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EUROPEAN STANDARD

**EN 61000-4-18**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2006

ICS 33.100.20

Partially supersedes EN 61000-4-12:1995 + A1:2001

English version

**Electromagnetic compatibility (EMC) -  
Part 4-18: Testing and measurement techniques -  
Damped oscillatory wave immunity test  
(IEC 61000-4-18:2006)**

Compatibilité électromagnétique (CEM) -  
Partie 4-18: Techniques d'essai  
et de mesure -  
Essai d'immunité  
à l'onde oscillatoire amortie  
(CEI 61000-4-18:2006)

Elektromagnetische Verträglichkeit (EMV) -  
Teil 4-18: Prüf- und Messverfahren -  
Prüfung der Störfestigkeit  
gegen schwingende Wellen  
(IEC 61000-4-18:2006)

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This European Standard was approved by CENELEC on 2007-03-01. 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.

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 European Standard 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/517/FDIS, future edition 1 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 was approved by CENELEC as EN 61000-4-18 on 2007-03-01.

This European Standard deals with the immunity test against oscillatory waves which was formerly covered by EN 61000-4-12:1995 + A1:2001, now superseded by EN 61000-4-12:2006. It constitutes a technical revision by extending the frequency range.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-03-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 61000-4-18:2006 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 60694	NOTE	Harmonized as EN 60694:1996 (not modified). <a href="https://standards.iteh.ai/catalog/standards/sist/4640f329-bbd5-4fb7-ac7d-74e141362ed9/sist/61000-4-18:2007">https://standards.iteh.ai/catalog/standards/sist/4640f329-bbd5-4fb7-ac7d-74e141362ed9/sist/61000-4-18:2007</a>
IEC 61000-2-9	NOTE	Harmonized as EN 61000-2-9:1996 (not modified).
IEC 61000-2-10	NOTE	Harmonized as EN 61000-2-10:1999 (not modified).
IEC 60068-1	NOTE	Harmonized as EN 60068-1:1994 (not modified).
IEC 61000-4-25	NOTE	Harmonized as EN 61000-4-25:2002 (not modified).
IEC 61010-1	NOTE	Harmonized as EN 61010-1:2001 (not modified).

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## 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 61000-4-4	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004 <sup>2)</sup>
IEC 61000-6-6	- <sup>1)</sup>	Electromagnetic compatibility (EMC) - Part 6-6: Generic standards - HEMP immunity for indoor equipment	-	-

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

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

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PUBLICATION FONDAMENTALE EN CEM  
BASIC EMC PUBLICATION

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**Compatibilité électromagnétique (CEM) –**

**Partie 4-18:**

**Techniques d'essai et de mesure –  
Essai d'immunité à l'onde oscillatoire amortie**

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**Electromagnetic compatibility (EMC) –**

**Part 4-18: IEC 61000-4-18:2007**

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**Testing and measurement techniques –  
Damped oscillatory wave immunity test**

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Международная Электротехническая Комиссия

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For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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 IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*.

This first edition of the standard cancels and replaces the content regarding damped oscillatory waves in the first edition of IEC 61000-4-12, published in 1995, and its Amendment 1 (2000), and constitutes a technical revision by extending the frequency range.

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

FDIS	Report on voting
77B/517/FDIS	77B/522/RVD

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

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

The committee has decided that the contents of this 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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## INTRODUCTION

This standard is part of the IEC 61000 series, 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 [SIST EN 61000-4-18:2007](https://standards.iteh.ai/catalog/standards/sist/4640f329-bbd5-4fb7-ac7d-736d44363ad9/sist-en-61000-4-18-2007)

### **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: 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 and object

This part of IEC 61000-4 relates to the immunity requirements and test methods for electrical and electronic equipment, under operational conditions, with regard to:

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

The object of this basic standard is to establish the immunity requirements and a common reference for evaluating in a laboratory the performance of electrical and electronic equipment intended for residential, commercial and industrial applications, as well as of equipment intended for power stations and substations, as applicable.

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 should be applied or not, and if applied, they are responsible for determining the appropriate test levels and performance criteria. 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.

The purpose of this standard is to define:

- test voltage and current waveforms;
- ranges of test levels;
- test equipment;
- test setup;
- test procedure.

The object of this standard is to establish a common reference for evaluating the immunity of electrical and electronic equipment when subjected to damped oscillatory waves. 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.

#### 2 Normative references

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.