

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**

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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
CISPR/B/492/FDIS	CISPR/B/496/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 web site 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- withdrawn,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.

### Foreword

*In the third paragraph starting with "This fifth edition of CISPR 11 got a more ....", change the reference to CISPR 16-4-4 to CISPR 16-4-2.*

## 1 Scope

*Add the following note at the end of Clause 1:*

NOTE Induction cooking appliances are in the process of being transferred from CISPR 11 to CISPR 14-1. Until the removal of induction cooking appliances from the scope of CISPR 11, users of the standards may choose either CISPR 11 or CISPR 14-1 for testing.

## 3 Terms and definitions

*Add, after term and Definition 3.9, the following new term and definition:*

### 3.10

#### small equipment

equipment, either positioned on a table top or standing on the floor which, including its cables fits in a cylindrical test volume of 1,2 m in diameter and 1,5 m above the ground plane

### 6.2.2.3 Frequency range 150 kHz to 1 GHz

*Replace the third paragraph as follows:*

On a test site, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m (see information in Table 4), and class B equipment at a nominal distance of 3 m or 10 m (see information in Table 5). A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10.

Add, after the third paragraph, the following new paragraph:

The limits specified for the 3 m separation distance apply to small equipment only.

Replace the existing Table 4 by the following:

**Table 4 – Electromagnetic radiation disturbance limits for class A group 1 equipment measured on a test site**

Frequency range MHz	10 m measuring distance		3 m measuring distance <sup>b</sup>	
	rated input power of		rated input power of	
	≤ 20 kVA	> 20 kVA <sup>a</sup>	≤ 20 kVA	> 20 kVA <sup>a</sup>
	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
230 – 1 000	47	50	57	60

On a test site, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10. 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.

<sup>a</sup> These limits apply to equipment with a rated input 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.

<sup>b</sup> The limits specified for the 3 m separation distance apply only to small equipment meeting the size criterion defined in 3.10.

Replace the existing Table 5 by the following:

**Table 5 – Electromagnetic radiation disturbance limits for class B group 1 equipment measured on a test site**

Frequency range MHz	10 m measuring distance	3 m measuring distance <sup>a</sup>
	Quasi-peak dB(μV/m)	Quasi-peak dB(μV/m)
30 – 230	30	40
230 – 1 000	37	47

On a test site, class B equipment can be measured at a nominal distance of 3 m or 10 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10.

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

<sup>a</sup> The limits specified for the 3 m separation distance apply only to small equipment meeting the size criterion defined in 3.10.

### 6.3.2.3 Frequency range 150 kHz to 1 GHz

*Replace the tenth paragraph as follows:*

On a test site, 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 9 and 11).

A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10.

*Add the following new paragraph eleven:*

The limits specified for the 3 m separation distance apply to *small equipment* only.

*Replace the existing Table 9 by the following:*

**Table 9 – Electromagnetic radiation disturbance limits for class A group 2 equipment measured on a test site**

Frequency range MHz	Limits for a measuring distance $D$ in m					
	On a test site $D = 30$ m from the equipment		On a test site $D = 10$ m from the equipment		On a test site $D = 3$ m from the equipment <sup>a</sup>	
	Electric field Quasi-peak dB( $\mu$ V/m)	Magnetic field Quasi-peak dB( $\mu$ A/m)	Electric field Quasi-peak dB( $\mu$ V/m)	Magnetic field Quasi-peak dB( $\mu$ A/m)	Electric field Quasi-peak dB( $\mu$ V/m)	Magnetic field Quasi-peak dB( $\mu$ A/m)
0,15 – 0,49	–	33,5	–	57,5	–	57,5
0,49 – 1,705	–	23,5	–	47,5	–	47,5
1,705 – 2,194	–	28,5	–	52,5	–	52,5
2,194 – 3,95	–	23,5	–	43,5	–	43,5
3,95 – 20	–	8,5	–	18,5	–	18,5
20 – 30	–	–1,5	–	8,5	–	8,5
30 – 47	58	–	68	–	78	–
47 – 53,91	40	–	50	–	60	–
53,91 – 54,56	40	–	50	–	60	–
54,56 – 68	40	–	50	–	60	–
68 – 80,872	53	–	63	–	73	–
80,872 – 81,848	68	–	78	–	88	–
81,848 – 87	53	–	63	–	73	–
87 – 134,786	50	–	60	–	70	–
134,786 – 136,414	60	–	70	–	80	–
136,414 – 156	50	–	60	–	70	–
156 – 174	64	–	74	–	84	–
174 – 188,7	40	–	50	–	60	–
188,7 – 190,979	50	–	60	–	70	–
190,979 – 230	40	–	50	–	60	–
230 – 400	50	–	60	–	70	–
400 – 470	53	–	63	–	73	–
470 – 1 000	50	–	60	–	70	–

On a test site, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10.

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

<sup>a</sup> The limits specified for the 3 m separation distance apply only to small equipment meeting the size criterion defined in 3.10.

Replace the existing Table 10 by the following:

**Table 10 – Electromagnetic radiation disturbance limits for class A EDM and arc welding equipment measured on a test site**

Frequency range MHz	Limits for a measuring distance <i>D</i> in m	
	<i>D</i> = 10 m	
	Quasi-peak dB(μV/m)	<i>D</i> = 3 m <sup>a</sup> Quasi-peak dB(μV/m)
30 – 230	80 Decreasing linearly with logarithm of frequency to 60	90 Decreasing linearly with logarithm of frequency to 70
230 – 1 000	60	70

On a test site, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10. 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.

<sup>a</sup> The limits specified for the 3 m separation distance apply only to small equipment meeting the size criterion defined in 3.10.

Replace the existing Table 11 by the following:

**Table 11 – Electromagnetic radiation disturbance limits for class B group 2 equipment measured on a test site**

Frequency range MHz	Limits for a measuring distance <i>D</i> in m				
	Electric field				Magnetic field
	<i>D</i> = 10 m		<i>D</i> = 3 m <sup>b</sup>		<i>D</i> = 3 m
	Quasi-peak dB(μV/m)	Average <sup>a</sup> dB(μV/m)	Quasi-peak dB(μV/m)	Average <sup>a</sup> dB(μV/m)	Quasi-peak dB(μA/m)
0,15 – 30	–	–	–	–	39 Decreasing linearly with the logarithm of frequency to 3
30 – 80,872	30	25	40	35	–
80,872 – 81,848	50	45	60	55	–
81,848 – 134,786	30	25	40	35	–
134,786 – 136,414	50	45	60	55	–
136,414 – 230	30	25	40	35	–
230 – 1 000	37	32	47	42	–

On a test site, class B equipment can be measured at a nominal distance of 3 m or 10 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.10.

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

<sup>a</sup> The average limits apply to magnetron driven equipment only. If magnetron driven equipment exceeds the quasi-peak limit at certain frequencies, then the measurement shall be repeated at these frequencies with the average detector, and the average limits specified in this table apply.

<sup>b</sup> The limits specified for the 3 m separation distance apply only to small equipment meeting the size criterion defined in 3.10.



### 7.5.1 General

*Add the following new paragraph below the note:*

For a separation distance of 3 m the assessment of the radiation from the cabling of the EUT shall be restricted to those fractions of interconnecting cables (see 7.5.2) and mains cables (see 7.5.3) which are within the test volume of 1,2 m diameter times 1,5 m height above ground. Peripheral equipment not fitting into the test volume shall be excluded from the measurements or decoupled from the test environment.

### 8.1 Ground planes

*Delete the note.*

### 8.3.4 Radiation measurements (9 kHz to 1 GHz)

*Replace the first paragraph as follows:*

The separation distance between the antenna and the equipment under test shall be as specified in Clause 6. If the field strength measurement at a certain frequency cannot be made at the specified distances because of high ambient noise levels (see 7.2), measurements at this frequency may be made at a closer distance but not less than 3 m. When this is done, the test report shall record the distance actually used and the circumstances of the measurement.

### 12.5 Measurement uncertainty

*Renumber the existing note as "NOTE 1" and add the following new Note 2:*

NOTE 2 When performing measurements at distances less than 10 m, higher measurement uncertainties may have to be taken into account.

### Bibliography

*Add, to the existing list, the following new reference:*

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

## AVANT-PROPOS

Le présent amendement a été établi par le sous-comité B du CISPR: Perturbations relatives aux appareils industriels, scientifiques et médicaux à fréquences radioélectriques, aux autres appareils de l'industrie lourde, aux lignes à haute tension, aux appareils à haute tension et aux appareils de traction électrique.

Le texte de cet amendement est issu des documents suivants:

FDIS	Rapport de vote
CISPR/B/492/FDIS	CISPR/B/496/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cet amendement.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de la CEI sous "<http://webstore.iec.ch>" dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

### Avant-propos

Dans le troisième alinéa commençant par « Cette cinquième édition de la CISPR 11 possède une... », remplacer la référence à CISPR 16-4-4 par CISPR 16-4-2.

## 1 Domaine d'application

Ajouter la note suivante à la fin de l'Article 1:

NOTE Les appareils de cuisson à induction sont en cours de transfert de la CISPR 11 à la CISPR 14-1. Jusqu'à ce que les appareils de cuisson à induction soient supprimés du domaine d'application de la CISPR 11, les utilisateurs des normes peuvent choisir soit la CISPR 11 soit la CISPR 14-1 pour les essais.

## 3 Termes et définitions

Ajouter, après le terme et la Définition 3.9, le nouveau terme suivant et sa définition:

### 3.10 petit matériel

matériel qui est, soit placé sur une table, soit posé sur le sol, et qui tient à l'intérieur d'un volume d'essai cylindrique dont le diamètre ne dépasse pas 1,2 m et dont la hauteur au-dessus du plan au sol ne dépasse pas 1,5 m, y compris ses câbles

### 6.2.2.3 Gamme de fréquences comprises entre 150 kHz et 1 GHz

Remplacer le troisième alinéa par ce qui suit: