ICS 33.100.10 SLOVENSKÁ TECHNICKÁ NORMA August 2021

STN	**Priemyselné, vedecké a zdravotnícke zariadenia Charakteristiky vysokofrekvenčného rušenia Medze a metódy merania Zmena A2**	**STN EN 55011/A2** 33 4211

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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/21

STN EN 55011 z augusta 2016 sa bez tejto zmeny A2 môže používať do 9. 4. 2024.

Obsahuje: CISPR 11:2015/AMD2:2019, EN 55011: 2016/A2:2021

133013

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 55011:2016/A2

April 2021

ICS 33.100.10

English Version

Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement (CISPR 11:2015/A2:2019)

Appareils industriels, scientifiques et médicaux - Caractéristiques de perturbations radioélectriques - Limites et méthodes de mesure (CISPR 11:2015/A2:2019)

Industrielle, wissenschaftliche und medizinische Geräte - Funkstörungen - Grenzwerte und Messverfahren (CISPR 11:2015/A2:2019)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document CIS/B/715A/FDIS, future CISPR 11/A2, 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/A2:2021.

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) 2021-10-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-04-09

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The text of the International Standard CISPR 11:2015/A2:2019 was approved by CENELEC as a European Standard without any modification.

CISPR 11

Edition 6.0 2019-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

AMENDMENT 2
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Appareils industriels, scientifiques et médicaux – Caractéristiques de perturbations radioélectriques – Limites et méthodes de mesure

CISPR 11:2015-06/AMD2:2019-01(en-fr)

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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 amendment is based on the following documents:

FDIS	Report on voting
CIS/B/715A/FDIS	CIS/B/719/RVD

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.

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Introduction to the amendment

This AMD 2 combines the contents of two fragments which have been circulated as CIS/B/688/CDV (f2) and CIS/B/697/CDV (f3).

Fragment 2: Requirements for semiconductor power converters (SPC)

CISPR 11 Ed. 6.1 needs to be supplemented with further information for full inclusion of type test requirements for SPCs specified hereafter. These requirements apply only to the following types of equipment:

a) power conversion equipment intended for assembly into photovoltaic power generating systems, such as grid connected power converters (GCPCs) and d.c. to d.c. converters,
b) GCPCs intended for assembly into energy storage systems.

Fragment 3: Improvement of repeatability for measurements in the frequency range 1-18 GHz

Based on the comments from the National Committees on CIS/B/662/DC, CIS/B/WG1 decided on its meeting in Hangzhou 2016 to amend the test procedure for group 2 equipment in the frequency range 1 to 18 GHz for the following reasons:

a) CISPR 11 allows final measurements on group 2 equipment operating at frequencies above 400 MHz with two different weighting functions, the traditional “LogAV detector” with a video bandwidth of 10 Hz and the new APD method, where the Amplitude Probability Distribution is evaluated.

With the alignment of emission requirements for sources of fluctuating emissions with those generating CW-type emissions (Fraction 4 of the last general maintenance of CISPR 11) for most of the frequency range 1 to 18 GHz the peak detector is used mostly for preliminary measurements, while the number of final measurements with the LogAV detector has been increased from 2 frequencies to max. 7 frequencies.

In parallel, with fraction 3, the APD detector has been introduced, but only with the traditional 2 final frequencies (one in the range 1 GHz to 2.4 GHz and one in the range 2,5 GHz to 18 GHz).

The number of final frequencies to be measured should be aligned for both weighting functions.

b) During practical measurements cases have been observed, where the critical frequency changed between preliminary and final measurement by more than 5 MHz. The range of 10 MHz for weighted measurements (±5 MHz from highest peak emission) seems therefore not always to be sufficient.

An extension of this frequency range seems advisable and could increase the repeatability.

In the range 11,7 to 12,7 GHz, an EUT fails immediately if one peak exceeds the limit of 73 dB[µV/m]. Observations on a big number of different microwave ovens have shown that during the final measurement (at least 2 min) such peaks may occur very seldom, and with a very short duration, and an estimated overall duration of less than 1 % of the measuring time.

A state-of-the-art digital communication service should be able to tolerate such peaks. Meanwhile, in countries where broadcasting systems, which are already standardized and widely spread and is difficult to avoid disturbance by such peaks, are under operation, additional limits could be separately introduced as necessary.

c) The repeatability of the peak measurement on microwave ovens is poor. Moreover, the sheer height of the highest peak emission, without information on its duration and repetition rate, provides very limited information on the real disturbance potential.

Measurements with both of the weighting methods have a significantly better repeatability and should, by their physical nature, give a better judgement for the disturbing potential of the EUT on digital radio services.

d) The conditions for preliminary and final measurements became ambiguous in Edition 6.0 (CISPR 11:2015), particularly regarding the required test time. Furthermore, it has been found that, in some cases, a duration of 20 s for the preliminary peak measurement may not be enough. To further increase the repeatability, WG1 decided not to divide the peak measurements anymore into preliminary and final measurements, but to require a 2-minute max hold peak measurement at every azimuth.

CISPR SC/B WG1 agreed to present the following proposals to the National Committees:

1) Define the same 7 final frequency ranges for the APD method as already defined for the LogAV method (detector).
2) Extend the frequency range for the final weighted measurement to 20 MHz.

For the APD method this would mean to measure on 5 final frequencies, the critical frequency itself, +/− 5 MHz and +/− 10 MHz.

For the LogAV detector, the requirement remains to perform for the final measurements at least 5 consecutive sweeps in max hold mode. The test time increases accordingly, and coverage of the fluctuations is the same as before.

3) Change the peak limit in Table 13 to a constant value of 70 dB[µV/m] throughout the frequency range and replace the requirement of a final peak measurement in the range 11,7 GHz to 12,7 GHz by a requirement of an additional weighted measurement at the frequency of the highest peak emission in this range. This may lead to a maximum of 8 final weighted measurements.

4) Discard the distinction between preliminary and final peak measurements and make instead the peak measurements on all azimuths for 2 minutes.