

Australian/New Zealand Standard™

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

**Part 1.5: Radio disturbance and
immunity measuring apparatus—
Antenna calibration sites and reference
test sites for 5 MHz to 18 GHz**



AS/NZS CISPR 16.1.5:2015

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Australian/New Zealand Standard™

Specification for radio disturbance and immunity measuring apparatus and methods

Part 1.5: Radio disturbance and immunity measuring apparatus— Antenna calibration sites and reference test sites for 5 MHz to 18 GHz

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE-003, Electromagnetic Compatibility, to supersede AS/NZS CISPR 16.1.5:2013, *Specification for radio disturbance and immunity measuring apparatus and methods*, Part 1.5: *Radio disturbance and immunity measuring apparatus—Specifications and validation procedures for CALTS and REFTS form 30 MHz to 1 000 MHz*.

The objective of this Standard is to specify the requirements for calibration sites used to perform antenna calibrations according to AS/NZS CISPR 16.1.6 and for reference test sites (REFTS) that are used for the validation of compliance test sites (COMTS) according to AS/NZS CISPR 16.1.4.

This Standard is identical with, and has been reproduced from CISPR 16-1-5, Ed. 2.0 (2014), *Specification for radio disturbance and immunity measuring apparatus and methods*, Part 1-5: *Radio disturbance and immunity measuring apparatus—Antenna calibration sites and reference test sites for 5 MHz to 18 GHz*.

The principal differences between this and the previous edition are as follows:

- (a) Site validation methods for other sites covered in AS/NZS CISPR 16.1.6 are added.
- (b) Smaller step sizes are specified for swept-frequency measurements.
- (c) The minimum ground plane size is increased.

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

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<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
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16	Specification for radio disturbance and immunity measuring apparatus and methods	16	Specification for radio disturbance and immunity measuring apparatus and methods
16-1-4:2010	Part 1-4: Radio disturbance and immunity measuring apparatus—Antennas and test sites for radiated disturbance measurements	16.1.4:2013	Part 1.4: Radio disturbance and immunity measuring apparatus—Antennas and test sites for radiated disturbance measurements
AMD1:2012			
16-1-6: 2014	Part 1-6: Radio disturbance and immunity measuring apparatus—EMC antenna calibration	16.1.6:2015	Part 1.6: Radio disturbance and immunity measuring apparatus—EMC antenna calibration

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

The term ‘informative’ has been used to define the application of the annexes to which it applies. An ‘informative annex’ is only for information and guidance.

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INTRODUCTION

This standard describes validation procedures for Calibration Test Sites (CALTS) that are used to calibrate antennas in the frequency range 5 MHz to 18 GHz. The associated antenna calibration procedures are described in CISPR 16-1-6.

Due to problems with suppressing ground reflections in the frequency range 30 MHz to 200 MHz, the main function of a reflecting ground plane is for the calibration of dipole, biconical, and hybrid antennas over the frequency range for which their H-plane patterns are uniform. The free-space antenna factor, F_a , for dipole antennas may be measured in a free-space environment above 200 MHz. Because of the difficulty of reducing reflections from objects that surround an antenna, and in particular the ground surface, a flat metal ground plane is used to ensure reproducibility of results and to enable the ground reflected signal to be precisely removed mathematically.

Requirements for the construction of a CALTS are given in Annex A. The specifications and validation procedures for a CALTS are given in Clause 4. The most precise way of validating a CALTS is to use calculable dipole antennas, which are the basis of the validation procedure in this standard. The design principles of calculable antennas are given in Annex B, and the theory and methods for calculating site insertion loss (SIL) are given in Annex C and Annex D.

Validation procedures for other antenna calibration sites are given in Clause 5 through Clause 7. Where an antenna calibration method utilizes the ground reflection, a CALTS is required. The validation methods are summarized in Table 1 with reference to the associated antenna calibration methods in CISPR 16-1-6.

All site validation methods involve the measurement of SIL between two antennas. It is critical that the validation of the site itself not be unduly compromised by reflections from antenna supports; see A.3 for associated guidance.