



SLOVENSKI STANDARD
SIST EN IEC 55015:2019/oprA1:2023
01-junij-2023

Mejne vrednosti in metode merjenja karakteristik občutljivosti za radijske motnje električne razsvetljave in podobne opreme - Dopolnilo A1

Amendment 1 - Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

Grenzwerte und Messverfahren für Funkstörungen von elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten

Amendement 1 - Limites et méthodes de mesure des perturbations radioélectriques produites par les appareils électriques d'éclairage et les appareils analogues

Ta slovenski standard je istoveten z: EN IEC 55015:2019/prA1:2023

ICS:

33.100.10 Emisija Emission

SIST EN IEC 55015:2019/oprA1:2023 en



CIS/F/837/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

CISPR 15/AMD1 ED9

DATE OF CIRCULATION:

2023-04-21

CLOSING DATE FOR VOTING:

2023-07-14

SUPERSEDES DOCUMENTS:

CIS/F/821/CD, CIS/F/829A/CC

IEC CIS/F : INTERFERENCE RELATING TO HOUSEHOLD APPLIANCES TOOLS, LIGHTING EQUIPMENT AND SIMILAR APPARATUS	
SECRETARIAT: Australia	SECRETARY: Ms Suba Ananth
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 34	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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- any relevant patent rights of which they are aware and to provide supporting documentation,
- any relevant "in some countries" clauses to be included should this proposal proceed. Recipients are reminded that the enquiry stage is the final stage for submitting "in some countries" clauses. See AC/22/2007.

TITLE:

Amendment 1 - Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

1 INTRODUCTION

2 This edition includes the following significant technical changes with respect to the previous edition:

- 3 a) The removal of the voltage probe method for the conducted disturbance measurement of local wired
4 port other than the electrical power supply interface of ELV lamps;
- 5 b) The introduction of limits and measurement methods for radiated disturbance of the enclosure port
6 in the frequency range 1 – 6 GHz;
- 7 c) The test set-up for the conical metal housing for single capped lamps has been rotated;
- 8 d) The arrangement of cables connected to interfaces of wired network ports has been modified. Cable
9 length has been extended to 1,0 m;
- 10 e) Measuring arrangements for conducted disturbances for very large EUTs has been clarified.
- 11 f) Removal of Annex E regarding statistical methods
- 12 g) Includes agreed comments to 1st CD CIS/F/801/CD given in CIS/F/803a/CC
- 13 h) Includes agreed comments to 2nd CD CIS/F/821/CD given in CIS/F/829/CC.

14

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<https://standards.iteh.ai/catalog/standards/sist/f864c30d-64e9-4a89-8e55-74312f041c0b/sist-en-iec-55015-2019-opra1-2023>

15 **1 Scope**

16 *Replace the first and second paragraph with the following text:*

17 This document sets out requirements for controlling the emission (radiated and conducted) of
18 radiofrequency disturbances from:

- 19 – lighting equipment (3.3.16), except for the types excluded in the second paragraph;
- 20 – the lighting part of multi-function equipment where this lighting part is a primary function;
- 21 NOTE 1 Examples are lighting equipment with visible-light communication.
- 22 – UV and IR radiation equipment for residential and non-industrial applications;
- 23 – simple advertising signs (see 3.3.1);
- 24 – decorative and entertainment lighting (see 3.3.6);
- 25 – emergency signs.

26

27 Excluded from the scope of this document are:

- 28 – components or modules intended to be built into lighting equipment and which are not user-
29 replaceable;
- 30 – lighting equipment intended exclusively for aircraft or airfield facilities (runways, service facilities,
31 platforms);

32 NOTE 2 However, general-purpose lighting that can be installed in many locations, including installations not related to aircraft
33 or airfield, is not excluded from the scope of CISPR 15.

- 34 – installations;
- 35 – equipment for which the electromagnetic compatibility requirements in the radio-frequency range
36 are explicitly formulated in other IEC standards, even if they incorporate a built-in lighting function.

37 NOTE 3 Examples of exclusions are:

- 38 – equipment with built-in lighting devices for display back lighting, scale illumination and signaling;
- 39 – video signs and dynamic displays (in scope of CISPR 32);
- 40 – range hoods, refrigerators, freezers (in scope of CISPR 14);
- 41 – photocopiers, projectors (in scope of CISPR 32);
- 42 – lighting equipment for road vehicles (in scope of CISPR 12);
- 43 – maritime equipment (in scope of IEC TC 18 and TC 80);
- 44 – lighting equipment operating in the ISM frequency bands (in scope of CISPR 11).

45

46 *Replace the sixth paragraph with the following text and additional note:*

47 The emission requirements in this document are not intended to be applicable to the intentional
48 transmissions from a radio transmitter as defined by the ITU including their spurious emissions.

49

50

51

52 2 Normative references

53 *Replace the references to CISPR 16-1-1 with the following updated reference:*

54 CISPR 16-1-1:2019, *Specification for radio disturbance and immunity measuring apparatus and*
55 *methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

56 *Add the following just below the CISPR 16-1-2 reference:*

57 CISPR 16-1-2:2014/AMD1:2017

58 *Replace the reference to CISPR 16-1-4 with the following updated reference:*

59 CISPR 16-1-4:2019/AMD1:2020, *Specification for radio disturbance and immunity measuring apparatus*
60 *and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Antennas and test*
61 *sites for radiated disturbance measurements*

63 *Insert the following references to new amendments under the existing references to CISPR 16-2-3 and*
64 *CISPR 16-4-2 respectively:*

65 CISPR 16-2-3:2016/AMD1:2019

66 CISPR 16-4-2:2011/AMD2:2018

67 *Insert the following new reference just below the existing reference to CISPR TR 30-1:*

68 CISPR TR 30-2:2012, *Test method on electromagnetic emissions – Part 2: Electronic control gear for*
69 *discharge lamps excluding fluorescent lamps*

70

71 *Modify definitions 3.2.6 and 3.2.7 to read:*

72 3.2.6

73 **primary function**

74 function of an equipment as specified in the instructions for use

75 3.2.7

76 **secondary function**

77 any function of an equipment not being essential for fulfilling the primary function as specified in the
78 instructions for use

79

80 *Modify definitions 3.3.1 and 3.3.2 to the following:*

81 3.3.1

82 **simple advertising sign**

83 unit which makes use of lighting for advertising, traffic signage, road signs or alike

84 Note 1 to entry: Examples are neon tube advertising signs, emergency signs, inner-illuminated signs.

85 3.3.2

86 **ancillary equipment**

87 transducers (e.g. current probes and artificial networks) and other equipment (e.g. cables, preamplifiers,
88 attenuators, filters, adapters) connected to a measuring receiver or to the EUT and used in the
89 disturbance signal transfer between the EUT and the measuring receiver

90

91 *Add a note to entry at the end of definition 3.3.3:*

92 Note 2 to entry: The emission from the associated equipment should not influence the emission of the EUT.

93

94 *Replace the existing term of definition 3.3.6 with the following new term and add two new notes (reusing*
 95 *the same definition):*

96 **3.3.6**

97 **decorative and entertainment lighting**

98 equipment that emits light for atmospheric, artistic or ambiance purposes

99 Note 1 to entry: Examples of decorative lighting include LED strip lights, rope lights, and projectors for illuminating building
 100 walls or statues in coloured and/or patterned light. Usually, these types of lighting equipment are static, but they can shift
 101 through various colours/patterns.

102 Note 2 to entry: Examples of entertainment lighting include stage, theatre and sky beam lights. Usually, these types of lighting
 103 equipment also include some movement, such as dynamically changing the direction of the projected light.”

104

105 *Modify the definition 3.3.16 as follows (keeping the existing Note 1 to entry):*

106 **3.3.16**

107 **lighting equipment**

108 device that can be used as an independent unit to illuminate a scene, objects or their surroundings so that they
 109 can be seen, and modules and components designed to be used in or with such device or assembly of devices

110

111 *Modify definition 3.3.20 to the following:*

112 **3.3.20**

113 **restricted ELV lamp**

114 ELV lamp with specific restrictions on the type of power supply and/or the cable length that can be
 115 applied to it, as specified in the instructions for use

116 *Add a new definition for user replaceable:*

117 **3.3.24**

118 **User replaceable**

119 Components which may be replaced by an ordinary person

120 **3.5 Abbreviated terms**

121 *Correct the term AAN to the following:*

AAN asymmetric artificial network

122 *Add the term FSOATS:*

FSOATS free space open area test site

123 *Add the term Fc:*

Fc Clock frequency

124

125 *Remove the term ISN*

126

127 **4.3.1 Electric power supply interface**

128 *Add the following note below Table 1:*

129 NOTE In the US, lighting devices are classified as either a non-consumer (Class A) or consumer (Class B) device. These
 130 classifications limits are similar to the Class A and Class B equipment categories in the CISPR 32:2015+A1 2019 publication.
 131

132 4.3.2 Wired network interfaces other than power supply

133 *In NOTE 2 replace the term 'artificial asymmetrical network' with 'asymmetric artificial network'*
 134

135 4.4 Limits and methods for the assessment of local wired ports

136 *Delete the existing third paragraph.*

137 *Replace the existing fifth paragraph with:*

138 The limits and methods given in Table 6 shall be applied to local wired ports other than electrical power
 139 supply interface of ELV lamps.

140 *Delete Table 5.*

141

142 Table 6 – Disturbance current limits at local wired ports: local wired ports other than electrical 143 power supply interface of ELV lamp

144 *Within the table, renumber existing NOTE 1 to NOTE and delete existing NOTE 2.*

145

146 4.5.2 Frequency range 9 kHz to 30 MHz

147 *Replace the fifth paragraph with the following text:*

148 The limits in Table 7 and Table 8 provide different options. The test report shall state which method
 149 was used and which limits were applied.

150 *Replace Table 7 with the following:*

151 **Table 7 – Maximum EUT dimension that can be used**
 152 **for testing using LLAS with different diameters**

Maximum dimension of the EUT, D m	Loop antenna diameter m
$D \leq 1,6$	2
$D \leq 2,4$	3
$D \leq 3,2$	4
<p>No minimum EUT dimensions are given for the 3 m and 4 m LLAS antenna systems. However, it is recommended to apply the smallest size of the EUT.</p> <p>If a small EUT is tested in a large LLAS (i.e., EUT smaller than 1,6 m tested in a 3 m or 4 m LLAS, or EUT smaller than 2,4 m tested in a 4 m LLAS), it shall be confirmed that the LLAS is able to detect EUT generated emissions with at least 10 dB of margin above the measuring instrument's noise floor.</p>	

153

154 *Correct the position of Table 9; insert existing table 9 at the end of 4.5.2 directly after Table 8.*

155

156 4.5.3 Frequency range 30 MHz to 1 GHz

157 *Replace the second paragraph with the following text:*

158 Table 10 provides different options. The test report shall state which method was used and which limits
159 were applied.

160 *Delete Table 9.*

161 *Insert additional sentence to table note (b) of Table 10:*

162 ^b The TEM-waveguide is limited to EUTs without cables attached and with a maximum size according to 6.2 of IEC 61000-4-
163 20:2010 (the largest dimension of the enclosure at 1 GHz measuring frequency is one wavelength, 300 mm at 1 GHz). The
164 results taken in a TEM waveguide are converted to field strength for comparison with OATS-based limits at 10 m distance.

165

166 *Add note below Table 10:*

167 NOTE In the US, lighting devices are classified as either a non-consumer (Class A) or consumer (Class B) device. These
168 classifications limits are similar to the Class A and Class B equipment categories in the CISPR 32:2015+A1 2019 publication.

169

170 *Insert new clause 4.5.4 with following text:*

171 **4.5.4 Frequency range 1 GHz to 6 GHz**

172 Radiated emission measurements in this frequency range shall be performed up to the frequency determined in
173 accordance with Table 13, based on the highest clock frequency of the EUT. However, if the clock frequencies of
174 the EUT are not known, radiated emission measurements shall be performed up to 6 GHz.

175

Table 13 – Radiated measurement highest frequency

Highest clock frequency (Fc)	Highest measurement frequency
$F_c \leq 108 \text{ MHz}$	1 GHz
$108 \text{ MHz} < F_c \leq 500 \text{ MHz}$	2 GHz
$500 \text{ MHz} < F_c \leq 1 \text{ GHz}$	5 GHz
$F_c > 1 \text{ GHz}$	$5 \times F_c$ up to a maximum of 6 GHz

176

177 Radiated-field disturbance limits and measurement methods in the frequency range of 1 GHz to 6 GHz are given
178 in Table 14 in terms of peak and average values of the electric field component.

179

Table 14 – Radiated emissions requirements at frequencies above 1 GHz

Frequency Range MHz	Testing Method	Testing Distance m	Detector Type / bandwidth	Limits dB(μ V /m)
1 000 to 3 000	FSOATS	3	Average / 1 MHz	50
3 000 to 6 000				54
1 000 to 3 000			Peak / 1 MHz	70
3 000 to 6 000				74
Apply across the frequency range from 1 000 MHz to the highest required frequency of measurement derived from Table 13. Allowed measurement distances: 1 m, 3 m, 5 m, or 10m. Where a different measurement distance is chosen, other than the reference testing distance defined (3 m), the limit is offset based upon the following formula: New limit = defined limit – 20 log (measurement distance/reference distance) An FSOATS may be a SAC/OATS with RF absorber on the RGP or a FAR, see specific details in CISPR 16-2-3:2016				

180

181 NOTE In the US, lighting devices are classified as either a non-consumer (Class A) or consumer (Class B) device. These
182 classifications limits are similar to the Class A and Class B equipment categories in the CISPR 32:2015+A1 2019 publication.

183

184 **5.3.2.2 Conducted disturbance requirements for wired network interfaces other than power** 185 **supply**

186 *In the second paragraph, replace the term 'artificial asymmetrical network' with 'asymmetric artificial*
187 *network'*

188

189 **5.3.3 Conducted disturbance requirements for local wired ports**

190 *Replace the existing second paragraph with:*

191 For local wired ports other than power supply interface of ELV lamp, the disturbance current limits given
192 in Table 6 shall be applied using the measurement method given in 8.5.2.3. The method of measurement
193 and the applicable limits for the power supply interface of ELV lamp are described in 6.4.7.

194

195 **5.3.4.1 Frequency range 9 kHz to 30 MHz**

196 *Replace the first bullet under the first paragraph with the following:*

197 – the instructions for use allows external wired interfaces connected to the EUT by single-conductor
198 cables;

199

200 *Insert a new clause 5.3.4.3 as follows:*

201 **5.3.4.3 Frequency range 1 GHz to 6 GHz**

202 The EUT shall be tested for radiated emissions in the range 1 GHz to 6 GHz in accordance with Table
203 14.

204

205 **5.3.6 Interfaces that can be categorised as multiple types of ports**

206 *Modify the example given in clause 5.3.6. to the following:*

207 EXAMPLE A power-over-Ethernet can be identified as both a wired network port (Ethernet-connection) and a local-wired port
208 (DC power supply). For the wired network port (Ethernet-connection), the limits in either Table 2 or Table 3 would apply. For
209 the local-wired port (DC power supply) the limits in Table 6 apply. In this case, the disturbance current limits of Table 3 and
210 Table 6 are the same. In this example, the limits for either type of port are basically the same. Broadband over power and
211 powerline communication are other examples where the interface in question can be categorized as different kinds of wired
212 network ports (4.3).

213

214 **6.3.2 Requirements for rope lights**

215 *Add reference to new Table 14 in first paragraph:*

216 Rope lights with active switching electronic components shall comply with the disturbance voltage limits
217 at mains terminals given in Table 1 and with the radiated disturbance limits given in Table 8 or Table 9
218 if applicable, and in Table 10 and Table 14 if applicable.

219

220 **6.4 Modules**221 *Replace the title of this subclause with:*222 **6.4 Components and modules**

223

224 **6.4.1 General**225 *Replace all instances of 'module' (or 'modules') with 'component or module' (or 'components or modules')*226 *Replace the fifth paragraph with the following text:*

227 The host or the type of luminaire and associated circuits which are suitable and representative for use
 228 with the component or module as specified in the instructions for use. This shall be based on analysing
 229 various possible typical applications for the specific component or module such that the selected host
 230 is representative of typical use in terms of mitigation of disturbances from the component or module in
 231 question.

232

233 **6.4.3 Internal modules**234 *Replace the second paragraph with the following text:*

235 The host, that includes the module as EUT, is tested as a luminaire in accordance with
 236 Clause B.6 (Figure B.1b) and Clause C.4 (Figure C.4) or CDNE setup according
 237 CISPR 16-2-1:2014/AMD1:2017. Examples of the host (reference luminaire) can be found in CISPR TR
 238 30-1:2012 and CISPR TR 30-2:2012.

239 NOTE The host/reference luminaire is considered as the EUT and therefore the limitation of the CDNE method to EUTs having
 240 not more than two cables (CISPR 16-2-1:2014 + AMD1:2017 clause 9.1 3rd paragraph item c) is applicable to the host and not
 241 to the internal module.

242 *Modify clause 6.4.5 as follows:*243 **6.4.5 Single capped self-ballasted lamps**

244 Single capped self-ballasted lamps shall comply with the disturbance voltage limits at electric power
 245 supply interface given in Table 1 and with the radiated disturbance limits given in Table 8 or Table 9 if
 246 applicable, and in Table 10 and Table 14 if applicable.

247 The setup and test arrangements for single capped self-ballasted lamps are specified in Clause A.1.

248

249 **6.4.6 Double-capped self-ballasted lamps, double-capped lamp adapters, double-capped semi-luminaires and double-capped retrofit lamps used in fluorescent lamp luminaires**251 *Add reference to new Table 14 in first paragraph:*

252 Double-capped self-ballasted lamps, double-capped lamp adapters, double-capped semiluminaires and
 253 double-capped retrofit lamps used in fluorescent lamp luminaires shall comply with the electric power supply
 254 interface voltage limits given in Table 1 and with the radiated disturbance limits given in Table 8 or Table 9 if
 255 applicable, and in Table 10 and Table 14 if applicable.

256

257 **6.4.7 ELV lamps**258 *Add reference to new Table 14 in first bullet point of the first paragraph:*

259 ELV lamps shall comply with one of the following requirements:

260 a) Non-restricted (see 3.3.20) extra-low voltage (ELV) lamps, intended for connection to symmetrical ELV
 261 networks, shall comply with the conducted disturbance voltages of local wired ports of Table 4 at the ELV
 262 interface, measured in accordance with the method specified A.5.1, and with the radiated disturbance limits of
 263 Table 8 or Table 9 if applicable, and in Table 10 and Table 14 if applicable, measured in accordance with the
 264 method specified in A.5.2.

265 *Add reference to new Table 14 in first bullet point of the first paragraph:*