



SLOVENSKI STANDARD
SIST EN 55011:2016/oprAB:2023
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**Industrijska, znanstvena in medicinska oprema - Karakteristike občutljivosti za
radijske motnje - Mejne vrednosti in merilne metode - Dopolnilo AB**

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

iTeh STANDARD PREVIEW
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Appareils industriels, scientifiques et médicaux - Caractéristiques de perturbations
radioélectriques - Limites et méthodes de mesure

<https://standards.iteh.ai/catalog/standards/sist/00e9d5b2-f0b5-44f0-8342-55011-2016/oprAB:2023>

Ta slovenski standard je istoveten z: **EN 55011:2016/prAB**

ICS:

33.100.10 Emisija Emission

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

To be completed

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This draft amendment prAB, if approved, will modify the European Standard EN 55011:2016; it is submitted to CENELEC members for enquiry.

Deadline for CENELEC: 2023-05-12.

It has been drawn up by CLC/TC 210.

If this draft becomes an amendment, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

This draft amendment was established by CENELEC in three official versions (English, French, German).

A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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35 European foreword

36 This document (EN 55011:2016/prAB:2023) has been prepared by CLC/TC 210 "Electromagnetic
37 Compatibility (EMC)", the secretariat of which is held by BSI.

38 This document is currently submitted to the Enquiry.

39 The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dor + 6 months
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

40 This document has been prepared under a Standardization Request given to CENELEC by the European
41 Commission and the European Free Trade Association, and supports essential requirements of EU
42 Directive(s) / Regulation(s).

43 For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of
44 this document.

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<https://standards.iteh.ai/catalog/standards/sist/00e9d5b2-f0b5-44f0-8342-8e47a7d46c24/sist-en-55011-2016-oprab-2023>

EN 55011:2016/prAB:2023 (E)**45 1 Modification to Clause 1, “Scope”**

46 *Replace the text with the following:*

47 “This document covers emission requirements related to radio-frequency (RF) disturbances and applies to
48 industrial, scientific and medical electrical equipment operating in the frequency range 0 Hz to 400 GHz and to
49 domestic and similar appliances designed to generate and/or use locally radio-frequency energy.

50 For ISM RF applications in the meaning of the definition found in the ITU Radio Regulations (see
51 Definition 3.13), this document covers emission requirements related to radio-frequency disturbances in the
52 frequency range of 9 kHz to 18 GHz.

53 Requirements for ISM RF lighting equipment and UV irradiators operating at frequencies within the ISM
54 frequency bands defined by the ITU Radio Regulations are contained in this document.

55 Equipment covered by other CISPR product and product family emission standards are excluded from the
56 scope of this document.”

57 2 Deletion of 3.19

58 *Delete term entry 3.19.*

59 3 Deletion of subclause 5.3

60 *Delete the entire subclause 5.3.*

61 4 Modification to subclause 6.1

62 *Replace the text with the following:*

63 “Class A equipment shall be measured either on a test site or when that is impossible due to size, complexity
64 or operating conditions, it may then be measured *in situ*. 2016/oprAB:2023

65 Class B equipment shall be measured on a test site.

66 Measurements need only be performed in frequency ranges where limits are specified. The lower limit shall
67 apply at all transition frequencies.

68 Measuring apparatus and methods of measurement are specified in Clauses 7, 8 and 9.

69 Where this document gives options for testing against particular requirements with a choice of test methods,
70 compliance may be shown using any of those test methods, together with the specified limits and any relevant
71 restrictions.

72 NOTE In any situation involving the retesting of equipment, reproducibility of results is best achieved if the original
73 test method is used.”

74 5 Modification to subclause 6.2.1.3

75 *Replace the table footnotes of Table 2 with the following footnotes:*

76 “

^a These limits apply to equipment with a rated power > 20 kVA and intended to be connected to a dedicated power transformer or generator, and which is not connected to low voltage (LV) overhead power lines. For equipment not intended to be connected to a user specific power transformer the limits for ≤ 20 kVA apply. Information shall be provided on installation measures that can be used to reduce emissions from the installed equipment. In particular it shall be indicated that this equipment is intended to be connected to a dedicated power transformer or generator and not to LV overhead power lines.

^b These limits apply only to high power electronic systems and equipment with a rated power greater than 75 kVA when intended to be installed as follows:

— installation is supplied from a dedicated power transformer or generator, and which is not connected to Low Voltage (LV) overhead power lines,

— installation is physically separated from residential environments by distance greater than 30 m or by a structure which acts as a barrier to radiated phenomena,

— the product documentation shall indicate that this equipment meets the disturbance voltage limits for high power electronic systems and equipment of rated input power > 75 kVA and provide information on installation measures to be applied by the installer. In particular, it shall be indicated that this equipment is intended to be used in an installation which is powered by a dedicated power transformer or generator and not by LV overhead power lines.

^c Selection of the appropriate set of limits shall be based on the rated a.c. power stated by the product documentation.

77

78 *Replace the table footnotes of Table 3 with the following footnotes:*

79 “

In certain frequency ranges, the limits in this table decrease linearly with logarithm of frequency.

^a Selection of the appropriate set of limits shall be based on the rated a.c. power stated by the product documentation.

^b These limits apply to equipment with a rated power > 20 kVA and intended to be installed in a large photovoltaic power generating system by a professional. In the manual accompanying the product, information shall be provided on mitigation measures that can be used to reduce emissions from the installed equipment, with the goal of preventing harmful interference to radio reception in a distance of 30 m from the installation. In particular it shall be indicated that this equipment can be equipped with additional filtering and that installation is physically separated from residential environments by distance greater than 30 m. The installer is invited to check the mitigated installation against CISPR 11 *in situ* measurements as indicated in Clause 6.4 of this document.

80

81 *Replace the paragraph after Table 4 with the following:*82 “For diagnostic X-ray generators operating in intermittent mode the quasi-peak limits of Table 2 or Table 4 are
83 increased by 20 dB.”84 *Replace the table footer of Table 19 with the following:*

85 “

L: maximum length of a cable (in metres) connected to an LV d.c. power port, and provided with the product or as specified in the product documentation. Where no maximum cable length is specified, *L* shall be considered as longer than 30 m.

^a No measurements are required if the equipment is installed when applying at least one of the following measures:

- symmetrical d.c. port line configuration,
- installation internal to the building,
- grounded metallic cable trays,
- use of correctly grounded shielded cables,
- manage a separation distance that acts as a barrier from residential environment (e.g. greater than 30 m).

If exception ^a) is used, the installer may refer to Clause 10 for *in situ* measurement.

86

87 **6 Modification to subclause 6.2.2.3**88 *Replace the table footnotes of Table 6 with the following footnotes:*

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89

“

^a These limits apply to equipment with a rated 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. It shall be indicated 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.

^b The 3 m separation distance applies only to small size equipment meeting the size criterion defined in 3.17.

^c The table-top equipment shall fit into the validated test volume of the FAR.

^d Selection of the appropriate set of limits shall be based on the rated a.c. power stated in the product documentation.

90

“

91 7 Modification to subclause 6.3.1.3

92 *Replace the table footnotes of Table 8 with the following footnotes:*

93

“

^a Information shall be provided in the documentation on installation measures that can be used to reduce emissions from the installed equipment.

^b Selection of the appropriate set of limits shall be based on the rated a.c. power of the EUT.

94

“

95 8 Modification to subclause 7.1.3

96 *Replace the first three paragraphs with the following paragraph:*

97 “The requirements specified in this clause, together with the limits specified in Clause 6, constitute the
98 essential EMC requirements of this document.”

99 9 Modification to subclause 7.3.3

100 *Replace the first paragraph with the following paragraph:*

101 “The voltage probe shown in Figure 1 shall be used when the artificial mains network (V-AMN) cannot be
102 used. The probe is connected sequentially between each line and the reference earth chosen (metal plate,
103 metal tube). The probe consists mainly of a decoupling capacitor and a resistor such that the total resistance
104 between the line and earth is at least 1 500 Ω. The effect on the accuracy of measurement of the capacitor or
105 any other device which may be used to protect the measuring receiver against dangerous currents shall be
106 either less than 1 dB or allowed for in calibration. The voltage probe shall meet the requirements specified in
107 CISPR 16-1-2:2014, 5.2.”

108 10 Modification to subclause 7.3.4.1

109 *Replace the first paragraph with the following paragraph:*

110 “In the frequency range below 30 MHz the antenna shall be a loop as specified in CISPR 16-1-4:2010¹, 4.4.2.
111 The antenna shall be supported in the vertical plane and be rotatable about a vertical axis. The lowest point of
112 the loop shall be 1 m above ground level.”

113 11 Modification to subclause 7.3.4.2.1

114 *Replace the first paragraph with the following paragraph:*

115 “In the frequency range from 30 MHz to 1 GHz the antenna used shall be as specified in
116 CISPR 16-1-4:2010¹, 4.5.”

117 12 Modification to subclause 7.5.1

118 *Replace Note 1 with the following Note:*

119 “

120 NOTE 1 The provisions of this subclause apply to *in situ* measurements in so far as a particular installation allows for the
121 position of cables to be varied and different units within the installation to be operated independently, the extent to which
122 the position of the installation can be moved within the premises, etc.”

123 13 Modification to subclause 7.5.2

124 *Replace the 4th paragraph with the following paragraph:*

125 “The connection of signal leads, except for the leads supplied with the EUT, is not required during radio-
126 frequency emission measurements for portable test and measurement apparatus, group 1, or those intended
127 for use in laboratories and operated by competent persons. Examples are signal generators, network and
128 logic analysers, and spectrum analysers.”

129 14 Modification to subclause 7.5.3.1.1

130 *Replace the 2nd paragraph with the following paragraph:*

131 “For connection to the AMN or to the test site's electricity supply network, appropriate lengths of mains cables
132 shall be used. If the installation instructions specify a particular type of mains cable for use with the EUT,
133 connection to the AMN or to the test site's electricity supply network shall be made with that cable type.”

134 15 Modification to subclause 7.5.3.1.2

135 *Replace the content of 7.5.3.1.2 with the following:*

136 “When performing measurements on a test site, the artificial mains network (V-AMN) specified in 7.3.2.2 is to
137 be used whenever possible. The enclosure of the V-AMN shall be located so that its closest surface is no less
138 than 0,8 m from the nearest boundary of the equipment under test.

139 Where a flexible mains cord is provided with the EUT this shall be 1 m long or, if in excess of 1 m, the excess
140 cable shall be folded to and forth to form a bundle not exceeding 0,4 m in length.

141 Where a mains cable is specified in the installation instructions a 1 m length of the type specified shall be
142 connected between the test unit and the AMN.

143 Earth connections, where required for safety purposes, shall be connected to the reference “earth” point of the
144 AMN and where not otherwise provided or specified by the installation instructions shall be 1 m long and run
145 parallel to the mains connection at a distance of not more than 0,1 m.

146 Other earth connections (e.g. for EMC purposes) either specified or supplied with the EUT for connection to
147 the same terminal as the safety earth connection shall also be connected to the reference earth of the AMN.

148 Ancillary low voltage a.c. mains ports shall be connected to the laboratory a.c. mains network via one or more
149 separate artificial mains networks (V-AMN) as specified in 7.3.2.2.

150 Where the equipment under test is a system comprising more than one unit, each unit having its own power
151 cord, the point of connection for the AMN is determined from the following rules:

152 a) each mains cable which is terminated in a mains supply plug of a standard design (e.g. IEC 60083) shall
153 be tested separately;

154 b) mains cables or terminals which are not specified by the product documentation to be connected to
155 another unit in the system for the purposes of supplying mains power shall be tested separately;

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- 156 c) mains cables or terminals which are specified by the product documentation to be connected to another
157 unit in the system for the purposes of supplying mains power shall be connected to that unit, and the
158 mains cables or terminals of that unit are connected to the AMN;
- 159 d) where a special connection is specified, the necessary hardware to effect the connection shall be used
160 during the evaluation of the equipment under test.”

16 Modification to subclause 7.5.3.2

162 *Replace the 5th paragraph with the following:*

163 “Where a particular type of d.c. power cable is specified in the installation instructions, this shall be used
164 during testing.”

17 Modification to subclause 7.6.3

166 *Replace the 3rd paragraph with the following:*

167 “Industrial induction heating and dielectric heating equipment should be tested in a configuration and with a
168 load that is equivalent to actual or intended use. Where the equipment may be configured for a variety of
169 loads or the load is not available, the load as specified in IEC 61922 for induction heating and IEC 61308 for
170 dielectric heating equipment may be used. Industrial resistance heating equipment shall be tested with or
171 without the charge, as specified by the product documentation.”

18 Modification to subclause 7.6.5

173 *Replace the 1st paragraph with the following:*

174 “Microwave cooking appliances shall be operated with all normal components such as shelves in place, and
175 with a load of 1 l of tap water initially at 20 °C ± 5 °C placed at the centre of the load-carrying surface provided
176 with the EUT.”

19 Modification to subclause 7.6.8

178 *Replace the 1st paragraph with the following:*

179 “Microwave cooking appliances shall be operated with all normal components such as shelves in place, and
180 with a load of 1 l of tap water initially at 20 °C ± 5 °C placed at the centre of the load-carrying surface provided
181 with the EUT.”

20 Modification to subclause 7.6.10.1

183 *Replace the 2nd paragraph with the following:*

184 “Connection to an appropriate resistive load is also recommended for power converters solely intended for
185 use in island low voltage a.c. mains installations which are not connected to an other public low voltage a.c.
186 mains power distribution network. For advice, consult the EUT installation instructions.”

21 Modification to subclause 7.7.1

188 *Replace the 2nd paragraph with the following:*

189 “The test report shall contain a statement underlining that the measurement instrumentation uncertainty (MIU)
190 was determined according to CISPR 16-4-2.”