

SLOVENSKI STANDARD oSIST prEN IEC 61326-1:2019

01-oktober-2019

Električna oprema za merjenje, kontrolo in laboratorijsko uporabo - Zahteve za elektromagnetno združljivost (EMC) - 1. del: Splošne zahteve

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

iTeh STANDARD PREVIEW

Matériel électrique de mesure, de commande et de laboratoire - Exigences relatives à la CEM - Partie 1: Exigences générales

kSIST FprEN IEC 61326-1:2020

Ta slovenski standard je istoveten zlog/standprEN IEC 61326-112019d7ae3c2caa4c3d/ksist-ipren-iec-61326-1-2020

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19.080	Električno in elektronsko preskušanje	Electrical and electronic testing
33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

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65A/922/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 61326-1 ED3	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2019-08-23	2019-11-15
SUPERSEDES DOCUMENTS:	
65A/902/CD, 65A/912A/CC	

IEC SC 65A: SYSTEM ASPECTS		
SECRETARIAT:	SECRETARY:	
United Kingdom	Mr Petar Luzajic	
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD:	
TC 66, TC 77, SC 77A		
	Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.	
FUNCTIONS CONCERNED:		
EMC ENVIRONMENT	QUALITY ASSURANCE SAFETY	
SUBMITTED FOR CENELEC PARALLEL VOTING	NOT SUBMITTED FOR CENELEC PARALLEL VOTING	
(standards.iteh.ai)		
Attention IEC-CENELEC parallel voting		
The attention of IEC National Committees, <u>kSmembersNdf</u> CENELEC, is drawn to the fact that this <u>Committee</u> DrattiforsVote (CDV) is submitted for parallel voting. ae3c2caa4c3d/ksist-fpr	<u>C 61326-1:2020</u> tds/sist/b13355c6-d8cc-42b3-b9d7- en-iec-61326-1-2020	
The CENELEC members are invited to vote through the CENELEC online voting system.		

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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:

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

PROPOSED STABILITY DATE: 2023

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60 61		INTERNATIONAL E	LECTROTECHNICAL	
62 63 64 65		ELECTRICAL EQ CONTROL EMC	UIPMENT FOR MEA AND LABORATORY REQUIREMENTS -	SUREMENT, USE –
66 67 68		Part 1:	General requirement	nts
70			FOREWORD	
71 72 73 74 75 76 77 78 79 80	1)	The International Electrotechnical Commis all national electrotechnical committees international co-operation on all questions this end and in addition to other activitie Technical Reports, Publicly Available Publication(s)"). Their preparation is entru in the subject dealt with may participar governmental organizations liaising with the with the International Organization for S agreement between the two organizations.	ssion (IEC) is a worldwide orga (IEC National Committees) concerning standardization in es, IEC publishes Internationa Specifications (PAS) and Gu sted to technical committees; te in this preparatory work. the IEC also participate in this standardization (ISO) in acco	anization for standardization comprising). The object of IEC is to promote in the electrical and electronic fields. To al Standards, Technical Specifications, uides (hereafter referred to as "IEC any IEC National Committee interested International, governmental and non- s preparation. IEC collaborates closely rdance with conditions determined by
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105 106 107	Int as au	ternational Standard IEC 61326-1 pects, of IEC technical committ itomation.	has been prepared b ee 65: Industrial-proce	by subcommittee 65A: System ss measurement, control and
108 109	Th co	nis third edition cancels and replacents in this is a second second second second second second second second s	ces the second edition,	published in 2012. This edition
110	Tŀ	ne significant technical changes with	n respect to the previous	edition are as follows:
111	_	the immunity test levels and perfo	rmance criteria have bee	n reviewed;
112 113	-	requirements for PORTABLE TEST amended;	AND MEASUREMENT EQUI	PMENT have been clarified and
114 115	_	the description of the electromagn	etic environments has be	een improved.

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116 The text of this standard is based on the following documents:

FDIS	Report on voting
65A/XXX/FDIS	65A/XXX/RVD

117

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

- 120 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.
- 121 In this standard the following print types are used:
- Terms used throughout this standard which have been defined in Clause 3: SMALL
 CAPITALS

A list of all parts of the IEC 61326 series under the general title *Electrical equipment for measurement, control and laboratory use – EMC requirements*, can be found on the IEC website.

127 The committee has decided that the contents of this publication will remain unchanged until 128 the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data 129 related to the specific publication. At this date, the publication will be

130	•	reconfirmed, iTeh STANDARD PREVIEW
131	•	withdrawn, (standards itch ai)
132	•	replaced by a revised edition, or

- 133 amended. <u>kSIST FprEN IEC 61326-1:2020</u>
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136

INTRODUCTION

137 Instruments and equipment within the scope of this standard may often be geographically138 widespread and hence operate under a wide range of environmental conditions.

The limitation of undesired electromagnetic emissions ensures that no other equipment, installed nearby, is unduly influenced by the equipment under consideration. The limits are more or less specified by, and therefore taken from, IEC and International Special Committee on Radio Interference (CISPR) publications.

However, the equipment should function without undue degradation in an electromagnetic environment typical for the locations where it is intended to be operated. In this respect the standard specifies three different types of electromagnetic environment and the levels for immunity. More detailed information about issues related to electromagnetic environments are given in IEC 61000-2-5. Special risks, involving for example nearby or direct lightning strikes, circuit-breaking, or exceptionally high electromagnetic radiation in close proximity, are not covered.

Complex electric and/or electronic systems should require EMC planning in all phases of their
 design and installation, taking into consideration the electromagnetic environment, any
 special requirements, and the severity of failures.

This part of IEC 61326 specifies the EMC requirements that are generally applicable to all equipment within its scope. For certain types of equipment, these requirements will be supplemented or modified by the special requirements of one, or more than one, particular part within IEC 61326-2 series. These should be read in conjunction with the IEC 61326-1 requirements.

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ELECTRICAL EQUIPMENT FOR MEASUREMENT, 160 CONTROL AND LABORATORY USE -161 **EMC REQUIREMENTS –** 162

Part 1: General requirements

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Scope 168 1

This part of IEC 61326 specifies requirements for immunity and emissions regarding electro-169 magnetic compatibility (EMC) for electrical equipment, operating from a supply or battery of 170 less than 1 000 V AC or 1 500 V DC or from the circuit being measured. Equipment intended 171 172 for professional, industrial-process, industrial-manufacturing and educational use is covered by this part. It includes equipment and computing devices for 173

- 174 _ measurement and test;
- 175 control; _
- 176 LABORATORY use; _
- 177 accessories intended for use with the above (such as sample handling equipment), _
- intended to be used in industrial and non-industrial locations. 178
- Computing devices and assemblies and similar equipment within the scope of Information 179
- 180 Technology Equipment (ITE) and complying with applicable ITE EMC standards may be used
- 181 in systems within the scope of this part of IEC 61326 without additional testing, if they are suitable for the intended electromagnetic environment 182

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- It is generally considered that this product family standard takes precedence over the 183 corresponding generic EMC standards. 184
- The following equipment is covered by this standard. 185
- 186 a) Electrical measurement and test equipment
- 187 This is equipment which, by electrical means, measures, indicates or records one or more 188 electrical or non-electrical quantities, also non-measuring equipment such as signal 189 generators, measurement standards, power supplies and transducers.
- 190 b) Electrical control equipment
- 191 This is equipment which controls one or more output quantities to specific values, with each value determined by manual settings, by local or remote programming, or by one or 192 193 more input variables. This includes Industrial Process Measurement and Control (IPMC) equipment, which consists of devices such as: 194
- 195 process controllers and regulators;
- 196 programmable controllers;
- 197 _ power supply units for equipment and systems (centralized or dedicated);
- analogue/digital indicators and recorders; 198 _
- 199 process instrumentation; _
- 200 transducers, positioners, intelligent actuators, etc.

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- 202 c) Electrical LABORATORY equipment, including In Vitro Diagnostic (IVD) equipment
- 203 This is equipment used to prepare or analyse materials, or measure, indicate or monitor 204 physical quantities. This equipment might also be used in areas other than laboratories.
- 205 d) Equipment a), b) or c) as above when being equipped with components having radio 206 functionality, for example for wireless communication.

207 Equipment within the scope of this standard might be operated in different electromagnetic 208 environments; depending on the electromagnetic environment different emission and immunity 209 test requirements are applicable.

- 210 This standard considers three types of electromagnetic environments:
- 211 basic electromagnetic environment;
- 212 industrial electromagnetic environment; ٠
- 213 controlled electromagnetic environment. •
- 214 Corresponding immunity test requirements are described in Clause 6.

215 In terms of emission requirements, equipment shall be classified in Class A or Class B 216 equipment, as per the requirements and procedure of CISPR 11. The corresponding emission 217 requirements are described in Clause 7.

The specified emission and immunity requirements aim at achieving electromagnetic 218 compatibility between equipment covered in this standard and other equipment that might 219 operate at locations with electromagnetic environments considered in this standard. Guidance 220 for an assessment concerning the risk for achieving EMC is given in Annex B. 221

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223 The following documents, in whole or in part, are normatively referenced in this document and 224 are indispensable for its application. For dated references, only the edition cited applies. For 225 undated references, the latest edition of the referenced document (including any 226 amendments) applies.

- 227 IEC 60050 International (all parts), Electrotechnical Vocabulary (available at 228 <http://www.electropedia.com>)
- 229 IEC 61000-3-2:2018, Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for 230 harmonic current emissions (equipment input current \leq 16 A per phase)

IEC 61000-3-3:2013, Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of 231 232 voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for 233 equipment with rated current \leq 16 A per phase and not subject to conditional connection 234 Amendment 1:2017

235 IEC 61000-3-11:2017, Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems -236 Equipment with rated current ≤75 A and subject to conditional connection 237

238 IEC 61000-3-12:2011, Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input 239 240 current >16 A and ≤75 A per phase

241 IEC 61000-4-2:2008, Electromagnetic compatibility (EMC) – Part 4-2: Testing and measure-242 ment techniques – Electrostatic discharge immunity test

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IEC 61000-4-3:2006, Electromagnetic compatibility (EMC) – Part 4-3: Testing and measure ment techniques – Radiated, radio-frequency, electromagnetic field immunity test
 Amendment 1:2007

Amendment 2:2010

- 247 IEC 61000-4-4:2012, Electromagnetic compatibility (EMC) Part 4-4: Testing and measure-248 ment techniques – Electrical fast transient/burst immunity test
- IEC 61000-4-5:2014, Electromagnetic compatibility (EMC) Part 4-5: Testing and measure-
- 250 *ment techniques Surge immunity test*
- 251 Amendment 1:2017
- 1252 IEC 61000-4-6:2013, Electromagnetic compatibility (EMC) Part 4-6: Testing and measure-1253 ment techniques – Immunity to conducted disturbances, induced by radio-frequency fields
- 1254 IEC 61000-4-8:2009, Electromagnetic compatibility (EMC) Part 4-8: Testing and measure-255 ment techniques – Power frequency magnetic field immunity test

IEC 61000-4-11:2004, Electromagnetic compatibility (EMC) – Part 4-11: Testing and measure ment techniques – Voltage dips, short interruptions and voltage variations immunity tests
 Amendment 1:2017

259 CISPR 11:2015, Industrial, scientific and medical equipment – Radio-frequency disturbance

- 260 characteristics Limits and methods of measurement **PREVIEW**
- 261 Amendment 1:2016262 Amendment 2:2019

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263 **3** Terms, definitions and abbreviations C 61326-1:2020

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- 264 **3.1** Terms and definitions^{ae3c2caa4c3d/ksist-fpren-iec-61326-1-2020}
- For the purposes of this document, the terms and definitions given in IEC 60050-161 as well as the following apply.
- 267 **3.1.1**

268 basic electromagnetic environment

- 269 environment existing at locations characterized by being supplied directly at low voltage from270 the public mains network
- 271 EXAMPLES
- 272 residential properties, for example houses, apartments;
- 273 retail outlets, for example shops, supermarkets;
- 274 business premises, for example offices, banks;
- 275 areas of public entertainment, for example cinemas, public bars, dance halls;
- 276 outdoor locations, for example petrol stations, car parks, amusement and sports centres;
- 277 light-industrial locations, for example workshops, laboratories, service centres.
- 278 **3.1.2**

279 class A equipment

equipment suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies buildings used for domestic

- 282 purposes
- 283 [SOURCE: derived from CISPR 11:2015, 5.2]