

SLOVENSKI STANDARD
SIST EN 61000-4-25:2003/A1:2012
01-julij-2012

Elektromagnetna združljivost - 4-25. del: Preskuševalne in merilne tehnike - Preskusne metode na odpornost opreme in sistemov proti elektromagnetnim impulzom z velikih višin (HEMP) - Dopolnilo A1 (IEC 61000-4-25:2001/A1:2012)

Electromagnetic compatibility (EMC) - Part 4-25: Testing and measurement techniques - HEMP immunity test methods for equipment and systems

Elektromagnetische Verträglichkeit (EMV) - Teil 4-25: Prüf- und Messverfahren - Prüfung der Störfestigkeit von Einrichtungen und Systemen gegen HEMP-Störgrößen
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Compatibilité électromagnétique (CEM) - Partie 4-25: Techniques d'essai et de mesure - Méthodes d'essai d'immunité à l'EMN-HA des appareils et des systèmes

SIST EN 61000-4-25:2003/A1:2012
<https://standards.iteh.ai/catalog/standards/sist/c527c4da-c198-4c21-b085-bcebc2bb87c0/sist-en-61000-4-25-2003-a1-2012>

Ta slovenski standard je istoveten z: EN 61000-4-25:2002/A1:2012

ICS:

33.100.20 Imunost Immunity

SIST EN 61000-4-25:2003/A1:2012 en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61000-4-25/A1

May 2012

ICS 33.100.99

English version

**Electromagnetic compatibility (EMC) -
Part 4-25: Testing and measurement techniques -
HEMP immunity test methods for equipment and systems
(IEC 61000-4-25:2001/A1:2012)**

Compatibilité électromagnétique (CEM) -
Partie 4-25: Techniques d'essai et de
mesure -
Méthodes d'essai d'immunité à l'IEMN-HA
des appareils et des systèmes
(CEI 61000-4-25:2001/A1:2012)

Elektromagnetische Verträglichkeit (EMV)
-
Teil 4-25: Prüf- und Messverfahren -
Prüfung der Störfestigkeit von
Einrichtungen und Systemen gegen
HEMP-Störgrößen
(IEC 61000-4-25:2001/A1:2012)

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[SIST EN 61000-4-25:2003/A1:2012](https://standards.iteh.ai/catalog/standards/sist/e327e4da-c198-4c5f-8f63-10c92067f081/iec-61000-4-25-2001-a1-2012)

This amendment A1 modifies the European Standard EN 61000-4-25:2002; it was approved by CENELEC on 2012-04-12. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 77C/216/FDIS, future edition 1 of IEC 61000-4-25:2001/A1, prepared by SC 77C, "High power transient phenomena", of IEC TC 77, "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-4-25:2002/A1:2012.

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) 2013-01-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-04-12

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.

Endorsement notice

The text of the International Standard IEC 61000-4-25:2001/A1:2012 was approved by CENELEC as a European Standard without any modification.

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Replace Annex ZA of EN 61000-4-25:2002 by:

Annex ZA
(normative)
Normative references to international publications
with their corresponding European publications

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.

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 60038 | - | IEC standard voltages | EN 60038 | - |
| IEC 60050-161 | - | International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility | - | - |
| IEC 60068-1 + corr. October | 1988 1988 | Environmental testing - Part 1: General and guidance | EN 60068-1 ¹⁾ | 1994 |
| IEC 61000-2-5 | - | Electromagnetic compatibility (EMC) - Part 2-5: Environment - Classification of electromagnetic environments - Basic EMC publication | - | - |
| IEC 61000-2-9 | 1996 | Electromagnetic compatibility (EMC) - Part 2: Environment - Section 9: Description of HEMP environment - Radiated disturbance | EN 61000-2-9 | 1996 |
| IEC 61000-2-10 | 1998 | Electromagnetic compatibility (EMC) - Part 2-10: Environment - Description of HEMP environment - Conducted disturbance | EN 61000-2-10 | 1999 |
| IEC 61000-2-11 | - | Electromagnetic compatibility (EMC) - Part 2-11: Environment - Classification of HEMP environments | - | - |
| IEC 61000-4-4 | 2004 | Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test | EN 61000-4-4 | 2004 |
| IEC 61000-4-5 | 2005 | Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test | EN 61000-4-5 | 2006 |
| IEC 61000-4-11 | 2004 | Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests | EN 61000-4-11 | 2004 |
| IEC 61000-4-13 | 2002 | Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests | EN 61000-4-13 | 2002 |

¹⁾ EN 60068-1 includes A1 to IEC 60068-1 + corr. October .

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|---------------|-------------|
| IEC 61000-4-18 | 2006 | Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test | EN 61000-4-18 | 2007 |
| IEC 61000-4-20 | 2010 | Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides | EN 61000-4-20 | 2010 |
| IEC 61000-4-33 | - | Electromagnetic compatibility (EMC) - Part 4-33: Testing and measurement techniques - Measurement methods for high-power transient parameters | - | - |
| IEC 61000-5-3 | - | Electromagnetic compatibility (EMC) - Part 5: Installation and mitigation guidelines - Section 3: HEMP protection concepts | - | - |
| IEC/TR 61000-5-4 | - | Electromagnetic compatibility (EMC) - Part 5: Installation and mitigation guidelines - Section 4: Immunity to HEMP - Specifications for protective devices against HEMP radiated disturbance. Basic EMC Publication | - | - |
| IEC 61024-1 | - | Protection of structures against lightning - Part 1: General principles | - | - |

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IEC 61000-4-25

Edition 1.0 2012-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Electromagnetic compatibility (EMC)
**Part 4-25: Testing and measurement techniques – HEMP immunity test methods
for equipment and systems**

Compatibilité électromagnétique (CEM)
**Partie 4-25: Techniques d'essai et de mesure – Méthodes d'essai d'immunité à
l'IEMN-HA des appareils et des systèmes**

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FOREWORD

This amendment has been prepared by subcommittee 77C: High power transient phenomena, of IEC technical committee 77: Electromagnetic compatibility.

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

| | |
|--------------|------------------|
| FDIS | Report on voting |
| 77C/216/FDIS | 77C/218/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 stability 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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2 Normative references

Replace the existing reference IEC 61000-2-10 by the following:

IEC 61000-2-10:1998, *Electromagnetic compatibility (EMC) – Part 2-10: Environment – Description of HEMP environment – Conducted disturbance*

Delete from the existing list the following standards:

IEC 61000-4-12, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 12: Oscillatory waves immunity test*

ISO 7137, *Aircraft – Environmental conditions and test procedures for airborne equipment*

Add in the existing list the following new references:

IEC 61000-4-18, *Electromagnetic compatibility (EMC) – Part 4-18: Testing and measurement techniques – Damped oscillatory wave immunity test*

IEC 61000-4-33, *Electromagnetic compatibility (EMC) – Part 4-33: Testing and measurement techniques – Measurement methods for high-power transient parameters*

Delete the existing footnote ¹ at the end of reference to IEC 61000-4-20.

Table 2 – Early time conducted immunity test levels

Replace the existing Table 2 by the following new Table 2:

| Immunity test level | V_{oc} V | I_{sc} A | Waveform | Basic standard | Severity level in the basic standard |
|---------------------|---------------|---------------|-------------------------------|----------------|--------------------------------------|
| EC1 | 100 | 2 | Damped sinusoids ^a | IEC 61000-4-18 | X |
| EC2 | 250 | 5 | Damped sinusoids ^a | IEC 61000-4-18 | X |
| EC3 | 500 | 10 | Damped sinusoids ^a | IEC 61000-4-18 | 1 |
| EC4 | 1 000 | 20 | Damped sinusoids ^a | IEC 61000-4-18 | 2 |
| EC5 | 2 000 | 40 | Damped sinusoids ^a | IEC 61000-4-18 | 3 |
| EC6 | 4 000 | 80 | Damped sinusoids ^a | IEC 61000-4-18 | 4 |
| EC7 | 4 000 | 80 | 5/50 ns | IEC 61000-4-4 | 4 |
| EC8 | 8 000 | 160 | 5/50 ns | IEC 61000-4-4 | X |
| EC9 | 16 000 | 320 | 5/50 ns | IEC 61000-4-4 | X |
| EC10 | 25 000 | 500 | 25/500 ns | This standard | EC10 |
| EC11 | 160 kV | 3 200 | 10/100 ns | This standard | EC11 |
| ECX | Special | Special | Fast transient | This standard | ECX |

NOTE 1 Voltage and current levels shown in the table are for common mode values.

NOTE 2 EC10 consists of four sublevels in addition to 25 kV: 1 kV, 4 kV, 8 kV and 16 kV.

NOTE 3 For immunity test levels EC8 and EC9, it is sufficient to test with a single pulse.

NOTE 4 EC11 consists of four sublevels in addition to 160 kV: 20 kV, 40 kV, 80 kV and 120 kV. This immunity test level category is intended for testing equipment directly connected to long MV distribution power lines protected against lightning. If lightning protection is not used, increase V_{oc} to 1,6 MV and I_{sc} to 4 000 A (see Annex A).

a Each immunity test level consists of at least three frequencies: 3 MHz, 10 MHz and 30 MHz. The damping parameter Q of the damped oscillatory wave test, as defined by equation (D.1) in IEC 61000-2-10:1998, ranges from 5 to 20.

5.5.2 Conducted immunity test specifications

Replace, in the third sentence of the first paragraph, the reference “IEC 61000-4-12” by “IEC 61000-4-18”.

Replace, in the last sentence of the existing first paragraph, the word “shall” by “should”.

Add, at the end of the first paragraph, the following sentence:

Instrumentation and measurement guidance for the special tests defined by this standard is available in IEC 61000-4-33.

Table 6 – Conducted HEMP immunity test specifications

Replace, in the second row “Early-time EC1 – EC6”, in the second column, the existing reference “ISO 7137” by “IEC 61000-4-18”.

Delete, in the second row “Early-time EC1 – EC6”, in the fourth column, the existing sentence “See Annex D”.

Add, in the fourth and fifth rows “Early-time EC10” and “Early-time EC11”, in the fourth column, the following sentence: