

Elektromagnetiline ühilduvus. Osa 4-18: Katsetus- ja mõõtetehnika. Sumbuva võnkelaine häiringukindluse katsetamine

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

EESTI STANDARDI EESSÕNA

See Eesti standard EVS-EN 61000-4-18:2007 sisaldab Euroopa standardi EN 61000-4-18:2007 ingliskeelset teksti.

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NATIONAL FOREWORD

This Estonian standard EVS-EN 61000-4-18:2007 consists of the English text of the European standard EN 61000-4-18:2007.

This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.

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The standard is available from the Estonian Centre for Standardisation.

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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)

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.

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).
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).

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	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 61000-4-4	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004 ²⁾
IEC 61000-6-6	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-6: Generic standards - HEMP immunity for indoor equipment	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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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

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.

IEC 60050(161): *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*

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

IEC 61000-6-6: *Electromagnetic compatibility (EMC) – Part 6-6: Generic standards – HEMP immunity for indoor equipment*

3 Terms and definitions

For the purposes of this document, the terms and definitions contained in IEC 60050-161, some of which are repeated here for convenience, and the following terms and definitions apply.

NOTE These terms are applicable to the restricted field of oscillatory transients.

3.1

air insulated substation

AIS

substation which is made up with only air insulated switchgear

3.2

burst

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

[IEV 161-02-07]

3.3

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 This term is based on the "uncertainty" approach.

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

[IEV 311-01-09]

3.4

coupling

interaction between circuits, transferring energy from one circuit to another

3.5

coupling network

electrical circuit for the purpose of transferring energy from one circuit to another

3.6

decoupling network

electrical circuit for the purpose of preventing test voltages applied to the EUT (equipment under test) from affecting other devices, equipment, or systems which are not under test

3.7

gas insulated (metal-enclosed) substation

GIS

substation which is made up with only gas insulated metal enclosed switchgear

[IEV 605-02-14]