
Elektromagnetna združljivost (EMC) - 2-4. del: Okolje - Ravni združljivosti za nizkofrekvenčne prevajane motnje v elektroenergetskih omrežjih industrijskih objektov

Electromagnetic compatibility (EMC) - Part 2-4: Environment - Compatibility levels in power distribution systems in industrial locations for low-frequency conducted disturbances

Elektromagnetische Verträglichkeit (EMV) - Teil 2-4: Umgebungsbedingungen - Verträglichkeitspegel für niederfrequente leitungsgeführte Störgrößen in Industrieanlagen

Compatibilité électromagnétique (CEM) - Partie 2-4: Environnement - Niveaux de compatibilité dans les installations industrielles pour les perturbations conduites à basse fréquence

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33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
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**Electromagnetic compatibility (EMC) - Part 2-4: Environment -
Compatibility levels in power distribution systems in industrial
locations for low-frequency conducted disturbances
(IEC 61000-2-4:2024)**

Compatibilité électromagnétique (CEM) - Partie 2-4:
Environnement - Niveaux de compatibilité dans les réseaux
de distribution d'électricité sur des sites industriels pour les
perturbations conduites à basse fréquence
(IEC 61000-2-4:2024)

Elektromagnetische Verträglichkeit (EMV) - Teil 2-4:
Umgebungsbedingungen - Verträglichkeitspegel für
niederfrequente leitungsgeführte Störgrößen in
Industrieanlagen
(IEC 61000-2-4:2024)

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Europäisches Komitee für Elektrotechnische Normung

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

EN IEC 61000-2-4:2024 (E)**European foreword**

The text of document 77A/1215/FDIS, future edition 3 of IEC 61000-2-4, prepared by SC 77A "EMC - Low frequency phenomena" of IEC/TC 77 "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61000-2-4:2024.

The following dates are fixed:

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- latest date by which the national standards conflicting with the (dow) 2027-08-29 document have to be withdrawn

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The text of the International Standard IEC 61000-2-4:2024 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 standard indicated:

IEC 60038:2009	NOTE	Approved as EN 60038:2011
IEC 61000-1-2	NOTE	Approved as EN 61000-1-2
IEC 61000-4-15:2010	NOTE	Approved as EN 61000-4-15:2011 (not modified)
IEC 61511-1:2016	NOTE	Approved as EN 61511-1:2017 (not modified)

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 Where 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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-2-2	2002	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	2002
+ A1	2017		+ A1	2017
+ A2	2018		+ A2	2019
IEC 61000-2-12	-	Electromagnetic compatibility (EMC) - Part 2-12: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public medium-voltage power supply systems	EN 61000-2-12	-
IEC 61000-4-7	-	Electromagnetic compatibility (EMC) - Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	EN 61000-4-7	-
CISPR 16-1-1	-	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN IEC 55016-1-1	-
CISPR 16-2-1	-	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements	EN 55016-2-1	-



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electromagnetic compatibility (EMC) –
Part 2-4: Environment – Compatibility levels in power distribution systems in
industrial locations for low-frequency conducted disturbances**

**Compatibilité électromagnétique (CEM) –
Partie 2-4: Environnement – Niveaux de compatibilité dans les réseaux de
distribution d'électricité sur des sites industriels pour les perturbations
conduites à basse fréquence**

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	9
3 Terms, definitions and abbreviated terms	9
3.1 General definitions.....	9
3.2 Phenomena-related definitions.....	11
3.3 Abbreviated terms.....	15
4 Electromagnetic environment classes.....	15
5 Introduction to the setting of compatibility levels for different types of electromagnetic disturbances	17
5.1 General comment.....	17
5.2 Voltage deviations	17
5.3 Voltage dips and short interruptions.....	17
5.4 Voltage imbalance	18
5.5 Temporary power-frequency variation	18
5.6 Harmonics	18
5.7 Interharmonics.....	19
5.8 Voltage components at higher frequencies (above 40 th harmonic).....	19
5.9 Transient overvoltages.....	20
5.10 DC component.....	20
6 Compatibility levels.....	20
Annex A (informative) Explanations and examples for interharmonics.....	24
A.1 Resolution of non-sinusoidal voltages and currents.....	24
A.2 Time varying phenomena.....	25
Annex B (informative) Examples of expected disturbance levels in typical industrial networks.....	26
B.1 General.....	26
B.2 Voltage disturbance levels in industrial networks due to large converters.....	26
B.3 Voltage disturbance levels in industrial networks at high load	28
B.4 Voltage dips and short interruptions.....	30
B.4.1 Description	30
B.4.2 Adaptation	31
B.5 Transient overvoltages.....	31
Annex C (informative) Interharmonics and voltages at higher frequencies and mitigation methods.....	33
C.1 Sources of interharmonics	33
C.1.1 Identification.....	33
C.1.2 Different types of sources of interharmonics	33
C.1.3 Effects of interharmonics and compatibility	35
C.1.4 Guidance levels.....	35
C.2 Mitigation methods.....	37
C.2.1 General	37
C.2.2 Decrease emission levels	37
C.2.3 Increase immunity	38
C.2.4 Protection of mains signaling.....	38

Annex D (informative) Proving compatibility in the frequency range above 2 kHz in industrial MV networks	39
Annex E (informative) Examples of locations and installations covered by IEC 61000-2-4	40
E.1 General.....	40
E.2 Mixed locations	40
E.3 Examples for industrial locations.....	40
Annex F (informative) Rationale for increased individual even and triplen compatibility levels and for splitting class 2 into class 2a, class 2b and class 2L	44
F.1 Rationale for increased individual even and triplen compatibility levels	44
F.1.1 Target.....	44
F.1.2 The needs of modern power electronic equipment	44
F.1.3 Maintaining the overall disturbance level	45
F.2 Rationale for splitting class 2 into class 2a, class 2b and class 2L	45
F.2.1 Target.....	45
F.2.2 Class 2a	45
F.2.3 Class 2b	45
F.2.4 Class 2L	46
Bibliography.....	47
Figure 1 – Examples of the application of different electromagnetic environment classes in different industrial locations	16
Figure 2 – Example of different parts of an installation separated by filters, where different electromagnetic environment classes are applied.....	16
Figure 3 – Interharmonic compatibility levels (flickermeter response for $P_{St} = 1$ related to 60 W incandescent lamps)	23
Figure B.1 – Example of power distribution in industry with rolling mills	27
Figure B.2 – Example of power distribution in the paper industry	28
Figure B.3 – Example of power distribution in a generic manufacturing industry.....	30
Figure B.4 – ITI (CBEMA) – Curve of tolerance envelope of ITE	32
Figure E.1 – Example of class 1 environment.....	40
Figure E.2 – Example of class 2a and class 2b environments	41
Figure E.3 – Example of an LV grid in a building supplied by a dedicated transformer	41
Figure E.4 – Example of an LV grid in a building including residential and industrial locations	42
Figure E.5 – Example of an LV grid for a data center	42
Figure F.1 – Emission spectrum of an active infeed converter.....	44
Table 1 – Compatibility levels for voltage tolerance, voltage imbalance and power-frequency variations.....	20
Table 2 – Compatibility levels for harmonics – Harmonic voltage components.....	21
Table 3 – Compatibility levels for total voltage harmonic distortion.....	22
Table 4 – Compatibility levels for low voltage networks in the frequency range from 2 kHz to 9 kHz	22
Table 5 – Compatibility levels for low voltage networks in the frequency range from 9 kHz to 150 kHz	22
Table B.1 – Type of network	26

Table B.2 – Voltage disturbance levels in a typical manufacturing industry	29
Table C.1 – Indicative values for interharmonic voltages in low-voltage networks with respect to the flicker effect.....	36

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –**Part 2-4: Environment –
Compatibility levels in power distribution systems
in industrial locations for low-frequency conducted disturbances**

FOREWORD

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IEC 61000-2-4 has been prepared by subcommittee 77A: EMC – Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility. It is an International Standard.

This third edition cancels and replaces the second edition published in 2002. This edition constitutes a technical revision.

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

- a) introduction of new classes 2a, 2b and 2L (former class 2);
- b) modification of existing compatibility levels for class 3;
- c) addition of compatibility levels in the frequency range 2 kHz to 150 kHz;

- d) addition of compatibility levels using a new quantity: partial weighted harmonic distortion (PWHHD).

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

Draft	Report on voting
77A/1215/FDIS	77A/1221/RVD

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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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

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

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Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as International Standards, 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 61000-3-11).

Detailed information on the various types of disturbances that can be expected on public power supply systems can be found in IEC 61000-2-1 and IEC 61000-2-12.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 2-4: Environment – Compatibility levels in power distribution systems in industrial locations for low-frequency conducted disturbances

1 Scope

This part of IEC 61000 is related to conducted disturbances in the frequency range from 0 kHz to 150 kHz. It gives compatibility levels in differential mode (L-L and L-N) for industrial locations, with a nominal voltage up to 35 kV and a nominal frequency of 50 Hz or 60 Hz.

NOTE 1 Industrial locations are defined in 3.1.8.

Power distribution systems on ships, aircraft, offshore platforms and railways are not included.

NOTE 2 See also Annex E. The compatibility levels specified in this document apply at the in-plant point of coupling (IPC). The level of the low-frequency disturbances at the terminals of equipment receiving its supply from the IPC is generally assumed to be similar to the disturbance level at the IPC itself. However, in some situations this is not the case, particularly when a long feeder is dedicated to the supply of a particular load, or when a disturbance is generated or amplified within the installation of which the equipment forms a part.

Compatibility levels are specified for the types of low-frequency electromagnetic disturbances expected at any in-plant point of coupling (IPC) within industrial locations, for guidance in the definition of:

- a) limits for disturbance emissions in industrial power distribution systems (including the planning levels defined in 3.1.5);

NOTE 3 A very wide range of conditions is possible in the electromagnetic environments of industrial networks. These are approximated in this document by the three classes described in Clause 4. However, it is the responsibility of the operator of such a network to take account of the particular electromagnetic and economic conditions, including equipment characteristics, in setting the above-mentioned limits.

- b) immunity levels for the equipment within these systems.

The disturbance phenomena considered are:

- voltage deviations;
- voltage dips and short interruptions;
- voltage imbalance;
- power-frequency variations;
- harmonics up to order 40;
- interharmonics up to the 40th harmonic;
- voltage components above the 40th harmonic up to 150 kHz;
- DC component;
- transient overvoltages.

The compatibility levels are given for different classes of environment determined by the characteristics of the supply network and loads.

NOTE 4 Compatibility levels at the point of common coupling (PCC) on public networks are specified in IEC 61000-2-2 for low-voltage networks and IEC 61000-2-12 for medium-voltage networks. IEC TR 61000-3-6 and IEC TR 61000-3-7 describe the approach of power distribution system operators to the limitation of emissions from installations and large loads.