

STN	Elektromagnetická kompatibilita (EMC). Časť 6-5: Všeobecné normy. Odolnosť - zariadenia používané v elektrárňach a rozvodniach.	STN EN 61000-6-5
		33 3432

Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/16

Obsahuje: EN 61000-6-5:2015, IEC 61000-6-5:2015

122552

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, 2016
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy
rozširovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

EUROPEAN STANDARD

EN 61000-6-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2015

ICS 33.100.20

English Version

Electromagnetic compatibility (EMC) -
Part 6-5: Generic standards - Immunity for equipment used in
power station and substation environment
(IEC 61000-6-5:2015)

Compatibilité électromagnétique (CEM) -
Partie 6-5: Normes génériques - Immunité pour les
équipements utilisés dans les environnements de centrales
électriques et de postes
(IEC 61000-6-5:2015)

Elektromagnetische Verträglichkeit (EMV) -
Teil 6-5: Fachgrundnormen - Störfestigkeit von
Betriebsmitteln, Geräten und Einrichtungen, die im Bereich
von Kraftwerken und Schaltstationen verwendet werden
(IEC 61000-6-5:2015)

This European Standard was approved by CENELEC on 2015-09-25. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 77/484/FDIS, future edition 1 of IEC 61000-6-5, prepared by IEC/TC 77 "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-6-5:2015.

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) 2016-06-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-09-25

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61000-6-5:2015 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 61000-2	NOTE	Harmonized in EN 61000-2 series.
IEC 61000-6-4	NOTE	Harmonized as EN 61000-6-4.
IEC 60255-1:2009	NOTE	Harmonized as EN 60255-1:2010 (not modified).
IEC 60255-26:2013	NOTE	Harmonized as EN 60255-26:2013 (not modified).
IEC 61439-1:2011	NOTE	Harmonized as EN 61439-1:2011 (not modified).
IEC 62271-1:2007	NOTE	Harmonized as EN 62271-1:2008 (not modified).
IEC 60870-2-1:1995	NOTE	Harmonized as EN 60870-2-1:1996 (not modified).
IEC 61000-6-2:2005	NOTE	Harmonized as EN 61000-6-2:2005 (not modified).
IEC 61326-1:2012	NOTE	Harmonized as EN 61326-1:2013 (not modified).
IEC 61812-1:2011	NOTE	Harmonized as EN 61812-1:2011 (not modified).

IEC 61000-4-1	NOTE	Harmonized as EN 61000-4-1.
IEC 61000-4-12:2006	NOTE	Harmonized as EN 61000-4-12:2006 (not modified).
IEC 61000-4-19:2014	NOTE	Harmonized as EN 61000-4-19:2014 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3 + A1 + A2	2006 2008 2010
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
IEC 61000-4-6	-	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-8	-	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010
IEC 61000-4-11	-	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-16	-	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	EN 61000-4-16 + A1 + A2	1998 2004 2011
IEC 61000-4-17	-	Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test	EN 61000-4-17 + A1 + A2	1999 2004 2009
IEC 61000-4-18	-	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	EN 61000-4-18 + corrigendum Sep. + A1	2007 2007 2010
IEC 61000-4-29	-	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	EN 61000-4-29	2000
IEC 61000-4-34	-	Electromagnetic compatibility (EMC) - Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase	EN 61000-4-34 + A1	2007 2009
IEC 61000-6-1	-	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments	EN 61000-6-1	2007

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers essential requirements as given in Annex I Article 1(b) of the EU Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directives concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electromagnetic compatibility (EMC) –
Part 6-5: Generic standards – Immunity for equipment used in power station and
substation environment**

**Compatibilité électromagnétique (CEM) –
Partie 6-5: Normes génériques – Immunité pour les équipements utilisés dans
les environnements de centrales électriques et de postes**





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2015 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electromagnetic compatibility (EMC) –
Part 6-5: Generic standards – Immunity for equipment used in power station and
substation environment**

**Compatibilité électromagnétique (CEM) –
Partie 6-5: Normes génériques – Immunité pour les équipements utilisés dans
les environnements de centrales électriques et de postes**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.100.20

ISBN 978-2-8322-2859-3

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope and object	7
2 Normative references	8
3 Terms, definitions and abbreviations	9
3.1 Terms and definitions	9
3.2 Abbreviations	12
4 Electromagnetic environment	12
5 Performance criteria	16
6 Conditions during testing	18
7 Product documentation	19
8 Applicability	19
9 Measurement uncertainty	20
10 Immunity requirements	20
10.1 General	20
10.2 Immunity test requirements for equipment in power stations	20
10.3 Immunity test requirements for equipment in substations	24
Annex A (informative) Information on electromagnetic phenomena, typical sources and causes	29
Annex B (informative) Overview of the effect of the electromagnetic phenomena on the functions of equipment and systems	30
Annex C (informative) Guidelines for protected zones – Mitigation of radiated and conducted disturbances	34
C.1 General	34
C.2 General approach	34
C.3 Classification of protection zones	35
C.3.1 General	35
C.3.2 Zone 1 – Building shield	36
C.3.3 Zone 2 – Room shield	36
C.3.4 Zone 3 – Equipment shield	37
C.3.5 Zone 4 – Additional protection	37
C.4 Design principles for shielding	37
C.5 Shielding effectiveness	37
Annex D (informative) Guidance for the user of this standard	39
Bibliography	40
Figure 1 – Equipment ports	10
Figure 2 – Example of the situation of a power station	14
Figure 3 – Example of the situation of an air-insulated substation (AIS)	15
Figure 4 – Example of the situation of a gas-insulated substation (GIS)	16
Figure C.1 – Equipment ports	34
Figure C.2 – Zones of protection of shielding and earthing systems	36

Table 1 – Characterization of the electromagnetic phenomena	13
Table 2 – Suggested performance criteria for some representative functions	18
Table 3 – Immunity requirements – Power station – Enclosure port.....	21
Table 4 – Immunity specifications – Power station – Signal/control ports	22
Table 5 – Immunity specifications – Power station – Low voltage a.c. input and output power ports.....	23
Table 6 – Immunity specifications – Power station – Low voltage d.c. input and output power ports.....	24
Table 7 – Immunity specifications – Substation – Enclosure port	25
Table 8 – Immunity specifications – Substation – Signal/control ports	26
Table 9 – Immunity specifications – Substation – Low voltage a.c. input and output power ports.....	27
Table 10 – Immunity specifications – Substation – Low voltage d.c. input and output power ports.....	28
Table A.1 – Electromagnetic phenomena – Sources and causes.....	29
Table D.1 – Immunity tests and test levels to be considered in the future or for particular product families	39

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMAGNETIC COMPATIBILITY (EMC) –**Part 6-5: Generic standards – Immunity for equipment used
in power station and substation environment**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61000-6-5 has been prepared by committee 77: Electromagnetic compatibility (EMC).

This first edition cancels and replaces the first edition of IEC TS 61000-6-5 published in 2001. This edition constitutes a technical revision.

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

- a) the scope is extended in order to cover also power generating systems in industrial facilities;
- b) the locations under consideration, i.e. power stations and substations are described in more detail;
- c) performance criteria and the EUT functions they apply to are reviewed;

- d) immunity requirements are reviewed and more specifically related to the relevant locations;
- e) informative annexes for guidance and on protected zones are added.

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

FDIS	Report on voting
77/484/FDIS	77/500/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 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61000 series 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

Part 9: Miscellaneous

Each part is further subdivided into sections which are to be 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 International Standard deals with the electromagnetic compatibility (EMC) of equipment used in the generation, transmission and distribution of electricity and related telecommunication systems.

Several EMC product standards have been published by technical committees dealing with different application areas in the generation, transmission and distribution of electricity and related telecommunication systems, for example:

- fixed power supply installations and apparatus for railway applications (TC 9),
- switchgear and controlgear (TC 17),
- instrument transformers (TC 38),
- nuclear instrumentation (TC 45),
- power systems management and associated information exchange (TC 57),
- industrial-process measurement and control – system aspects (SC 65A),
- measuring relays and protection equipment (TC 95), etc.

The requirements specified in these product standards consider product-specific aspects only. It is the task of this generic standard IEC 61000-6-5 to specify a set of essential requirements, test procedures and generalized performance criteria applicable to such products or systems operating in this electromagnetic environment.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 6-5: Generic standards – Immunity for equipment used in power station and substation environment

1 Scope and object

This part of IEC 61000 specifies EMC immunity requirements which apply to electrical and electronic equipment intended for use in power stations and substations, as described below. Immunity requirements for electromagnetic phenomena with spectral contributions in the frequency range 0 Hz to 400 GHz are covered. No tests need to be performed at frequencies or for phenomena where no requirements are specified.

This international standard sets immunity test requirements for equipment intended for use in the generation, transmission and distribution of electricity and related telecommunication systems. The electromagnetic environments encompassed by this standard are those which exist at locations

- in power stations, and
- in high and medium voltage substations.

Installations to generate or convert into electrical power inside industrial facilities are also covered by this standard as long as they, at their primary electrical connection, cannot be directly connected to the LV power network, e.g. where the generator output voltage is medium voltage or higher. Power installations that directly provide power into the low voltage network (such as photovoltaic cells or combined heat power systems in private houses) are not covered by this standard.

NOTE 1 In general, power stations comprise installations which are mainly built to convert some kind of primary energy into electrical energy. Moreover, these power stations are connected to the medium or high voltage power system directly or via a step-up transformer.

The object of this standard is to define immunity test requirements for equipment defined in the scope in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges.

The immunity test requirements are given on a port-by-port basis, and selected according to the location, with differentiated levels for equipment to be installed in power stations or substations. In special cases, situations will arise where the level of electromagnetic disturbances may exceed the levels specified in this standard; in these instances, special mitigation measures should be adopted.

The immunity requirements are suitable for satisfying the particular needs related to the functions and tasks of equipment and systems, for which reliable operation is required under realistic electromagnetic conditions; in this respect, this standard establishes performance criteria for different functional requirements.

This generic EMC immunity standard is applicable if no relevant dedicated product or product-family EMC immunity standard exists. According to IEC Guide 107, this generic standard should be considered for the preparation or revision of any EMC standard referring to specific products used in power stations and substations.

NOTE 2 Product standards covering EMC aspects for equipment to be used in power stations or substations are for example IEC 62271-1 (switchgear and controlgear), IEC 60255-26 (measuring relays and protection equipment) or IEC 62236-5 (fixed power supply installations and apparatus for railway applications).

Non-electronic high voltage and power equipment (primary system) are excluded from the scope of this standard.

Emission requirements are not within the scope of this standard and are covered by relevant product or product-family standards.

NOTE 3 Where no dedicated product or product family standard covering emission requirements exists, the generic standard IEC 61000-6-4 applies.

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.

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

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

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-16, *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 61000-4-17, *Electromagnetic compatibility (EMC) – Part 4-17: Testing and measurement techniques – Ripple on d.c. input power port immunity test*

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

IEC 61000-4-29, *Electromagnetic compatibility (EMC) – Part 4-29: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests*

IEC 61000-4-34, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*

IEC 61000-6-1, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

- connections from control room or equipment room to the field of power stations and HV substations;
- connections to low voltage power equipment;
- connections within the relay house or telecommunication house of HV substations, where no special mitigation measures are adopted (e.g. shielding);
- field bus.

Note 1 to entry: Those cable ports of process instrumentation which are self-powered through the signal conductors (e.g. 4 mA to 20 mA) are considered as signal ports.