

# SLOVENSKI STANDARD

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**Elektromagnetna združljivost (EMC) - 4-16. del: Preskušanje in merilne tehnike - Preskušanje odpornosti proti prevajanim motnjam skupne zvrsti v frekvenčnem območju od 0 Hz do 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  
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Elektromagnetische Verträglichkeit (EMV) - Teil 4-16: Prüf- und Meßverfahren - Prüfung der Störfestigkeit gegen leitungsgeführte, asymmetrische Störgrößen im Frequenzbereich von 0 Hz bis 150 kHz

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

**Ta slovenski standard je istoveten z: EN 61000-4-16:2016**

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EUROPEAN STANDARD

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Part 4-16: Testing and measurement techniques - Test for  
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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  
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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

**EN 61000-4-16:2016****European foreword**

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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.
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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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**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**

**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**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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**

## 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 61000-4-16 has been prepared by subcommittee 77A: Low-frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms part 4-16 of IEC 61000. 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 1998, Amendment 1:2001 and Amendment 2:2009. This edition constitutes a technical revision.

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

- a) clarification and complement of test generators' specifications and performances.



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

FDIS	Report on voting
77A/905/FDIS	77A/917/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.

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 publication will remain unchanged until the stability date indicated on the IEC website 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

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.

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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: