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Project No. 2019/03656

Responsible committee: GEL/210/11 EMC - Standards Committee

Interested committees:

Title: BS CISPR 11/FRAG6 ED7: Fragment 6: Requirements for radiated emissions above 1 GHz

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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Responsible Committee Secretary: **Mrs Geraldine D Salt (BSI)**
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Introduction

This draft standard is based on international discussions in which the UK has taken an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent standard. There is a high probability that this text could be adopted by CENELEC as a reference document for harmonization or as a European Standard. Recipients of this draft are requested to comment on the text bearing in mind this possibility.

UK Vote

Please indicate whether you consider the UK should submit a negative (with reasons) or positive vote on this draft.

Submission of Comments

- The guidance given below is intended to ensure that all comments receive efficient and appropriate attention by the responsible BSI committee. **Annotated drafts are not acceptable and will be rejected.**
- All comments must be submitted, preferably electronically, to the Responsible Committee Secretary at the address given on the front cover. Comments should be compatible with version 6.0 or version 97 of Microsoft Word for Windows, if possible; otherwise comments in ASCII text format are acceptable. **Any comments not submitted electronically should still adhere to these format requirements.**
- All comments submitted should be presented as given in the example below. Further information on submitting comments and how to obtain a blank electronic version of a comment form are available from the BSI website at:
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	(7)
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/ Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



CIS/B/759/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
CISPR 11/FRAG6 ED7

DATE OF CIRCULATION:
2021-02-05

CLOSING DATE FOR COMMENTS:
2021-04-30

SUPERSEDES DOCUMENTS:
CIS/B/743/CD, CIS/B/755/CC

IEC CIS/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

SECRETARIAT:
Japan

SECRETARY:
Mr Satoru Ozaki

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☒ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

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Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Fragment 6: Requirements for radiated emissions above 1 GHz

NOTE FROM TC/SC OFFICERS:

INTRODUCTION

Note: the text of this INTRODUCTION will not be part of a final publication of the next edition of CISPR 11.

During the latest meetings of CISPR/B WG 1, since discussing the comments from NCs on the document B/662/DC (with the outcome in B/670/INF), and at the last plenary meeting of CISPR/B in Shanghai, CN in Oct 2019 (see B/734/DL, B/735/RM), the need of maintenance of CISPR 11 Ed. 6.2 was identified. WG 1 was tasked at that plenary meeting to start with the related activities and consequently to circulate working drafts and/or committee drafts to NCs for commenting.

As many maintenance issues have been identified, partly editorial ones, partly technical ones and partly ones resulting in new sets of requirements, WG 1 decided to split the maintenance work into several fragments. This would allow to process the maintenance issues individually and to finally merge them at the FDIS stage depending on their individual progress.

For the time being, it is intended to continue maintenance with a CD2 for the following fragments (with the 1st CD circulated as):

- f2: general maintenance issues, as for example revision of definitions and annexes (circulated as B/739/CD, B/757/CC)
- f3: requirements for radio beam wireless power transfer (WPT-AAD) equipment (circulated as B/740/CD, B/750/CC)
- f4: requirements when performing emission measurements on robots (circulated as B/741/CD, B/751/CC)
- f5: requirements for wired network ports (circulated as B/742/CD, B/753/CC)
- f6: requirements for Group 1 equipment in the frequency range above 1 GHz (circulated as B/743/CD, B/755/CC)
- f7: requirements for radio enabled products (circulated as B/744/CD, B/756/CC)

The work on f1 is done in AHG 4 with currently finalizing the observations to the comments received on B/749/CD.

This document covers CD2 of fragment f6 with a proposal for the introduction of requirements for radiated emissions above 1 GHz. It takes into account the information in the documents B/726/DC and B/733A/INF as well as the comments received on CD1 (B/743/CD and B/755/CC).

INDUSTRIAL, SCIENTIFIC AND MEDICAL EQUIPMENT – RADIO-FREQUENCY DISTURBANCE CHARACTERISTICS – LIMITS AND METHODS OF MEASUREMENT –

Amendment to CISPR 11 - Requirements for radiated emissions above 1 GHz Committee Draft (CD) – Fragment 6 (f6)

Start of the instruction list

3 Terms and definitions

Add the following definition:

3.x1

highest internal frequency

F_x

highest fundamental frequency generated or used within the EUT, or the highest frequency at which it operates

6.2.2.4 Frequency range 1 GHz to 18 GHz

Replace the existing paragraph by the following text:

The equipment shall meet the electromagnetic radiation disturbance limits specified in Table B up to the maximum measurement frequency determined in accordance with Table A. If the highest internal frequency F_x is not known, measurements shall be performed up to 6 GHz. The equipment shall meet both the peak and the average limits. If the measurements using peak detector pass the average limit, there is no need to apply the average detector.

In the frequency range 6 GHz to 18 GHz limits are not specified.

Table A – Required highest frequency for radiated measurement

Highest internal frequency F_x	Highest measured frequency
$F_x \leq 108 \text{ MHz}$	1 GHz
$108 \text{ MHz} < F_x \leq 500 \text{ MHz}$	2 GHz
$500 \text{ MHz} < F_x \leq 1 \text{ GHz}$	5 GHz
$F_x > 1 \text{ GHz}$	$5 \times F_x$ up to a maximum of 6 GHz
NOTE F_x is defined in 3.x1.	

For emission measurements above 1 GHz, the peak detector limits shall not be applied to disturbances produced by arcs or sparks that are high voltage breakdown events. Such disturbances arise when devices contain or control mechanical switches that control current in inductors, or when devices contain or control subsystems that create static electricity. Only the

average limits shall apply to disturbances from arcs and sparks, while both the peak and average limits shall apply to all other disturbances from such devices.

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

Frequency range GHz	Limits for a measurement distance of 3 m dB(μV/m)			
	Class A		Class B	
	Peak	Average	Peak	Average
1 to 3	76	56	70	50
3 to 6	80	60	74	54
At the transitional frequency, the more stringent limit shall apply.				

Measurements may be performed at distances of 3 m or 10 m taking into account the EUT size criterion as specified in CISPR 16-2-3. Where a different measurement distance is chosen, other than the reference distance defined in the limit columns of Table B, the limits shall be modified as follows:

$$\text{New limit} = \text{Limit (3 m)} - 20 \log (\text{measurement distance}/3 \text{ m})$$

where both limits are expressed in dB(μV/m).

7.3.1 Measuring instruments

Replace the second to last paragraph by the following text:

For measurements at frequencies above 1 GHz, a spectrum analyser or test receiver with characteristics as defined in CISPR 16-1-1 shall be used.

7.3.4 Antennas

After the existing subclause 7.3.4.2.4, insert a new subclause 7.3.4.3, as follows:

7.3.4.3 Frequency range from 1 GHz to 18 GHz

In the frequency range from 1 GHz to 18 GHz the antenna used shall be as specified in CISPR 16-1-4.

9.2 Receiving antenna

Add a new phrase, at the end of the existing paragraph, as follows:

However, measurement distances up to 10 m may also be used, provided the entire measurement system (from the antenna to the measurement instrument) has sufficient sensitivity to detect EUT emissions that are at least 6 dB below the applicable limit, in the specified limit detector.

9.4.1 General

Insert, before the first existing paragraph, the following new subclause title:

9.4.1.1 General requirements for both group 1 and group 2 equipment

Add at the end of the first existing paragraph the following sentence:

For SAC and OATS, additional absorbers are typically required as specified in CISPR 16-2-3.

After the first two existing paragraphs, but before the third paragraph, insert the following new subclause title:

9.4.1.2 Flowchart for measurements on group 2 equipment**9.4.2 Operating conditions of the EUT**

Replace the title of this subclause by:

9.4.2 Operating conditions of the EUT (group 2 equipment only)**9.4.3 Peak measurements**

Replace the title of this subclause by:

9.4.3 Peak measurements (group 2 equipment only)**9.4.4 Weighted measurements**

Replace the title of this subclause by:

9.4.4 Weighted measurements (group 2 equipment only)



CIS/B/760/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
CISPR 11/FRAG7 ED7

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2021-04-30

SUPERSEDES DOCUMENTS:
CIS/B/744/CD, CIS/B/756/CC

IEC CIS/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

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TITLE:

Fragment 7: Requirements for radio enabled products

NOTE FROM TC/SC OFFICERS:

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INTRODUCTION

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The work on f1 is done in AHG 4 with currently finalizing the observations to the comments received on B/749/CD.

This document covers CD2 of fragment f7 with a proposal for the introduction of requirements for radio enabled products. It takes into account the information in the documents B/726/DC and B/733A/INF as well as the comments received on CD1 (B/744/CD and B/756/CC).

INDUSTRIAL, SCIENTIFIC AND MEDICAL EQUIPMENT – RADIO-FREQUENCY DISTURBANCE CHARACTERISTICS – LIMITS AND METHODS OF MEASUREMENT –

Amendment to CISPR 11 - Requirements for radio enabled products Committee Draft (CD) – Fragment 7 (f7)

Start of the instruction list

1 Scope

Add after the 3rd paragraph the following text:

ISM equipment which incorporates radio transmit/receive functions (radio enabled equipment) is included in the scope of this document, see Annex X. However, the emission requirements in this standard are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU including their spurious emissions.

NOTE This exclusion is limited to those intended transmitter emissions, which leave the EUT as radiated emissions and are coupled onto the wire line in the measurement setup. For conducted transmissions on frequencies intentionally produced by the radio part of an EUT this exclusion does not apply.

Note: the above text including the Note is taken from CISPR/1432/INF from 2019-09-20.

3 Terms and definitions

Add the following definitions:

3.x1

radio enabled device

non-radio device (host) including one or more radio device(s) or plug-in radio module(s) that may use the host's control function(s) and/or power supply

3.x2

radio device

assembly consisting of (a) radio transmitter(s) and/or (a) radio receiver(s) capable to function on a stand-alone basis with or without additional accessories

Note to entry: these accessories can be incorporated in the assembly or connected to it from outside. Examples of accessories are: external antenna, remote control, headsets, power supply, display, etc.

3.x3

radio module

assembly consisting of (a) radio transmitter(s) and/or (a) radio receiver(s) intended to be incorporated in a host equipment

Note to entry: A radio module can incorporate a power supply or any other accessories.

3.x4

radio transmitter

electronic device which produces radio waves with an antenna

3.x5

applicable radio standard

standard containing requirements for the assessment of the emissions of a radio product