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BASIC EMC PUBLICATION

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

CISPR 16-1-1:2015

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**SPECIFICATION FOR RADIO DISTURBANCE
AND IMMUNITY MEASURING APPARATUS AND METHODS –**

**Part 1-1: Radio disturbance and immunity measuring apparatus –
Measuring apparatus**

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by subcommittee CISPR A: Radio-interference measurements and statistical methods, of IEC technical committee CISPR: International special committee on radio interference.

The text of this interpretation sheet is based on the following documents:

FDIS	Report on voting
CIS/A/1244/FDIS	CIS/A/1255/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

INTRODUCTION:

CISPR/A/1118/FDIS was approved (see CISPR/A/1135/RVD) and consequently the corresponding international standard, CISPR 16-1-1:2015 (Edition 4.0) was published on 22 September 2015.

However, seven National Committees had submitted a negative vote. Most concerns were related to the measuring receiver specifics covered in K.4. That clause states:

“This standard specifies measuring receiver requirements using a “black box” approach. This means that the instrument shall show a specific response when a defined signal is applied to its input. Therefore, the demonstration of compliance of measuring receivers with specifications defined in this standard can be provided through the manufacturer’s calibration process or the procedures and measuring equipment defined in this standard.

In case compliance of a measuring receiver is determined with the specifications in this standard, the following minimum set of parameters shown in Table K.1 shall be included in the verification process.”

It was argued that the wording in these two cited paragraphs might be misinterpreted in such a way that the specifications in CISPR 16-1-1 are not met when using the manufacturer's calibration process. Furthermore, concerns were raised that the wording may have the effect that only manufacturers' calibration procedures can be used to show compliance with the specifications in CISPR 16-1-1.

Because of these concerns, K.4 could benefit from further clarification. An interpretation sheet would be helpful to users of the standard, with the intent that this clarification would be published in a future amendment to the standard.

This information does not change the standard; it serves only to clarify the points noted.

INTERPRETATION:

Demonstration of compliance with CISPR 16-1-1

For demonstrating compliance with CISPR 16-1-1 using the manufacturer's calibration process, the specifications in CISPR 16-1-1 shall be met, including verification of the minimum set of parameters listed in Table K.1.

It is permissible to use either the manufacturer's calibration process or a calibration laboratory's own process that is applying the procedures and measuring equipment defined in this standard. The user of CISPR 16-1-1 is responsible for deciding which of these two approaches to use, both which are considered equivalent.

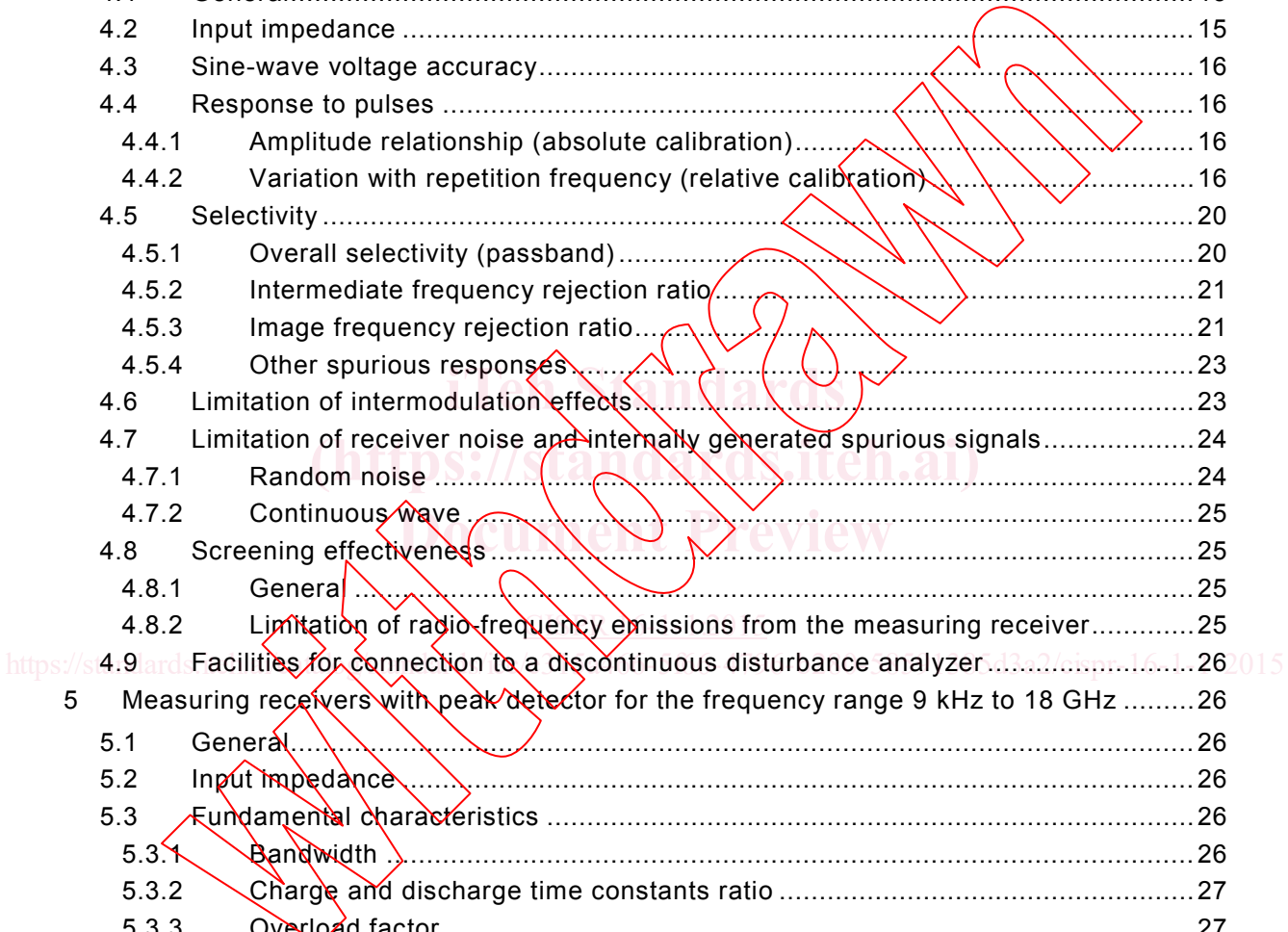
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CONTENTS

FOREWORD.....	7
INTRODUCTION.....	9
1 Scope.....	10
2 Normative references	10
3 Terms and definitions	11
4 Quasi-peak measuring receivers for the frequency range 9 kHz to 1 000 MHz.....	15
4.1 General.....	15
4.2 Input impedance	15
4.3 Sine-wave voltage accuracy.....	16
4.4 Response to pulses	16
4.4.1 Amplitude relationship (absolute calibration).....	16
4.4.2 Variation with repetition frequency (relative calibration).....	16
4.5 Selectivity	20
4.5.1 Overall selectivity (passband).....	20
4.5.2 Intermediate frequency rejection ratio.....	21
4.5.3 Image frequency rejection ratio.....	21
4.5.4 Other spurious responses.....	23
4.6 Limitation of intermodulation effects.....	23
4.7 Limitation of receiver noise and internally generated spurious signals.....	24
4.7.1 Random noise	24
4.7.2 Continuous wave.....	25
4.8 Screening effectiveness.....	25
4.8.1 General	25
4.8.2 Limitation of radio-frequency emissions from the measuring receiver.....	25
4.9 Facilities for connection to a discontinuous disturbance analyzer.....	26
5 Measuring receivers with peak detector for the frequency range 9 kHz to 18 GHz	26
5.1 General.....	26
5.2 Input impedance	26
5.3 Fundamental characteristics	26
5.3.1 Bandwidth	26
5.3.2 Charge and discharge time constants ratio	27
5.3.3 Overload factor.....	27
5.4 Sine-wave voltage accuracy.....	27
5.5 Response to pulses	27
5.6 Selectivity	28
5.7 Intermodulation effects, receiver noise, and screening.....	29
6 Measuring receivers with average detector for the frequency range 9 kHz to 18 GHz.....	29
6.1 General.....	29
6.2 Input impedance	30
6.3 Fundamental characteristics	30
6.3.1 Bandwidth	30
6.3.2 Overload factor.....	30
6.4 Sine-wave voltage accuracy.....	30
6.5 Response to pulses	31
6.5.1 General	31



6.5.2	Amplitude relationship	31
6.5.3	Variation with repetition frequency	32
6.5.4	Response to intermittent, unsteady and drifting narrowband disturbances	32
6.6	Selectivity	34
6.7	Intermodulation effects, receiver noise, and screening	34
7	Measuring receivers with rms-average detector for the frequency range 9 kHz to 18 GHz	34
7.1	General	34
7.2	Input impedance	34
7.3	Fundamental characteristics	35
7.3.1	Bandwidth	35
7.3.2	Overload factor	35
7.4	Sine-wave voltage accuracy	36
7.5	Response to pulses	36
7.5.1	Construction details	36
7.5.2	Amplitude relationship	36
7.5.3	Variation with repetition frequency	37
7.5.4	Response to intermittent, unsteady and drifting narrowband disturbances	37
7.6	Selectivity	38
7.7	Intermodulation effects, receiver noise, and screening	38
8	Measuring receivers for the frequency range 1 GHz to 18 GHz with amplitude probability distribution (APD) measuring function	38
9	Disturbance analyzers	39
9.1	General	39
9.2	Fundamental characteristics	40
9.3	Test method for the validation of the performance check for the click analyzer	46
9.3.1	Basic requirements	46
9.3.2	Additional requirements	47
Annex A (normative) Determination of response to repeated pulses of quasi-peak and rms-average measuring receivers (See 3.6, 4.4.2, 7.3.2 and 7.5.1)		48
A.1	General	48
A.2	Response of the pre-detector stages	48
A.3	Response of the quasi-peak voltmeter detector to output of preceding stages	49
A.3.1	General	49
A.3.2	Response of the indicating instrument to the signal from the detector	50
A.4	Response of rms detector to output voltage of preceding stages	51
A.4.1	Output voltage and amplitude relationship	51
A.4.2	Calculation of overload factor	52
A.5	Relationship between indication of rms meter and quasi-peak meter	52
Annex B (normative) Determination of pulse generator spectrum (See 4.4, 5.5, 6.5, 7.5)		54
B.1	Pulse generator	54
B.1.1	General	54
B.1.2	The spectrum of the generated pulses	54
B.2	General method of measurement	54
Annex C (normative) Accurate measurements of the output of nanosecond pulse generators (See 4.4, 5.5, 6.5, 7.5)		56
C.1	Measurement of impulse area (A_{imp})	56

C.1.1	General	56
C.1.2	Area method	56
C.1.3	Standard transmission line method	56
C.1.4	Harmonic measurement	57
C.1.5	Energy method	57
C.2	Pulse generator spectrum	57
Annex D (normative) Influence of the quasi-peak measuring receiver characteristics on its pulse response (See 4.4.2)		58
Annex E (normative) Response of average and peak measuring receivers (See 6.3.1)		59
E.1	Response of pre-detector stages	59
E.2	Overload factor	59
E.3	Relationship between indication of an average and a quasi-peak measuring receiver	60
E.4	Peak measuring receivers	61
E.5	Relationship between indication of a peak and a quasi-peak measuring receiver	61
E.6	Test of measuring receiver response above 1 GHz to pulses	62
E.7	Measurement of the impulse bandwidth of a measuring receiver	63
E.7.1	General	63
E.7.2	Method 1: Measurement by comparison of the responses of B_{imp} to two pulses with identical amplitude and width but with low and high pulse repetition frequencies (prf)	64
E.7.3	Method 2: Measurement by comparison of the response of B_{imp} to an impulsive signal with the response of a narrow bandwidth to the same signal	66
E.7.4	Method 3: Integration of the normalized linear selectivity function	66
Annex F (normative) Performance check of the exceptions from the definitions of a click according to 4.2.3 of CISPR 14-1:2005		68
Annex G (informative) Rationale for the specifications of the APD measuring function		75
Annex H (informative) Characteristics of a quasi-peak measuring receiver		78
Annex I (informative) Example of EMI receiver and swept spectrum analyzer architecture		79
Annex J (normative) Requirements when using an external preamplifier with a measuring receiver		81
J.1	General	81
J.2	Considerations for optimum emission measurement system design	81
J.3	Linearity specifications and precautions in measurement	84
J.4	Detecting the overload of an external preamplifier in a wideband FFT based measuring system	91
Annex K (normative) Calibration requirements for measuring receivers		92
K.1	General	92
K.2	Calibration and verification	92
K.3	Calibration and verification specifics	92
K.4	Measuring receiver specifics	93
K.5	Partial calibration of measuring receivers	94
K.6	Determination of compliance of a measuring receiver with applicable specifications	94
Bibliography		96

Figure 1a) 1 – Pulse response curve (Band A)	17
Figure 1b) 2 – Pulse response curve (Band B)	18
Figure 1c) 3 – Pulse response curve (Bands C and D)	18
Figure 1d) 4 – Theoretical pulse response curve of quasi-peak detector receivers and average detector receiver (see 6.5.4)	19
Figure 5 – Limits of overall selectivity – Pass band (see 4.5.1, 5.6, 6.6, 7.6) (Band A)	22
Figure 6 – Limits of overall selectivity – Pass band (see 4.5.1, 5.6, 6.6, 7.6) (Band B)	22
Figure 7 – Limits of overall selectivity – Pass band (see 4.5.1, 5.6, 6.6, 7.6) Bands (C and D)	23
Figure 8 – Arrangement for testing intermodulation effects	24
Figure 9 – Limits for the overall selectivity – Pass band (Band E)	29
Figure 10 – Block diagram of an average detector	33
Figure 11 – Screenshot showing response of the meter-simulating network to an intermittent narrowband signal	33
Figure 12 – Example of a disturbance analyzer	41
Figure 13 – A graphical presentation of test signals used in the test of the analyzer for the performance check against the definition of a click according to Table 14	42
Figure E.1 – Correction factor for estimating the ratio B_{imp}/B_6 for other tuned circuits	60
Figure E.2 – Pulse rectification coefficient P	62
Figure E.3 – Example (spectrum screenshot) of a pulse-modulated signal with a pulse width of 200 ns	63
Figure E.4 – Pulse-modulated RF signal applied to a measuring receiver	64
Figure E.5 – Filtering with a B_{imp} much smaller than the prf	65
Figure E.6 – Filtering with a B_{imp} much wider than the prf	65
Figure E.7 – Calculation of the impulse bandwidth	66
Figure E.8 – Example of a normalized linear selectivity function	67
Figure F.1 – A graphical presentation of the test signals used for the performance check of the analyzer with the additional requirements according to Table F.1	74
Figure G.1 – Block diagram of APD measurement circuit without A/D converter	76
Figure G.2 – Block diagram of APD measurement circuit with A/D converter	76
Figure G.3 – Example of display of APD measurement	77
Figure I.1 – Example block diagram of EMI receiver consisting of swept spectrum analyzer with added preselector, preamplifier and quasi-peak/average detector	79
Figure J.1 – Receiver with preamplifier	83
Figure J.2 – Transfer function of an amplifier	85
Figure J.3 – Response for a sinusoidal signal	85
Figure J.4 – Response for an impulse	85
Figure J.5 – Deviation from linear gain for an unmodulated sine wave (example)	86
Figure J.6 – Deviation from linear gain for a broadband impulsive signal as measured with the quasi-peak detector (example)	87
Figure J.7 – Screenshot of a band-stop filter test for a preamplifier at around 818 MHz	88
Figure J.8 – Band-stop filter test result with the measuring receiver at 818 MHz	88
Figure J.9 – Band-stop filter test results for the same 10 dB preamplifier but a different receiver with preselection (black) and without preselection (blue)	89
Figure J.10 – Band-stop filter test results for the same 10 dB preamplifier but with the receiver of Figure J.9 with preselection (black) and without preselection (green)	89

Figure J.11 – Weighting functions of the various CISPR detectors with a noise curve to illustrate the remaining operating ranges for broadband impulsive signals (example).....	90
Figure K.1 – Compliance determination process with application of measurement uncertainty.....	95
Table 1 – Test pulse characteristics for quasi-peak measuring receivers (see 4.4.1)	16
Table 2 – Pulse response of quasi-peak measuring receivers	20
Table 3 – Combined selectivity of CISPR measuring receiver and high-pass filter.....	21
Table 4 – Bandwidth characteristics for intermodulation test of quasi-peak measuring receivers (see 4.6)	24
Table 5 – VSWR requirements for receiver input impedance.....	26
Table 6 – Bandwidth requirements for measuring receivers with peak detector	27
Table 7 – Relative pulse response of peak and quasi-peak measuring receivers for the same bandwidth (frequency range 9 kHz to 1 000 MHz).....	28
Table 8 – Bandwidth requirements for measuring receivers with average detector.....	30
Table 9 – Relative pulse response of average and quasi peak measuring receivers for the same bandwidth (frequency range 9 kHz to 1 GHz)	31
Table 10 – Maximum reading of average measuring receivers for a pulse-modulated sine-wave input in comparison with the response to a continuous sine wave having the same amplitude	33
Table 11 – VSWR requirements of input impedance.....	35
Table 12 – Bandwidth requirements for measuring receivers with rms-average detector	35
Table 13 – Minimum pulse repetition rate without overload	35
Table 14 – Relative pulse response of rms-average and quasi-peak measuring receivers.....	36
Table 15 – Pulse response of rms-average measuring receiver	37
Table 16 – Maximum reading of rms-average measuring receivers for a pulse-modulated sine-wave input in comparison with the response to a continuous sine wave having the same amplitude	38
Table 17 – Disturbance analyzer performance test – Test signals used for the check against the definition of a click (1 of 4)	43
Table B.1 – Pulse generator characteristics	54
Table E.1 – B_{imp} and A_{imp} values for a peak measuring receiver	61
Table E.2 – Carrier level for pulse-modulated signal of 1,4 nVs	63
Table F.1 – Disturbance analyzer test signals ^a (1 of 5)	69
Table H.1 – Characteristics of quasi-peak measuring receivers	78
Table J.1 – Examples of preamplifier and measuring receiver data and resulting system noise figures	84
Table K.1 – Verification parameter summary.....	94

INTERNATIONAL ELECTROTECHNICAL COMMISSION
INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

**SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY
MEASURING APPARATUS AND METHODS –**

**Part 1-1: Radio disturbance and immunity measuring apparatus –
Measuring apparatus**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard CISPR 16-1-1 has been prepared by CISPR subcommittee A: Radio-interference measurements and statistical methods.

This fourth edition cancels and replaces the third edition published in 2010, Amendment 1:2010 and Amendment 2:2014. This edition constitutes a technical revision.

The main technical change with respect to the previous edition consists of the addition of a new normative annex on calibration requirements for measuring receivers.

It has the status of a basic EMC publication in accordance with IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*.

The text of this standard is based on the following documents:

FDIS	Report on voting
CISPR/A/1118/FDIS	CISPR/A/1135/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the CISPR 16 series can be found, under the general title *Specification for radio disturbance and immunity measuring apparatus and methods*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

The contents of the Interpretation sheet of April 2018 have been included in this copy.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The CISPR 16 series, published under the general title *Specification for radio disturbance and immunity measuring apparatus and methods*, is comprised of the following sets of standards and reports:

- CISPR 16-1 – ~~five~~ **six** parts covering measurement instrumentation specifications;
- CISPR 16-2 – five parts covering methods of measurement;
- CISPR 16-3 – a single publication containing various technical reports (TRs) with further information and background on CISPR and radio disturbances in general;
- CISPR 16-4 – five parts covering uncertainties, statistics and limit modelling.

CISPR 16-1 consists of the following parts, under the general title *Specification for radio disturbance and immunity measuring apparatus and methods – Radio disturbance and immunity measuring apparatus*:

- Part 1-1: Measuring apparatus
- Part 1-2: Ancillary equipment – Conducted disturbances
- Part 1-3: Ancillary equipment – Disturbance power
- Part 1-4: Ancillary equipment – Radiated disturbances
- Part 1-5: Antenna calibration **sites and reference test sites for 5 MHz to 18 GHz** ~~for 30 MHz to 1 000 MHz~~
- **Part 1-6: EMC-antenna calibration**

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning the measuring receiver with rms-average detector (patent no DE 10126830) given in Clause 7.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he/she is willing to negotiate licences either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

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SPECIFICATION FOR RADIO DISTURBANCE AND IMMUNITY MEASURING APPARATUS AND METHODS –

Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus

1 Scope

This part of CISPR 16 specifies the characteristics and performance of equipment for the measurement of radio disturbance in the frequency range 9 kHz to 18 GHz. In addition, requirements are provided for specialized equipment for discontinuous disturbance measurements.

NOTE In accordance with IEC Guide 107, CISPR 16-1-1 is a basic EMC standard for use by product committees of the IEC. As stated in Guide 107, product committees are responsible for determining the applicability of the EMC standard. CISPR and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular EMC tests for specific products.

The specifications in this standard apply to EMI receivers and spectrum analyzers. The term “measuring receiver” used in this standard refers to both EMI receivers and spectrum analyzers. The calibration requirements for measuring receivers are detailed in Annex J.

Further guidance on the use of use of spectrum analyzers and scanning receivers can be found in Annex B of any one of the following standards: CISPR 16-2-1:2014, CISPR 16-2-2:2010 or CISPR 16-2-3:2010.

2 Normative references

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

CISPR 11:2009 2015, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

CISPR 14-1:2005, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

CISPR 14-1:2005/AMD1:2008

CISPR 14-1:2005/AMD2:2011

CISPR 16-2-1:2008 2014, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-1: Methods of measurement of disturbances and immunity – Conducted disturbance measurements*

CISPR 16-2-2:2003 2010, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-2: Methods of measurement of disturbances and immunity – Measurement of disturbance power*

Amendment 1 (2004)

Amendment 2 (2005)