

Australian/New Zealand Standard™

**Specification for radio disturbance and
immunity measuring apparatus and
methods**

**Part 2.5: In situ measurements of
disturbing emissions produced by
physically large equipment**



AS/NZS CISPR 16.2.5:2013

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 31 May 2013 and on behalf of the Council of Standards New Zealand on 23 April 2013.
This Standard was published on 20 June 2013.

The following are represented on Committee TE-003:

Australian Broadcasting Corporation
Australian Communications and Media Authority
Australian Industry Group
Australian Information Industry Association
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Curtin University of Technology
Department of Defence, Australia
Electrical Compliance Testing Association
Energy Networks Association
Engineers Australia
Lighting Council New Zealand
Lighting Council of Australia
Ministry of Economic Development, New Zealand
National Measurement Institute
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 Standards may also be withdrawn.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 or Standards New Zealand web site at 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.

Australian/New Zealand Standard™

Specification for radio disturbance and immunity measuring apparatus and methods

Part 2.5: In situ measurements of disturbing emissions produced by physically large equipment

First published as AS/NZS CISPR 16.2.5:2013.

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.

The objective of this Standard is to provide a guide for in situ measurements of disturbing emissions by large equipment not covered by existing emission standards, e.g. AS/NZS CISPR 11 and AS/NZS CISPR 22.

This Standard is identical with, and has been reproduced from CISPR/TR 16-2-5, Ed. 1.0 (2008), *Specification for radio disturbance and immunity measuring apparatus and methods—Part 2-5: In situ measurements of disturbing emissions produced by physically large equipment*.

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

- (a) In the source text ‘this part of CISPR 16’ should read ‘this Australian/New Zealand Standard’.
- (b) 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:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
CISPR		AS/NZS CISPR	
16	Specification for radio disturbance and immunity measuring apparatus and methods	16	Specification for radio disturbance and immunity measuring apparatus and methods
16-1-1	Part 1-1: Radio disturbance and immunity measuring apparatus—Measuring apparatus	16.1.1	Part 1.1: Radio disturbance and immunity measuring apparatus—Measuring apparatus
16-1-2	Part 1-2: Radio disturbance and immunity measuring apparatus—Ancillary equipment—Conducted disturbances	16.1.2	Part 1.2: Radio disturbance and immunity measuring apparatus—Ancillary equipment—Conducted disturbances
16-1-4	Part 1-4: Radio disturbance and immunity measuring apparatus—Ancillary equipment—Radiated disturbances	16.1.4	Part 1.4: Radio disturbance and immunity measuring apparatus—Ancillary equipment—Radiated disturbances
16-2-1	Part 2-1: Methods of measurement of disturbances and immunity—Conducted disturbance measurements	16.2.1	Part 2.1: Methods of measurement of disturbances and immunity—Conducted disturbance measurements
16-2-3	Part 2-3: Methods of measurement of disturbances and immunity—Radiated disturbance measurements	16.2.3	Part 2.3: Methods of measurement of disturbances and immunity—Radiated disturbance measurements

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

CONTENTS

1	Scope.....	5
2	Normative references	5
3	Terms and definitions	6
4	Methodology.....	7
4.1	Structure of each measurement.....	7
4.2	Preliminary measurements and selection of measurement method	8
4.3	Selection of the EUT mode of operation and the reference point depending on the environment.....	8
4.4	Assessment of measurement results	9
5	Method of <i>in situ</i> measurement of conducted disturbance	9
5.1	General.....	9
5.2	Conducted emission measurement procedure	10
5.2.1	Connection conditions	10
5.2.2	Reference ground for <i>in situ</i> measurements.....	10
5.2.3	Disturbance voltage/current measurements on cables which carry wanted symmetrical signals	10
5.2.4	Disturbance voltage measurements on cables which do not carry wanted symmetrical signals	11
6	Method of <i>in situ</i> measurement of radiated disturbance	11
6.1	General.....	11
6.2	Measurement conditions.....	12
6.3	Measurement methods	12
6.3.1	Measurement parameters	12
6.3.2	Measurements in case of interference complaints.....	12
6.3.3	Measurements for compliance purposes	13
6.3.4	Measurements below 30 MHz	13
7	Measurement report	13
	Bibliography.....	15
	Figure 1 – Enclosure port.....	8

AUSTRALIAN/NEW ZEALAND STANDARD

Specification for radio disturbance and immunity measuring apparatus and methods

Part 2.5:

In situ measurements of disturbing emissions produced by physically large equipment**1 Scope**

This part of CISPR 16 deals with *in situ* electromagnetic disturbance measurements in any environment from physically large equipment and systems excluding networks.

It covers both radiated and conducted emission phenomena, and does not deal with immunity tests.

This technical report is intended to be applied primarily to such physically large equipment which are not under the scope of any existing emission standards (as for example CISPR 11 and CISPR 22). It serves only as a guideline on how to deal with emissions of that equipment at the particular location of installation. It does not establish any emission requirements.

NOTE 1 Although this technical report is intended to be applied to equipment which is not under the scope of any existing emission standards, it may be used also in such cases in order to serve as additional information for carrying out *in situ* measurements for any type of large equipment.

NOTE 2 Examples of large equipment are: production machines, conveyors, large displays, aircraft simulators, traffic control equipment, etc.

Due to the severe impact of the conditions existing at a particular location of operation and the use of the respective large equipment, however, it is not intended to use the measurements in the frame of type testing.

NOTE 3 In general, type testing on large equipment is only possible at standardized test sites in a controlled environment. The assessment results obtained under *in situ* conditions are only valid for the respective individual large equipment actually measured at its particular place of installation. These results cannot be transposed to other equipment of the same type, but installed at other locations.

Reference *in-situ* measurement distances will be given. This allows comparison of the measurement results with limits from existing relevant standards.

The frequency range under consideration is from 9 kHz to 18 GHz.

Dealing with biological effects on living matter is excluded from this document.

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.

CISPR 16-1-1, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

CISPR 16-1-2, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Conducted disturbances*