate emission levels to protect radio broadcast and telecommunication services, and to allow other apparatus to operate as intended at reasonable distance.

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

---

**Australian/New Zealand Standard**
**Information technology equipment—Radio disturbance characteristics—  
Limits and methods of measurement**


---

**1 Scope and object**

This International Standard applies to ITE as defined in 3.1.

Procedures are given for the measurement of the levels of spurious signals generated by the ITE and limits are specified for the frequency range 9 kHz to 400 GHz for both class A and class B equipment. No measurements need be performed at frequencies where no limits are specified.

The intention of this publication is to establish uniform requirements for the radio disturbance level of the equipment contained in the scope, to fix limits of disturbance, to describe methods of measurement and to standardize operating conditions and interpretation of results.

**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.

References to International Standards that are struck through in this clause are replaced by references to identical Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading.

IEC 60083:2006, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

~~IEC 61000-4-6:2003, *Electromagnetic compatibility (EMC) — Part 4-6: Testing and measurement techniques — Immunity to conducted disturbances, induced by radio-frequency fields*<sup>1</sup>~~

A1 | Amendment 1 (2004)  
Amendment 2 (2006)

AS/NZS IEC 61000.4.6, *Electromagnetic compatibility (EMC), Part 4.6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields*

---

<sup>1</sup> There exists a consolidated edition 2.2 (2006) including edition 2.0, its Amendment 1 (2004) and its Amendment 2 (2006).