Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN 61000-4-16:2016 sisaldab Euroopa standardi EN 61000-4-16:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 61000-4-16:2016 consists of the English text of the European standard EN 61000-4-16:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.03.2016.	Date of Availability of the European standard is 18.03.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 33.100.20

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61000-4-16

March 2016

ICS 33.100.20

Supersedes EN 61000-4-16:1998

English Version

Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz (IEC 61000-4-16:2015)

Compatibilité électromagnétique (CEM) - Partie 4-16: Techniques d'essai et de mesure - Essai d'immunité aux perturbations conduites en mode commun dans la plage de fréquences de 0 Hz à 150 kHz (IEC 61000-4-16:2015)

Elektromagnetische Verträglichkeit (EMV) - Teil 4-16: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen leitungsgeführte, asymmetrische Störgrößen im Frequenzbereich von 0 Hz bis 150 kHz (IEC 61000-4-16:2015)

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

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Ref. No. EN 61000-4-16:2016 E

European foreword

The text of document 77A/905/FDIS, future edition 2 of IEC 61000-4-16, prepared by SC 77A "Low frequency phenomena" of IEC/TC 77 "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-4-16:2016.

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)	2016-10-13
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-01-13

This document supersedes EN 61000-4-16:1998.

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Endorsement notice

The text of the International Standard IEC 61000-4-16:2015 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 61000-4-6	NOTE	Harmonized as EN 61000-4-6.
IEC 61000-4-13	NOTE	Harmonized as EN 61000-4-13.
IEC 61000-4-19	NOTE	Harmonized as EN 61000-4-19.
IEC 60068-1	NOTE	Harmonized as EN 60068-1.
IEC 61000-4 Series	NOTE	Harmonized as EN 61000-4 Series.

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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

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 conducted, common mode disturbances in the range d.c. to 150 kHz.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz

1 Scope

This part of IEC 61000 relates to the immunity requirements and test methods for electrical and electronic equipment to conducted, common mode disturbances in the range d.c. to 150 kHz.

The object of this standard is to establish a common and reproducible basis for testing electrical and electronic equipment with the application of common mode disturbances to power supply, control, signal and communication ports.

This standard defines

- test voltage and current waveform;
- range of test levels;
- test equipment;
- test set-up;
- test procedures.

For some types of ports, for example ports intended to be used with highly balanced lines, additional test provisions may be established by product committee specifications.

The test is intended to demonstrate the immunity of electrical and electronic equipment when subjected to conducted, common mode disturbances such as those originating from power line currents and return leakage currents in the earthing/grounding system.

The disturbances produced by 400 Hz mains systems are not included in the scope of this standard.

Actual interference due to these disturbance phenomena is relatively rare, except in industrial plants. Product committees should therefore consider whether there is a justification for applying this standard in their product/product family standards (see also Clause 4).

This test is not relevant for equipment ports intended to be connected to short cables, having a length less than 20 m or less.

The immunity to harmonics and interharmonics, including mains signalling, on a.c. power ports (in differential mode) is not included in the scope of this standard and is covered by IEC 61000-4-13 and IEC 61000-4-19.

The immunity to conducted disturbances generated by intentional radio-frequency transmitters is not included in the scope of this standard and is covered by IEC 61000-4-6.

2 Normative references

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.

Void.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Not all of the definitions given in Clause 3 are included in IEC 60050-161.

3.1
EUT
equipment under test
equipment (devices, appliances and systems) subjected to tests

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

3.2
auxiliary equipment
AE
equipment that is necessary for setting up all functions and assessing the correct performance (operation) of the EUT during the test

3.3
port
particular interface of the specified equipment with the external electromagnetic environment

SEE: Figure 1.

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 voltage applied to the equipment under test from affecting other devices, equipment or systems which are not under test

3.7
immunity (to a disturbance)
ability of a device, equipment or system to perform without degradation in the presence of an electromagnetic disturbance

[SOURCE: IEC 60050-161:1990, 161-01-20]

3.8
source impedance of the test generator
ratio between the open circuit voltage and the short circuit current, expressed as: