SLOVENSKI STANDARD
SIST EN 55011:2016/A1:2017

01-julij-2017

Industrijska, znanstvena in medicinska oprema - Karakteristike občutljivosti za radijske motnje - Mejne vrednosti in merilne metode - Dopolnilo A1

Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement

Industrielle, wissenschaftliche und medizinische Geräte - Funkstörungen - Grenzwerte und Messverfahren

Appareils industriels, scientifiques et médicaux - Caractéristiques de perturbations radioélectriques - Limites et méthodes de mesure

Ta slovenski standard je istoveten z: **EN 55011:2016/A1:2017**

ICS:

33.100.10	Emisija	Emission

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 55011:2016/A1

April 2017

ICS 33.100.10

English Version

Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement (CISPR 11:2015/A1:2016)

Appareils industriels, scientifiques et médicaux - Caractéristiques de perturbations radioélectriques - Limites et méthodes de mesure (CISPR 11:2015/A1:2016)

Industrielle, wissenschaftliche und medizinische Geräte - Funkstörungen - Grenzwerte und Messverfahren (CISPR 11:2015/A1:2016)

This amendment A1 modifies the European Standard EN 55011:2016; it was approved by CENELEC on 2016-07-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document CISPR/B/627/CDV, future CISPR 11:2015/A1, prepared by CISPR SC B "Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction" of CISPR "International special committee on radio interference" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 55011:2016/A1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-10-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-21

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard CISPR 11:2015/A1:2016 was approved by CENELEC as a European Standard without any modification.

CISPR 11

Edition 6.0 2016-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE
COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES

AMENDMENT 1
AMENDEMENT 1

Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement

Appareils industriels, scientifiques et médicaux – Caractéristiques de perturbations radioélectriques – Limites et méthodes de mesure

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 33.100.10

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FOREWORD

This amendment has been prepared by CISPR Subcommittee B: Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction.

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

CDV	Report on voting
CISPR/B/627/CDV	CISPR/B/639A/RVC

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

The committee has decided that the contents of this amendment and the base 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.

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 to Amendment 1

This Amendment introduces the fully-anechoic room (FAR) for measurements of the disturbance field strength in the range 30 MHz to 1 GHz on equipment in the scope of CISPR 11.

It contains the complete set of requirements for measurement of radiated disturbances from equipment fitting into the validated test volume of a given FAR. It specifies a separation distance of 3 m and restricts use of the FAR to measurements on table-top equipment.

At the moment the FAR can be used:

- for measurements on table-top equipment fitting into the validated test volume of the given FAR,
- for a separation distance of 3 m only, and
- if the FAR was validated according to CISPR 16-1-4.

The limits for class A and class B group 1 equipment in this CDV base on the limits in the generic emission standards IEC 61000-6-3:2006/AMD 1 (2010) and IEC 61000-6-4:2006/AMD 1 (2010). The limits for class A and class B group 2 equipment were derived using the same approximation formula as used when deriving the limits for the generic emission standards in mid of the years 2000 to 2010. CISPR/H/104/INF, published in 2005, gives detailed explanations how these limits for the FAR were derived.

More detailed background information is still found in CISPR/B/627/CDV.

CISPR/B WG1 in October 2015

3 Terms and definitions

Add, after the existing definition 3.19, the following new terms and definitions:

3.20
fully-anechoic room
FAR
shielded enclosure, the internal surfaces of which are lined with radio-frequency-energy absorbing material (i.e. RF absorber) that absorbs electromagnetic energy in the frequency range of interest

3.21
open-area test site
OATS
facility used for measurements of electromagnetic fields the intention for which is to simulate a semi-free-space environment over a specified frequency range that is used for radiated emission testing of products

Note 1 to entry: An OATS typically is located outdoors in an open area, and has an electrically-conducting ground plane.

3.22
semi-anechoic chamber
SAC
shielded enclosure, in which five of the six internal surfaces are lined with radio-frequency energy absorbing material (i.e. RF absorber) that absorbs electromagnetic energy in the frequency range of interest, and the bottom horizontal surface is a conducting ground plane for use with OATS test set-ups

6.1 General

Add, at the end of the existing text, the following new paragraph:

Where this standard gives options for testing particular requirements with a choice of test methods, compliance can be shown against any of the test methods, using the specified limits with the restrictions provided in the relevant tables. In any situation where it is necessary to retest the equipment, the test method originally chosen should be used in order to ensure consistency of the results.

6.2.2.3 Frequency range 150 kHz to 1 GHz

Replace, in the existing 4th paragraph of this subclause, the first sentence by the following new sentence:

On an open-area test site (OATS) or in a semi-anechoic chamber (SAC), class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m (see information in Table 6), and class B equipment at a nominal distance of 3 m or 10 m (see information in Table 7).

Add, before the existing Table 6, the following new paragraph:

In a fully-anechoic room (FAR) class A or class B equipment can be measured at a nominal distance of 3 m (see information in Table 6 and Table 7), provided that the EUT fits into the validated test volume of the given FAR. In conjunction with measurements according to this standard, use of the FAR is restricted to table-top equipment.

Table 6 – Electromagnetic radiation disturbance limits for class A group 1 equipment measured on a test site

Replace the existing table by the following:

Table 6 – Electromagnetic radiation disturbance limits for class A group 1 equipment measured on a test site

Frequency range MHz	OATS or SAC				FAR	
	10 m measuring distance rated power of		3 m measuring distance [b] rated power of		3 m measuring distance [b,c] rated power of	
	≤ 20 kVA [d]	> 20 kVA [a, d]	≤ 20 kVA [d]	> 20 kVA [a, d]	≤ 20 kVA [d]	> 20 kVA [a, d]
	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)
30 – 230	40	50	50	60	52 decreasing linearly with logarithm of frequency to 45	62 decreasing linearly with logarithm of frequency to 55
230 – 1 000	47	50	57	60	52	55

On an OATS or in a SAC, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m. In case of measurements at a separation distance of 30 m, an inverse proportionality factor of 20 dB per decade shall be used to normalize the measured data to the specified distance for determining compliance.

At the transition frequency, the more stringent limit shall apply.

In the frequency range 30 MHz to 230 MHz, the limit for measurements in the FAR decreases linearly with the logarithm of frequency.

[a] These limits apply to equipment with a rated power of > 20 kVA and intended to be used at locations where there is a distance greater than 30 m between the equipment and third party sensitive radio communications. The manufacturer shall indicate in the technical documentation that this equipment is intended to be used at locations where the separation distance to third party sensitive radio services is > 30 m. If these conditions are not met, then the limits for ≤ 20 kVA apply.

[b] The 3 m separation distance applies only to small size equipment meeting the size criterion defined in 3.17.

[c] The table-top equipment shall fit into the validated test volume of the FAR.

[d] Selection of the appropriate set of limits shall be based on the rated a.c. power stated by the manufacturer.

Table 7 – Electromagnetic radiation disturbance limits for class B group 1 equipment measured on a test site

Replace the existing table by the following:

Table 7 – Electromagnetic radiation disturbance limits for class B group 1 equipment measured on a test site

	OATS or SAC		FAR
Frequency range MHz	**10 m measuring distance**	**3 m measuring distance [a]**	**3 m measuring distance [a,b]**
	Quasi-peak dB(μV/m)	**Quasi-peak** dB(μV/m)	**Quasi-peak** dB(μV/m)
30 – 230	30	40	42 Decreasing linearly with logarithm of frequency to 35
230 – 1 000	37	47	42
On an OATS or in a SAC, class B equipment can be measured at a nominal distance of 3 m or 10 m. At the transition frequency, the more stringent limit shall apply.			
[a] The 3 m separation distance applies only to *small size equipment* meeting the size criterion defined in 3.17. [b] The table-top equipment shall fit into the validated test volume of the FAR.			

6.3.2.3 Frequency range 150 kHz to 1 GHz

Replace the existing 9th and 10th paragraph of this subclause by the following new paragraphs:

On an open-area test site (OATS) or in a semi-anechoic chamber (SAC), class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m, and class B equipment at a nominal distance of 3 m or 10 m (see Tables 10 and 12).

In the frequency range 30 MHz to 1 GHz, a measuring distance of 3 m is allowed only for equipment which complies with the definition given in 3.17.

Add, before the existing Table 10, the following new paragraphs:

In a fully-anechoic room (FAR) class A or class B equipment can be measured at a nominal distance of 3 m, provided that the EUT fits into the validated test volume of the given FAR. In conjunction with measurements according to this standard, use of the FAR is restricted to table-top equipment.

For group 2 class A or B equipment other than EDM or arc welding, measurements in the FAR in the range 30 MHz to 1 GHz shall be supplemented by measurement of the magnetic component of the disturbance field strength in the range 150 kHz to 30 MHz, at an OATS or in a SAC, see also footnote b in Table 10 and footnote c in Table 12.