
Električna oprema za merjenje, kontrolo in laboratorijsko uporabo - Zahteve za elektromagnetno združljivost (EMC) - 2-5. del: Posebne zahteve - Preskusne konfiguracije, obratovalni pogoji in merila za delovanje terenskih naprav z vmesnikom po IEC 61784-1

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for field devices with field bus interfaces according to IEC 61784-1

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Matériel électrique de mesure, de commande et de laboratoire - Exigences relatives à la CEM - Partie 2-5: Exigences particulières - Configurations d'essai, conditions de fonctionnement et critères d'aptitude à la fonction pour les équipements de terrain avec les interfaces utilisant des bus de terrain conformes à la CEI 61784-1

Ta slovenski standard je istoveten z: prEN IEC 61326-2-5:2019

ICS:

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

oSIST prEN IEC 61326-2-5:2019 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[kSIST FprEN IEC 61326-2-5:2020](https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-3a772a2679c2/ksist-fpren-iec-61326-2-5-2020)

<https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-3a772a2679c2/ksist-fpren-iec-61326-2-5-2020>



PROJECT NUMBER:

IEC 61326-2-5 ED3

DATE OF CIRCULATION:

2019-08-23

CLOSING DATE FOR VOTING:

2019-11-15

SUPERSEDES DOCUMENTS:

65A/908/CD, 65A/918A/CC

IEC SC 65A: SYSTEM ASPECTS

SECRETARIAT:

United Kingdom

SECRETARY:

Mr Petar Luzajic

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 77, SC 77A

PROPOSED HORIZONTAL STANDARD:

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**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.

TITLE:

Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-5: Particular requirements – Test configurations, operational conditions and performance criteria for field devices with field bus interfaces according to IEC 61784-1

PROPOSED STABILITY DATE: 2023

NOTE FROM TC/SC OFFICERS:

Copyright © 2019 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

1	CONTENTS		
2	FOREWORD		3
3	1 Scope		5
4	2 Normative references		5
5	3 Terms and definitions		6
6	4 General		6
7	5 EMC test plan		6
8	5.1 General		6
9	5.2 Configuration of EUT during testing		6
10	5.3 Operation conditions of EUT during testing		6
11	5.4 Specification of functional performance		6
12	5.5 Test description		6
13	6 Immunity requirements		6
14	6.1 Conditions during the tests		6
15	6.2 Immunity test requirements		6
16	6.3 Random aspects		6
17	6.4 Performance criteria		7
18	7 Emission requirements		7
19	8 Test results and test report		7
20	9 Instructions for use		7
21	Annex AA (normative) Particular requirements – Test configurations, operational		
22	conditions and performance criteria for field devices with field bus interfaces according		
23	to IEC 61784-1 CP 1/1		8
24	Annex BB (normative) Particular requirements – Test configurations, operational		
25	conditions and performance criteria for field devices with field bus interfaces according		
26	to IEC 61784-1 CP 3/2		13
27			
28	Figure AA.1 – Test set up for EUT with CP 1/1 interface		10
29	Figure BB.1 – Test set up for EUT with CP 3/2 interface		15
30			

31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE – EMC REQUIREMENTS –

Part 2-5: Particular requirements – Test configurations, operational conditions and performance criteria for field devices with field bus interfaces according to IEC 61784-1

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61326-2-5 has been prepared by subcommittee 65A: System aspects, of IEC technical committee 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition published in 2012. This edition constitutes a technical revision.

84 The main technical changes with regard to the previous edition are as follows:

85 – Update with respect to IEC 61326-1:20xx.

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

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

87

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

90 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

91 This part of IEC 61326 series is to be used in conjunction with IEC 61326-1:20xx and follows
92 the same numbering of clauses, subclauses, tables and figures.

93 When a particular subclause of IEC 61326-1 is not mentioned in this part, that subclause
94 applies as far as is reasonable. When this standard states “addition”, “modification” or
95 “replacement”, the relevant text in IEC 61326-1 is to be adapted accordingly.

96 NOTE The following numbering system is used:

- 97 – subclauses, tables and figures that are numbered starting from 101 are additional to those in
98 IEC 61326-1;
- 99 – unless notes are in a new subclause or involve notes in IEC 61326-1, they are numbered starting from 101
100 including those in a replaced clause or subclause;
- 101 – additional annexes are lettered AA, BB, etc.

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

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

- 108 • reconfirmed,
- 109 • withdrawn,
- 110 • replaced by a revised edition, or
- 111 • amended.

112

113

114

115 **ELECTRICAL EQUIPMENT FOR MEASUREMENT,**
116 **CONTROL AND LABORATORY USE –**
117 **EMC REQUIREMENTS –**
118
119 **Part 2-5: Particular requirements –**
120 **Test configurations, operational conditions and performance criteria**
121 **for field devices with field bus interfaces according to IEC 61784-1**
122
123
124

125 **1 Scope**

126 In addition to the requirements of International Standard IEC 61326-1:20xx, this part of IEC
127 61326 series treats the particular features for EMC testing of field devices with field bus
128 interfaces. This part of IEC 61326 covers only the field bus interface of the equipment.

129 NOTE The other functions of the equipment remain covered by other parts of IEC 61326 series.

130 This part refers only to field devices intended for use in process control and process
131 measuring.

132 In this standard field devices with interfaces according to IEC 61784-1:2014, CP 3/2 and CP
133 1/1 as defined in IEC 61784 are covered. Other field busses may be included in future editions
134 of this standard.

135 The IEC 61784-1:2014 specifies a set of protocol specific communication profiles based on
136 IEC 61158.

[https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-](https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-3a772a2679c2/ksist-fpr-en-iec-61326-2-5-2020)

137 The manufacturer specifies the environment for which the product is intended to be used
138 and/or selects the appropriate test level specifications of IEC 61326-1.

139 **2 Normative references**

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

144 Clause 2 of IEC 61326-1:20xx applies except as follows:

145 *Addition:*

146 IEC 61158-2:2014, *Industrial communication networks – Fieldbus specifications – Part 2:*
147 *Physical layer specification and service definition*

148 IEC 61158-3-3:2014, *Industrial communication networks – Fieldbus specifications – Part 3-3:*
149 *Data-link layer service definition – Type 3 elements*

150 IEC 61158-5-5:2014, *Industrial communication networks – Fieldbus specifications – Part 5-5:*
151 *Application layer service definition – Type 5 elements*

152 IEC 61158-6-10:2014, *Industrial communication networks – Fieldbus specifications – Part 6-*
153 *10: Application layer protocol specification – Type 10 elements*

154 IEC 61784-1:2014, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles*

155 **3 Terms and definitions**

156 Clause 3 of IEC 61326-1:20xx applies.

157 **4 General**

158 Clause 4 of IEC 61326-1:20xx applies.

159 **5 EMC test plan**

160 **5.1 General**

161 Subclause 5.1 of IEC 61326-1:20xx applies.

162 **5.2 Configuration of EUT during testing**

163 Subclause 5.2 of IEC 61326-1:20xx applies, except as follows:

164 *Addition:*

165 Additional requirements: see Annexes AA and BB.

166 **5.3 Operation conditions of EUT during testing**

167 Subclause 5.3 of IEC 61326-1:20xx applies, except as follows:

168 *Addition:*

169 Additional requirements: see Annexes AA and BB.

170 **5.4 Specification of functional performance**

171 Subclause 5.4 of IEC 61326-1:20xx applies.

172 **5.5 Test description**

173 Subclause 5.5 of IEC 61326-1:20xx applies.

174 **6 Immunity requirements**

175 **6.1 Conditions during the tests**

176 Subclause 6.1 of IEC 61326-1:20xx applies.

177 **6.2 Immunity test requirements**

178 Subclause 6.2 of IEC 61326-1:20xx applies.

179 **6.3 Random aspects**

180 Subclause 6.3 of IEC 61326-1:20xx applies.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

kSIST PrEN IEC 61326-2-5:2020
<https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-3a772a2679c2/ksist-pr-en-iec-61326-2-5-2020>

181 **6.4 Performance criteria**

182 Subclause 6.4 of IEC 61326-1:20xx applies, except as follows:

183 *Addition:*

184 Additional requirements: see Annexes AA and BB.

185 **7 Emission requirements**

186 Clause 7 of IEC 61326-1:20xx applies.

187 **8 Test results and test report**

188 Clause 8 of IEC 61326-1:20xx applies, except as follows:

189 *Addition:*

190 The type of shield connection at the EUT shall be stated in the test report.

191 **9 Instructions for use**

192 Clause 9 of IEC 61326-1:20xx applies.

193

iTeh STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/d944569c-773a-424e-b224-3a772a2679c2/ksist-fpren-iec-61326-2-5-2020>

194
195
196
197
198
199
200

Annex AA (normative)

Particular requirements – Test configurations, operational conditions and performance criteria for field devices with field bus interfaces according to IEC 61784-1 CP 1/1

201 AA.1 General

202 In connection with the main part of this standard, this Annex AA describes specific test
203 configurations, operational conditions and performance criteria regarding the field bus
204 interface using the communication profile CP 1/1 according to IEC 61784-1:2014.

205 To prevent confusion with requirements of other annexes, the equipment under test (EUT) is
206 called “EUT with CP 1/1 interface” throughout this annex.

207 AA.2 EMC test plan

208 AA.2.1 Configuration of EUT with CP 1/1 interface during testing

209 Subclause 5.2 of IEC 61326-1:20xx applies, except as follows.

210 *Addition:*

(standards.iteh.ai)

211 AA.2.1.1 Test configuration for EUT with CP 1/1 interface

212 In order to assign any malfunction of the communication during the EMC-test to the EUT with
213 CP 1/1 interface, the configuration of field devices with interfaces according to IEC 61784-
214 1:2014, CP 1/1 shall be limited to the operation of one host system and one EUT with CP 1/1
215 interface during EMC type tests.

216 Ports other than I/O ports covered by this part of the standard are tested according to
217 IEC 61326-1:20xx.

218 The connection plan is shown in Figure AA.1.

219 The field device is connected via a device coupler with the power conditioner and the host
220 system.

221 A standardised field bus terminator is attached at the third port of the device coupler.

222 The EUT with CP 1/1 interface, power conditioner, host system, device coupler(s) and
223 terminator are connected by means of a standard type A field bus cable (foil shield, foil
224 shield/mesh). Armoured cables or cables in conduit are not allowed for EMC testing.

225 Except for the connection at the EUT with CP 1/1 interface itself (see AA.2.1.3), the shield
226 shall be connected at any individual component by a low-impedance grounding strip
227 (connection between shield and the case with a large surface).

228 The individual cable lengths L1, L2, L3, L5 and L6 originate from a practice-adjusted set up,
229 preferred as given in Figure AA.1.