SLOVENSKI STANDARD
SIST EN IEC 61000-4-18:2019

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SIST EN 61000-4-18:2007
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Elektromagnetna združljivost (EMC) - 4-18. del: Preskusne in merilne tehnike - Preskus odpornosti proti nihajnemu valu

Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test

Elektromagnetische Verträglichkeit (EMV) - Teil 4-18: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen gedämpft schwingende Wellen

Compatibilité électromagnétique (CEM) - Partie 4-18: Techniques d'essai et de mesure - Essai d'immunité à l'onde oscillatoire amortie

Ta slovenski standard je istoveten z: **EN IEC 61000-4-18:2019**

ICS:

33.100.20	Imunost	Immunity

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN IEC 61000-4-18

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Supersedes EN 61000-4-18:2007

English Version

Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test (IEC 61000-4-18:2019)

Compatibilité électromagnétique (CEM) - Partie 4-18: Techniques d'essai et de mesure - Essai d'immunité à l'onde oscillatoire amortie
(IEC 61000-4-18:2019)

Elektromagnetische Verträglichkeit (EMV) - Teil 4-18: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen gedämpft schwingende Wellen
(IEC 61000-4-18:2019)

This European Standard was approved by CENELEC on 2019-06-20. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61000-4-18:2019 E

European foreword

The text of document 77B/797/FDIS, future edition 2 of IEC 61000-4-18, prepared by SC 77B "High frequency phenomena" of IEC/TC 77 "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61000-4-18:2019.

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)	2020-03-20
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2022-06-20

This document supersedes EN 61000-4-18:2007.

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Endorsement notice

The text of the International Standard IEC 61000-4-18:2019 was approved by CENELEC as a European Standard without any modification.

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

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-161	-	International Electrotechnical Vocabulary. Chapter 161: Electromagnetic compatibility	-	-

IEC 61000-4-18

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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

Compatibilité électromagnétique (CEM) – Partie 4-18: Techniques d'essai et de mesure – Essai d'immunité à l'onde oscillatoire amortie

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-18: Testing and measurement techniques – Damped oscillatory wave immunity test

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.
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International Standard IEC 61000-4-18 has been prepared by subcommittee 77B: High frequency phenomena, of IEC Technical Committee 77: Electromagnetic compatibility.

It forms Part 4-18 of the IEC 61000 series. It has the status of a basic EMC publication in accordance with IEC Guide 107.

This second edition cancels and replaces the first edition published in 2006 and its Amendment 1:2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of a mathematical modelling of damped oscillatory wave waveform;
b) new Annex B on measurement uncertainty;
c) addition high speed CDN;

d) addition of calibration procedures for CDNs;

e) addition of the use of the capacitive coupling clamp on interconnection lines for fast damped oscillatory waves;

f) addition of a test procedure for DC/DC converters in case the CDN does not work;

g) new Annex C on issues relating to powering EUTs having DC/DC converters at the input.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
77B/797/FDIS	77B/799/RVD

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

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

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61000 is published in separate parts, according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

This part is an international standard which gives immunity requirements and test procedures related to damped oscillatory waves.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-18: Testing and measurement techniques – Damped oscillatory wave immunity test

1 Scope

This part of IEC 61000 focuses on the immunity requirements and test methods for electrical and electronic equipment, under operational conditions, with regard to:

a) repetitive slow damped oscillatory waves occurring mainly in power, control and signal cables installed in high voltage and medium voltage (HV/MV) substations;

b) repetitive fast damped oscillatory waves occurring mainly in power, control and signal cables installed in gas insulated substations (GIS) and in some cases also air insulated substations (AIS) or in any installation due to high-altitude electromagnetic pulse (HEMP) phenomena.

The object of this document is to establish a common and reproducible reference for evaluating the immunity of electrical and electronic equipment when subjected to damped oscillatory waves on supply, signal, control and earth ports. The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of an equipment or system against a defined phenomenon.

NOTE As described in IEC Guide 107, this is a basic EMC publication for use by product committees of the IEC. As also stated in Guide 107, the IEC product committees are responsible for determining whether this immunity test standard is applied or not, and if applied, they are responsible for determining the appropriate test levels and performance criteria. [1]

The document defines:

– test voltage and current waveforms;
– ranges of test levels;
– test equipment;
– calibration and verification procedures of test equipment;
– test setups;
– test procedure.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60050-161, *International Electrotechnical Vocabulary (IEV) – Part 161: Electromagnetic compatibility* (available at www.electropedia.org)

[1] TC 77 and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular immunity tests for their products.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Several of the most relevant terms and definitions from IEC 60050-161 are presented among the definitions below.

3.1.1
air insulated substation
AIS
substation which is made up with only air insulated switchgear

Note 1 to entry: This note applies to the French language only.

3.1.2
auxiliary equipment
AE
equipment necessary to provide the equipment under test (EUT) with the signals required for normal operation and to verify the performance of the EUT

Note 1 to entry: This note applies to the French language only.

3.1.3
burst
sequence of a limited number of distinct pulses or an oscillation of limited duration

[SOURCE: IEC 60050-161:1990, 161-02-07]

3.1.4
calibration
set of operations which establishes, by reference to standards, the relationship which exists under specified conditions, between an indication and a result of a measurement

Note 1 to entry This term is based on the "uncertainty" approach.

Note 2 to entry The relationship between the indications and the results of measurement can be expressed, in principle, by a calibration diagram.

[SOURCE: IEC 60050-311:2001, 311-01-09]

3.1.5
capacitive coupling clamp
device of defined dimensions and characteristics for common mode coupling of the disturbance signal to the circuit under test without any galvanic connection to it

3.1.6
coupling
interaction between circuits, transferring energy from one circuit to another