SLOVENSKI STANDARD
SIST EN IEC 61000-6-3:2021/oprA1:2024

01-november-2024

Elektromagnetna združljivost (EMC) - 6-3. del: Osnovni standardi - Standard oddajanja motenj za opremo v stanovanjskih okoljih - Dopolnilo A1

Amendment 1/Fragment 3: Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments - Radiated Magnetic Emissions Requirements below 30 MHz

Partie 6-3: Normes génériques - Norme sur l'émission relative aux appareils utilisés dans les environnements résidentiels - Exigences en matière d'émissions magnétiques rayonnées au-dessous de 30 MHz

Ta slovenski standard je istoveten z: **EN IEC 61000-6-3:2021/prA1{frag3}:2024**

ICS:

33.100.10	Emisija	Emission

SIST EN IEC 61000-6-3:2021/oprA1:2024 en

CIS/H/507/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 61000-6-3/AMD1/FRAG3 ED3**	
DATE OF CIRCULATION: **2024-09-20**	CLOSING DATE FOR VOTING: **2024-12-13**
SUPERSEDES DOCUMENTS: **CIS/H/456/CD, CIS/H/465A/CC**	

IEC CIS/H : LIMITS FOR THE PROTECTION OF RADIO SERVICES	
SECRETARIAT: Korea, Republic of	SECRETARY: Mr Jung Hwan Hwang
OF INTEREST TO THE FOLLOWING COMMITTEES: CIS/A,CIS/B,CIS/D,CIS/F,CIS/I	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Electromagnetic Compatibility	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

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.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Amendment 1/Fragment 3: Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments - Radiated Magnetic Emissions Requirements below 30 MHz

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

The attached CD has been developed by CISPR SC/H/WG1.

It implements specific conditions, test requirements and limits for the magnetic field strength of equipment in the frequency range below 30 MHz in IEC 61000 6 3

Introductory Note

This draft is based upon various CISPR H documents (including CIS/H/336/DC, CIS/H/379/INF, CIS/H/456/CD) and several CISPR H WG 1 documents written since 2016. It defines limits, test methods and calibration requirements for the measurement of magnetic field strength from mainly WPT equipment in the frequency range below 30 MHz to be implemented into the Generic emission standard IEC 61000-6-3.

An equivalent implementation is planned for IEC 61000-6-4 and IEC 61000-6-8 considering following:

- The separation distance in industrial environments between victim and source is larger than in other environments, typically greater than 30 m.
- The product is intended to be installed and maintained by a professional.
- Similar special measurement and mitigation techniques as defined in IEC 61000-6-8, Annex D can be implemented.

For wireless power transfer (WPT) and plasma screen limits presented are based upon those specified in CISPR 14-1, for limits defined in the informative annex CISPR 11 limits have been chosen.

An additional annex has been included relating to the application of the magnetic field limits based upon power consumption of the EUT. Based upon agreement within the WG and feedback from the national committees it was agreed to leave this annex within the current document but as informative.

The previous documents included magnetic field emission test requirements, however these have now been published in CISPR 16.

Equipment that has been shown not to generate significant magnetic field emissions below 30 MHz is excluded from testing but suggested limits for some equipment have been included in an informative annex.

The typical EUT setup includes 0,8 m of exposed mains cabling, and as such is not just a simple magnetic source. Hence, an annex has been included, using this new concept, to modify the conversion factors used to adjust limits when the measurement distance is changed from 3 m to 10 m. The previous conversion factors were specified in CISPR TR 16-4-4. The limits at a measurement distance of 10 m presented within this document have been corrected based upon these modified conversion factors.

3.1 Terms and definitions

add the following definitions:

Editorial note, these clause numbers can be different in the final version if other fragments add additional definitions.

3.1.17
primary WPT port
port through which power is transferred wirelessly to equipment with one or more secondary WPT ports

3.1.18
secondary WPT port
port through which power is received from another equipment with a primary WPT port

Note 1 to entry: The secondary device can store and/or directly use the received energy.

3.1.19
wireless power transfer
WPT
transfer of electrical energy between equipment, not galvanically connected, through a primary WPT port (3.1.17) to a secondary WPT port (3.1.18)

Note 1 to entry: WPT can use a variety of coupling methods including inductive, capacitive, and electromagnetic coupling technologies. The method of energy transfer uses any combination of electric/magnetic or electromagnetic fields.

Note 2 to entry: Equipment with a primary WPT port (3.1.17) can be able to provide power to more than one equipment with a secondary WPT port (3.1.18).

Note 3 to entry: See figure 2.

add the following figure and renumber the figures accordingly:

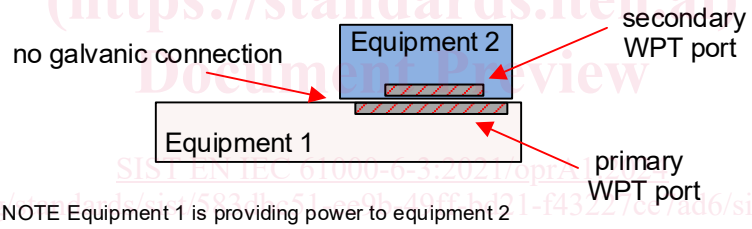

Figure 2 – Basic WPT configuration

3.1.20 plasma screen
display that uses small cells containing plasma, an ionized gas that responds to electric fields to create light

3.2 Abbreviated terms

add the following abbreviations:

PEC	Perfect Electric Conductor
ITU	International Telecommunication Union
WPT	Wireless Power Transfer

5 Measurements and conditions during testing

add the following notes after paragraph five and renumber the exist note, to note 3

NOTE 1 When testing an EUT that is using WPT (3.1.19), the emissions levels can be impacted by the relative position of the primary WPT port (3.1.17) and any secondary WPT port (3.1.18). The further away the secondary WPT port (3.1.18) is from the primary WPT port (3.1.17), or any misalignment can cause an increase in emission levels.

NOTE 2 The aim of the magnetic field emission measurement process is to only measure emissions from the enclosure and the associated power leads, however the source of some emissions are from other attached cables. Care needs to be taken to ensure the emissions from these other sources are minimized.

7 Applicability

add the following at the end of the clause:

This document applies magnetic emission requirements to equipment with an electromagnetic interference potential to radio reception in the frequency range 150 kHz to 30 MHz. Table 7 defines the equipment that shall satisfy the magnetic emission requirement.

11 Emission test details

Add a new bulleted item to the end of the bullet list:

- During radiated magnetic field emission measurements, it is recommended that the antenna cable that is attached to the magnetic loop antenna is fed back horizontally from the antenna with ferrites attached (as it would be positioned during calibration).

Update the title of table 3 to the following:

Table 3 – Requirements for radiated electric field emissions, enclosure port

Add the following new table 7 after table 6:

110 **Table 7 – Requirements for radiated magnetic field emissions, enclosure port**

Applicable to any of the following: Category 1. EUT with WPT (3.1.19) operating at a frequency (or frequencies) below 30 MHz Category 2. EUT containing a plasma screen					
Table clause	**Test facility**	**Frequency range** MHz	**Limits** dB(μA/m) **Detector / Measurement distance**	**Measurement specifications**	**Limitations and restrictions**
4.1	OATS or SAC	0,15 to 1	12 to -8.8 [a] Quasi-peak / 10 m	**Instrumentation,** CISPR 16-1-1, Clause 4 **Antennas,** CISPR 16-1-4, Clause 4.5 **Test site**, CISPR 16-1-4, Clause 5 **Method,** CISPR 16-2-3, Clause 7.11	Measurements shall be performed at a 10 m distance only. No extrapolation to other measurement distances is allowed.
		1 to 4	-8.8 to -13.5 [a] Quasi-peak / 10 m		
		4 to 20	-13.5 to -7 [a] Quasi-peak / 10 m		
		20 to 30	-7 [a] Quasi-peak / 10 m		
4.2	OATS or SAC	0,15 to 4	39 to 3 Quasi-peak / 3 m	**Instrumentation,** CISPR 16-1-1, Clause 4 **Antennas,** CISPR 16-1-4, Clause 4.5 **Test site**, CISPR 16-1-4, Clause 5 **Method,** CISPR 16-2-3, Clause 7.11	Measurements shall be performed at a 3 m distance only. No extrapolation to other measurement distances is allowed.
		4 to 30	3 Quasi-peak / 3 m		
Apply either table clause 4.1 or 4.2 across the required frequency range See Table 10 in CISPR 16-2-3 for recommended maximum EUT volumes as they relate to measurement distances. For low power equipment (requiring less than 1 kW) consider applying the modification of the limits specified in Annex E. Within this table, the version of the references are as follows: CISPR 16-1-1 is CISPR 16-1-1:2019, CISPR 16-1-4 is CISPR 16-1-4:2019+AMD1:2020/AMD2:2023, CISPR 16-2-3 is CISPR 16-2-3/AMD1:2019/AMD2:2023 [a] These are calculated from the limits at a 3 m measurement distance using the conversion factors defined in Annex F. NOTE Rationale for these limits is contained in Annex D.					

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113 *Add the following new annexes:*

114 Editorial note, the number of these annexes can be different in the final version if other successful fragments add additional
115 annexes.

Annex D

(informative)

Rationale for radiated magnetic field emissions requirements

D.1 General

There is an increase in the use of the radio spectrum over the frequency range from 150 kHz to 30 MHz from non-radio devices that are creating an increased threat. This increased threat comes mainly from radiated magnetic fields, some of which are intentional and others which are unintentional. It is also recognised that the majority of electrical and electronic devices do not create significant unwanted emissions in this frequency range due to the lack of an efficient coupling mechanism for wavelengths greater than ten metres and that some limitation of radiation from the wires is provided from the tests which are already required on power, wired network ports, antenna and other ports.

Devices which operate in non-residential environments can be a source of magnetic field emissions but they tend to be away from locations where radio reception is expected.

The main sources of magnetic fields are from devices that have an active WPT primary port (3.1.17) and specific devices such as Plasma TVs and induction cooking equipment. The derived limits reflect the threat from these devices and cannot be applied to general devices. The requirements would be applicable to intermodulation products between sources within the EUT and any WPT port.

It was recognised by CISPR I in 2013 that Plasma TVs were an EMC threat which is why IEC PAS 62825 was developed. This publicly available specification covered radiated magnetic field emission requirements in the frequency range 150 kHz to 30 MHz.

Annex E

(informative)

Possible limits for radiated magnetic field emissions for EUT with the potential to produce disturbing electromagnetic fields

E.1 General

Some EUT intentional create large magnetic dipole moments, for example in WPT applications and others by design, for example plasma screens and hence are covered in the normative part of this document. However, there are other EUT types with the potential to create disturbing electromagnetic fields. Small conducting objects are physically unable to radiate at frequencies below 30 MHz efficiently. When the object becomes larger and approaches a size equal to one quarter of a wavelength, it can start to radiate via the enclose port. These enclosure port emissions might not be assessed using conducted measurements techniques. These physically larger EUT fall under category 3 of the applicability list in Table E.1.

Furthermore, there are generic EUT that create external fields to provide a function to non-attached equipment, for example material manipulation, probing, controlling. EUT that create these external fields fall under the category 4 of the applicability list on Table E.1.

The main transmitter WPT frequency is excluded from limits in Table E.1 if the device uses a frequency from within a designated ISM band (See CISPR 11: 2024, Table 1).

156 **Table E.1 – Proposed limits for radiated magnetic field emissions, enclosure port**

Applicable to any of the following:

Category 3. EUT for which the imaginary cuboid of minimum dimensions that encompasses the EUT enclosure has its longest diagonal greater than 2,0 m. The longest diagonal of the cuboid is calculated as the square root of the sum of squares of the cuboid's length, width, and height.

If an EUT consists of several parts that are connected together by a single cable harness, the size criterion is applied to all parts individually.

NOTE 1 The single cable harness will minimize current loop area.

Category 4. EUT that have an operating frequency below 30 MHz, with the intention to create an RF field at that frequency, to provide a function to remote (non-attached) equipment.

Table clause	Test facility	Frequency range MHz	Limits dB(µA/m) Detector / Measurement distance	Measurement specifications	Limitations and restrictions
E.2	OATS or SAC	0,15 to 1	12 to -0,9 [a] Quasi-peak / 10 m	**Instrumentation,** CISPR 16-1-1, Clause 4 **Antennas,** CISPR 16-1-4, Clause 4.5 **Test site**, CISPR 16-1-4, Clause 5 **Method,** CISPR 16-2-3, Clause 7.11	Measurement at a 10 m distance only. No extrapolation to other measurement distances is allowed.
		1 to 4	-0,9 to 0,2 [a] Quasi-peak / 10 m		
		4 to 15	0,2 to -3,5 [a] Quasi-peak / 10 m		
		15 to 30	-3,5 to -7,0 [a] Quasi-peak / 10 m		
E.2	OATS or SAC	0,15 to 30	39 to 3 Quasi-peak / 3 m	**Instrumentation,** CISPR 16-1-1, Clause 4 **Antennas,** CISPR 16-1-4, Clause 4.5 **Test site**, CISPR 16-1-4, Clause 5 **Method,** CISPR 16-2-3, Clause 7.11	Measurement at a 3 m distance only. No extrapolation to other measurement distances is allowed.

Apply either table clause E.1 or E.2 across the required frequency range

See Table 10 in CISPR 16-2-3 for recommended maximum EUT volumes as they relate to measurement distances.

For low power equipment (requiring less than 1 kW) application of Annex E can be considered.

Within this table, the version of the references are as follows:

CISPR 16-1-1 is CISPR 16-1-1:2019, CISPR 16-1-4 is CISPR 16-1-4:2019/AMD1:2020/AMD2:2023, CISPR 16-2-3 is CISPR 16-2-3/AMD1:2019/AMD2:2023

NOTE Rationale for these limits is contained in Annex D.

[a] These are calculated from the limits at a 3 m measurement distance using the conversion factors defined in Annex F

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