



**SLOVENSKI STANDARD**  
**SIST EN 61000-4-20:2005/A1:2008**  
**01-februar-2008**

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Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques -  
Emission and immunity testing in transverse electromagnetic (TEM) waveguides

Elektromagnetische Verträglichkeit (EMV) - Teil 4-20: Prüf- und Messverfahren -  
Messung der Störaussendung und Störfestigkeit in transversal-elektromagnetischen  
(TEM-) Wellenleitern

Compatibilité électromagnétique (CEM) - Partie 4-20: Techniques d'essai et de mesure -  
Essais d'émission et d'immunité dans les guides d'onde TEM  
(CEI 61000-4-20:2003/A1:2006)

**Ta slovenski standard je istoveten z: EN 61000-4-20:2003/A1:2007**

**ICS:**

33.100.10  
33.100.20

**SIST EN 61000-4-20:2005/A1:2008 en,fr,de**

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Part 4-20: Testing and measurement techniques -  
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This amendment A1 modifies the European Standard EN 61000-4-20:2003; it was approved by CENELEC on 2007-06-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 77B/520/FDIS, future amendment 1 to IEC 61000-4-20:2003, prepared by SC 77B, High frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 61000-4-20:2003 on 2007-06-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2008-03-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2010-06-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of amendment 1:2006 to the International Standard IEC 61000-4-20:2003 was approved by CENELEC as an amendment to the European Standard without any modification.

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

IEC 61000-4-3 NOTE Harmonized as EN 61000-4-3:2006 (not modified).

CISPR 16-4-2 NOTE Harmonized as EN 55016-4-2:2004 (not modified).

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**Replace Annex ZA of EN 61000-4-20:2003 by:**

**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

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

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-161	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 60068-1	- <sup>1)</sup>	Environmental testing - Part 1: General and guidance	EN 60068-1	1994 <sup>2)</sup>
IEC 61000-2-11	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 2-11: Environment - Classification of HEMP environments	-	-
IEC 61000-4-23	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 4-23: Testing and measurement techniques - Test methods for protective devices for HEMP and other radiated disturbances	EN 61000-4-23	2000 <sup>2)</sup>
IEC/TR 61000-4-32	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 4-32: Testing and measurement techniques - High-altitude electromagnetic pulse (HEMP) simulator compendium	-	-
IEC/TR 61000-5-3	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 5-3: Installation and mitigation guidelines - HEMP protection concepts	-	-
CISPR 16-1-1	- <sup>1)</sup>	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN 55016-1-1	2007 <sup>2)</sup>
CISPR 16-1-4	- <sup>1)</sup>	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances	EN 55016-1-4	2007 <sup>2)</sup>

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 16-2-3	- <sup>1)</sup>	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements	EN 55016-2-3	2006 <sup>2)</sup>
CISPR 16-2-4	- <sup>1)</sup>	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-4: Methods of measurement of disturbances and immunity - Immunity measurements	EN 55016-2-4	2004 <sup>2)</sup>
CISPR 22 (mod)	- <sup>1)</sup>	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022	2006 <sup>2)</sup>

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# INTERNATIONAL STANDARD

# IEC 61000-4-20

2003

AMENDMENT 1  
2006-11

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BASIC EMC PUBLICATION

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Amendment 1

**Electromagnetic compatibility (EMC) –**

**Part 4-20:**

**Testing and measurement techniques –  
Emission and immunity testing in transverse  
electromagnetic (TEM) waveguides**

[SIST EN 61000-4-20:2005/A1:2008](https://standards.iteh.ai/catalog/standards/sist/76dc4e30-3ae4-4943-8eab-5ea1340177b9/sist-en-61000-4-20-2005-a1-2008)

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*This **English-language** version is derived from the original **bilingual** publication by leaving out all French-language pages. Missing page numbers correspond to the French-language pages.*

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International Electrotechnical Commission  
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## FOREWORD

This amendment has been prepared by subcommittee 77B: High-frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility, in cooperation with CISPR subcommittee A: Radio interference measurements and statistical methods.

The text of this amendment is based on the following documents:

FDIS	Report on voting
77B/520/FDIS	77B/528/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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### 1 Scope and object

*Add, after the second paragraph, the following note and paragraph:*

NOTE Test methods are defined in this standard for measuring the effects of electromagnetic radiation on equipment and the electromagnetic emissions from equipment concerned. The simulation and measurement of electromagnetic radiation is not adequately exact for quantitative determination of effects for all end-use installations. The test methods defined are structured for a primary objective of establishing adequate repeatability of results at various test facilities for qualitative analysis of effects.

This standard does not intend to specify the tests to be applied to any particular apparatus or system(s). The main intention of this standard is to provide a general basic reference for all interested product committees of the IEC. For radiated emissions testing, product committees should select emission limits and test methods in consultation with CISPR. For radiated immunity testing, product committees remain responsible for the appropriate choice of immunity tests and immunity test limits to be applied to equipment within their scope. This standard describes test methods that are separate from those of IEC 61000-4-3. These other distinct test methods may be used when so specified by product committees, in consultation with CISPR and TC 77.



## 2 Normative references

Delete the reference to IEC 61000-4-3.

Replace the references to CISPR 16-1 and CISPR 16-2, which have been withdrawn and replaced, with the following new references:

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

CISPR 16-1-4, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Ancillary equipment – Radiated disturbances*

CISPR 16-2-3, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-3: Methods of measurement of disturbances and immunity – Radiated disturbance measurements*

CISPR 16-2-4, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 2-4: Methods of measurement of disturbances and immunity – Immunity measurements*

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### Annex B Immunity testing in TEM waveguides

#### B.1 Introduction

[SIST EN 61000-4-20:2005/A1:2008](https://standards.iteh.ai/catalog/standards/sist/76dc4e30-3ae4-4943-8eab-5ea1340177b9/sist-en-61000-4-20-2005-a1-2008)  
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Replace this clause by the following:

This annex describes immunity testing in TEM waveguides. The intention is to enable the testing of electrical and electronic equipment for immunity to an incident electromagnetic field.

The test is performed with a specific arrangement of the EUT. This requires that the test set-up and the test limits or levels are defined by specific product or product family standards.

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#### B.2.2 Calibration of field

Replace the second paragraph (following Note 1) by the following:

The use of a transmission line avoids perturbation due to semi-anechoic chamber ground-reflected fields; thus, uniform fields may be established in the vicinity of the inner and outer conductors (in the normal direction only).

Replace, on page 81, the penultimate paragraph by the following:

Alternatively, an equivalent procedure is to establish a constant primary component electric field strength in the range of 3 V/m to 10 V/m and record the forward power delivered to the input port. The principles outlined in a), d), e), f) and g) shall be respected. This method is known as the “constant-field-strength” method.