SLOVENSKI STANDARD
SIST EN IEC 62271-208:2026

01-april-2026

Nadomešča:
SIST-TP CLC/TR 62271-208:2010

Visokonapetostne stikalne in krmilne naprave - 208. del: Metode za kvantifikacijo elektromagnetnih polj v ustaljenem stanju z močjo in frekvenco, ki jih generirajo visokonapetostne VN omrežne stikalne naprave in VN/NN montažne postaje, tako za nazivno napetost nad 1 kV kot do vključno 52 kV (IEC 62271-208:2025)

High-voltage switchgear and controlgear - Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations, both for rated voltages above 1 kV and up to and including 52 kV (IEC 62271-208:2025)

Hochspannungs-Schaltgeräte und -Schaltanlagen – Teil 208: Methoden zur Bestimmung der stationären, betriebsfrequenten elektromagnetischen Felder von HS-Schaltanlagen und fabrikfertigen HS-/ NS-Stationen, beides für Bemessungsspannungen über 1 kV und bis einschließlich 52 kV (IEC 62271-208:2025)

Appareillage à haute tension - Partie 208: Méthodes de quantification des champs électromagnétiques à fréquence industrielle en régime établi générés par les ensembles d'appareillages ht et les postes préfabriqués ht/BT, à la fois pour les tensions assignées supérieures à 1 kv et inférieures ou égales à 52 kv (IEC 62271-208:2025)

Ta slovenski standard je istoveten z: **EN IEC 62271-208:2026**

ICS:

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear

SIST EN IEC 62271-208:2026 **en**

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EN IEC 62271-208

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English Version

High-voltage switchgear and controlgear - Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations, both for rated voltages above 1 kV and up to and including 52 kV (IEC 62271-208:2025)

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

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

Ref. No. EN IEC 62271-208:2026 E

European foreword

The text of document 17C/977/FDIS, future edition 1 of IEC 62271-208, prepared by SC 17C "Assemblies" of IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-208:2026.

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) 2027-02-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-02-28

This document supersedes CLC/TR 62271-208:2010 and all of its amendments and corrigenda (if any).

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62271-208:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 62110 NOTE Approved as EN 62110

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.

Publication	Year	Title	EN/HD	Year
IEC 61000-6-2	-	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	-
IEC 61786-1	-	Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 1: Requirements for measuring instruments	EN 61786-1	-
IEC 61786-2	-	Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 2: Basic standard for measurements	-	-
IEC 62271-200	-	High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN IEC 62271-200	-
IEC 62271-201	-	High-voltage switchgear and controlgear - Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-201	-
IEC 62271-202	-	High-voltage switchgear and controlgear - Part 202: AC prefabricated substations for rated voltages above 1 kV and up to and including 52 kV	EN IEC 62271-202	-

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INTERNATIONAL STANDARD

High-voltage switchgear and controlgear -
Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations, both for rated voltages above 1 kV and up to and including 52 kV

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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High-voltage switchgear and controlgear - Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations, both for rated voltages above 1 kV and up to and including 52 kV

FOREWORD

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IEC 62271-208 document has been prepared by subcommittee 17C: High-voltage switchgear and controlgear assemblies, of IEC technical committee 17: Switchgear and controlgear.

This first edition cancels and replaces the first edition of IEC TR 62271-208, published in 2009. This edition constitutes a technical revision.

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

a) the isoline measurement procedure is introduced and compared to the hot spot one when it is required as a measurement for the characterization of a generated electromagnetic field.

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

Draft	Report on voting
17C/977/FDIS	17C/983/RVD

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

The language used for the development of this International Standard is English.

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 the parts in the IEC 62271 series, under the general title *High-voltage switchgear and controlgear*, 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.

INTRODUCTION

Manufacturers of electricity supply equipment can be asked to provide information about the electromagnetic field characteristics to enable the user to

- assess the electromagnetic field conditions to assist with planning, installation, operating instructions and service,
- take measures to meet requirements or regulations on electromagnetic fields,
- compare different products as far as their level of electromagnetic fields is concerned.

The purpose of this document is to describe a methodology for the evaluation (measurement or calculation) of generated electromagnetic fields. In particular, if a measurement is required, hot spot and isolines procedures are introduced and described.

The electromagnetic field characteristic of the equipment comprises the values of the electric and the magnetic fields around its accessible surfaces.

The electromagnetic field characteristic defined in this document refers to a single product as defined in the scope. In real installations, several field sources can superimpose, so the resulting electromagnetic fields on site can differ significantly from the single product characteristics.

This document does not define a mandatory test for the products mentioned in the scope.

Neither the establishment of limits for the electromagnetic fields generated by equipment, nor the establishment of assessment methods for the human exposure to electromagnetic fields are within the content or intent of this document.

1 Scope

This part of IEC 62271 gives practical guidance for the evaluation and documentation of the external steady state power-frequency electromagnetic fields which are generated by HV switchgear and controlgear assemblies and prefabricated substations. Basic requirements to measure or calculate the electric and magnetic fields are summarised for assemblies covered by IEC 62271-200 and IEC 62271-201, and for prefabricated substations covered by IEC 62271-202.

NOTE 1 The methods described in this document refer to three-phase equipment. However, the methodology can be used correspondingly for any single- or multi-phase equipment covered by this document.

This document applies to equipment rated for voltages above 1 kV up to and including 52 kV and power-frequencies from 15 Hz to 60 Hz. The electromagnetic fields which are generated by harmonics or transients are not considered in this document. However, the methods described are equally applicable to the harmonic fields of the power-frequency.

Detailed generic information on requirements and measurements of low-frequency electromagnetic fields is given in IEC 61786-1 and IEC 61786-2.

This document covers evaluation under factory or laboratory conditions before installation. The electric and the magnetic fields can be evaluated either by measurements or by calculations.

NOTE 2 Where practicable, the methods described in this document can also be used for installations on site.

It is not within the scope of this document to specify limit values of electromagnetic fields or methods for the assessment of human exposure.

2 Normative references

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.

IEC 61000-6-2, *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments*

IEC 61786-1, *Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 1: Requirements for measuring instruments*

IEC 61786-2, *Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 2: Basic standard for measurements*

IEC 62271-200, *High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-201, *High-voltage switchgear and controlgear - Part 201: AC solid-insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-202, *High-voltage switchgear and controlgear - Part 202: AC prefabricated substations for rated voltages above 1 kV and up to and including 52 kV*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
electromagnetic field
EMF
field, determined by a set of four interrelated vector quantities, that characterizes, together with the electric current density and the volumic electric charge, the electric and magnetic conditions of a material medium or of a vacuum

Note 1 to entry: The four interrelated vector quantities, which obey Maxwell's equations, are by convention:

- the electric field strength E,
- the electric flux density D,
- the magnetic field strength H,
- the magnetic flux density B.

Note 2 to entry: This definition of electromagnetic field is valid in so far as certain quantum aspects of electromagnetic phenomena can be neglected.

Note 3 to entry: An electromagnetic field can include static components, i.e. an electrostatic field and a magnetostatic field, and time-varying components representing electromagnetic waves.

[SOURCE: IEC 60050-121:2021 [1],121-11-61]

3.2
electric field characteristic
values (RMS) and spatial distribution of the electric field strength (E) expressed in kV/m at rated voltage and frequency around all accessible surfaces of the equipment

Note 1 to entry: The electric field characteristic is the resultant of the RMS values of the three orthogonal vector components.

3.3
magnetic field characteristic
values (RMS) and spatial distribution of the magnetic field strength (H) expressed in A/m or the magnetic flux density (B) expressed in µT, at rated continuous current and frequency around all accessible surfaces of the equipment

Note 1 to entry: The magnetic field characteristic is the resultant of the RMS values of the three orthogonal vector components.

Note 2 to entry: The terms "resultant electric field" and "resultant magnetic field" are defined in IEC 61786-1 and IEC 61786-2.

3.4
accessible surfaces, pl.
those parts of the walls and roof of prefabricated substations or HV switchgear and controlgear assemblies that can be touched with all covers and doors in closed position in normal service conditions

3.5
reference surface
RS
virtual envelope containing the equipment for evaluation purposes

3.6
measurement surface
MS
virtual envelope defined outside the reference surface at 20 cm distance for measuring hot spots

3.7
hot spot
centre of an area of a local maximum of the electric or the magnetic field at the measurement surface

3.8
EMF characteristic
spatial distribution of the electric field characteristic and of the magnetic field characteristic

Note 1 to entry: The spatial distribution is derived from a measurement or calculation grid.

3.9
measurement volume
MV
virtual space in which the electromagnetic background field does not exceed an appropriate level to permit the uninfluenced measurement of the electric and magnetic fields generated by the high-voltage switchgear and controlgear assembly or the prefabricated substation

3.10
measurement plane
MP
horizontal virtual plane on a specific height above floor level on which the measurement points are taken

3.11
isoline

line of constant electric or magnetic field characteristic on a measurement plane

4 Evaluation requirements

4.1 General

The EMF characteristic of HV switchgear and controlgear assemblies or HV/LV prefabricated substations is the measured or calculated electric field strength and magnetic flux density around all accessible surfaces under the conditions for evaluation described below. These conditions represent the service, where the loading of the switchgear and controlgear assemblies and, in a substation, of the power transformer is at defined values.

As the electric and magnetic fields are dependent on the physical arrangement of incoming and outgoing cables and their loadings, these parameters have to be recorded. The presence of other field sources and shielding or other metallic structures shall be recorded.

The recordings shall be carried out in such a way that the loadings, material characteristics, and geometrical configuration (including metric distances) are clearly indicated.

The EMF characteristic shall be evaluated for the conditions that would result in the highest levels of electric and magnetic fields in normal, undisturbed service. These conditions include the highest currents and largest loops realistically possible through the assembly working at maximum capacity. EMF caused by switching operations, including interruption of fault currents, or other transient phenomena is deemed to be incidental and shall not be considered.