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

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 61326-1:2013 sisaldab Euroopa standardi EN 61326-1:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 61326-1:2013 consists of the English text of the European standard EN 61326-1:2013.
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English version

**Electrical equipment for measurement, control and laboratory use -  
EMC requirements -  
Part 1: General requirements  
(IEC 61326-1:2012)**

Matériel électrique de mesure, de  
commande et de laboratoire -  
Exigences relatives à la CEM -  
Partie 1: Exigences générales  
(CEI 61326-1:2012)

Elektrische Mess-, Steuer-, Regel- und  
Laborgeräte -  
EMV-Anforderungen -  
Teil 1: Allgemeine Anforderungen  
(IEC 61326-1:2012)

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

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## Foreword

The text of document 65A/628/FDIS, future edition 2 of IEC 61326-1, prepared by SC 65A, "System aspects", of IEC TC 65, "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61326-1:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-07-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-08-14

This document supersedes EN 61326-1:2006.

EN 61326-1:2013 includes the following significant technical changes with respect to EN 61326-1:2006:

- the immunity test levels and performance criteria have been reviewed;
- requirements for portable test and measurement equipment have been clarified and amended;
- the description of the electromagnetic environments has been improved.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

## Endorsement notice

The text of the International Standard IEC 61326-1:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60359	NOTE	Harmonized as EN 60359.
IEC 61000-6-1:2005	NOTE	Harmonized as EN 61000-6-1:2007 (not modified).
IEC 61000-6-2:2005	NOTE	Harmonized as EN 61000-6-2:2005 (not modified).
IEC 61010 series	NOTE	Harmonized in EN 61010 series (not modified).
IEC 61326-2 series	NOTE	Harmonized in EN 61326-2 series (not modified).
IEC 61326-2-2	NOTE	Harmonized as EN 61326-2-2.

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	8
3 Terms and definitions .....	9
4 General .....	11
5 EMC test plan.....	12
5.1 General.....	12
5.2 Configuration of EUT during testing.....	12
5.2.1 General.....	12
5.2.2 Composition of EUT.....	12
5.2.3 Assembly of EUT.....	12
5.2.4 I/O ports .....	12
5.2.5 Auxiliary equipment.....	12
5.2.6 Cabling and earthing (grounding).....	12
5.3 Operation conditions of EUT during testing.....	13
5.3.1 Operation modes .....	13
5.3.2 Environmental conditions.....	13
5.3.3 EUT software during test.....	13
5.4 Specification of functional performance.....	13
5.5 Test description.....	13
6 Immunity requirements .....	13
6.1 Conditions during the tests.....	13
6.2 Immunity test requirements .....	13
6.3 Random aspects.....	16
6.4 Performance criteria .....	17
6.4.1 General .....	17
6.4.2 Performance criterion A.....	17
6.4.3 Performance criterion B.....	17
6.4.4 Performance criterion C.....	17
7 Emission requirements .....	17
7.1 Conditions during measurements .....	17
7.2 Emission limits .....	18
8 Test results and test report.....	18
9 Instructions for use.....	18
Annex A (normative) Immunity test requirements for portable test and measurement equipment powered by battery or from the circuit being measured .....	19
Bibliography.....	20
Figure 1 – Examples of ports .....	11
Table 1 – Immunity test requirements for equipment intended to be used in a basic electromagnetic environment .....	14
Table 2 – Immunity test requirements for equipment intended to be used in an industrial electromagnetic environment.....	15

Table 3 – Immunity test requirements for equipment intended to be used in a controlled electromagnetic environment ..... 16

Table A.1 – Immunity test requirements for portable test and measurement equipment..... 19

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## INTRODUCTION

Instruments and equipment within the scope of this standard may often be geographically 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.

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

## Part 1: General requirements

### 1 Scope

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

- measurement and test;
- control;
- laboratory use;
- accessories intended for use with the above (such as sample handling equipment),

intended to be used in industrial and non-industrial locations.

Computing devices and assemblies and similar equipment within the scope of Information Technology Equipment (ITE) and complying with applicable ITE EMC standards may be used in systems within the scope of this part of IEC 61326 without additional testing, if they are suitable for the intended electromagnetic environment.

It is generally considered that this standard takes precedence over the corresponding generic EMC standards.

The following equipment is covered by this standard.

#### a) Electrical measurement and test equipment

This is equipment which, by electrical means, measures, indicates or records one or more electrical or non-electrical quantities, also non-measuring equipment such as signal generators, measurement standards, power supplies and transducers.

#### b) Electrical control equipment

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 more input variables. This includes Industrial Process Measurement and Control (IPMC) equipment, which consists of devices such as:

- process controllers and regulators;
- programmable controllers;
- power supply units for equipment and systems (centralized or dedicated);
- analogue/digital indicators and recorders;
- process instrumentation;
- transducers, positioners, intelligent actuators, etc.



c) Electrical laboratory equipment

This is equipment which measures, indicates monitors or analyses substances, or is used to prepare materials, and includes In Vitro Diagnostic (IVD) equipment. This equipment may also be used in areas other than laboratories, for example self-test IVD equipment may be used in the home.

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

This standard considers three types of electromagnetic environments:

- basic electromagnetic environment;
- industrial electromagnetic environment;
- controlled electromagnetic environment.

Corresponding immunity test requirements are described in Clause 6.

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

## 2 Normative references

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

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <<http://www.electropedia.com>>)

IEC 61000-3-2:2005, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*  
Amendment 1:2008  
Amendment 2:2009

IEC 61000-3-3:2008, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection*

IEC 61000-3-11:2000, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤ 75 A and subject to conditional connection*

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 current >16 A and ≤ 75 A per phase*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*  
Amendment 1:2007  
Amendment 2:2010

IEC 61000-4-4:2004, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*  
Amendment 1:2010

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

CISPR 11:2009, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*  
Amendment 1:2010

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-161 as well as the following apply.

#### 3.1

##### **basic electromagnetic environment**

environment existing at locations characterized by being supplied directly at low voltage from the public mains network

##### EXAMPLES

- residential properties, for example houses, apartments;
- retail outlets, for example shops, supermarkets;
- business premises, for example offices, banks;
- areas of public entertainment, for example cinemas, public bars, dance halls;
- outdoor locations, for example petrol stations, car parks, amusement and sports centres;
- light-industrial locations, for example workshops, laboratories, service centres.

#### 3.2

##### **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 purposes

[SOURCE: derived from CISPR 11:2009, 5.3]

#### 3.3

##### **class B equipment**

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

[SOURCE: derived from CISPR 11:2009, 5.3]