

STN	Meranie jednosmerných magnetických polí, striedavých magnetických a elektrických polí od 1 Hz do 100 kHz vzhľadom na expozíciu ľudí. Časť 1: Požiadavky na prístroje.	STN EN 61786-1 36 7080
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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. 08/14

Obsahuje: EN 61786-1:2014, IEC 61786-1:2013

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Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2014
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**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 61786-1:2013)**

Mesure de champs magnétiques continus et de champs magnétiques et électriques alternatifs dans la plage de fréquences de 1 Hz à 100 kHz dans leur rapport à l'exposition humaine -
Partie 1: Exigences applicables aux instruments de mesure
(CEI 61786-1:2013)

Messung von magnetischen Gleichfeldern und von elektrischen und magnetischen Wechselfeldern von 1 Hz bis 100 kHz im Hinblick auf die Exposition von Personen -
Teil 1: Anforderungen an Messgeräte
(IEC 61786-1:2013)

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Foreword

The text of document 106/292/FDIS, future edition 1 of IEC 61786-1, prepared by IEC TC 106, Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61786-1:2014.

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) 2014-10-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-01-16

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 62110:2009	NOTE	Harmonised as EN 62110:2009 (not modified).
ISO 80000-1:2009	NOTE	Harmonised as EN ISO 80000-1:2013 (not modified).
ISO/IEC 17025:2005	NOTE	Harmonised as EN ISO/IEC 17025:2005 (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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-3-2	-	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN 61000-3-2	-
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
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	-
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	-
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	-
IEC 61000-4-8	-	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	-
CISPR 11 (mod)	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-
ISO/IEC Guide 98-3	-	Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-
IEC Guide 108	-	Guidelines for ensuring the coherency of IEC publications - Application of horizontal standards	-	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE



HORIZONTAL STANDARD
NORME HORIZONTALE

**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**

**Mesure de champs magnétiques continus et de champs magnétiques et électriques alternatifs dans la plage de fréquences de 1 Hz à 100 kHz dans leur rapport à l'exposition humaine –
Partie 1: Exigences applicables aux instruments de mesure**



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INTERNATIONAL STANDARD

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CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
3.1 Meters	7
3.2 Meter characteristics	8
3.3 Field characteristics	9
3.4 Measurements	10
4 Symbols	11
5 Instrumentation specifications	12
5.1 General	12
5.2 Measurement uncertainty	12
5.3 Magnitude range	13
5.4 Pass-band	13
5.5 Operating temperature and humidity ranges	13
5.6 Power supplies	13
5.7 Readability of scale	14
5.8 Instrument dimensions and choice of probe	14
5.8.1 General schema	14
5.8.2 Magnetic field meter	14
5.8.3 Electric field meter	15
5.8.4 Support for electric field meter	15
5.9 Electromagnetic compatibility	15
5.9.1 Immunity	15
5.9.2 Emissions	16
5.10 Crest factor	17
5.11 Durability	17
5.12 Weight	17
5.13 Instrumentation choice	18
6 Calibration	18
6.1 General	18
6.2 Calibration procedure	18
6.2.1 General	18
6.2.2 Magnetic field calibration system	18
6.2.3 Electric field calibration system	19
6.2.4 Three-axis probes calibration	19
6.2.5 Calibration values	19
6.2.6 Calibration uncertainty	20
6.3 Calibration documentation	20
7 Verification	21
Annex A (normative) Calibration methods	22
Annex B (informative) Example of calibration uncertainty	33
Annex C (informative) General characteristics of magnetic and electric fields	35
Annex D (informative) Magnetic flux density meters (magnetic field meters)	39

Annex E (informative) Electric field strength meters (electric field meters)	43
Annex F (informative) Influence of humidity on electric field measurement	47
Annex G (informative) Units	49
Bibliography.....	50
Figure 1 – Schema of a field meter	14
Figure 2 – Insulating tripod and offset rod for an electric field probe (photograph RTE).....	15
Figure 3 – Electric field measurement using a hand-held stick (photograph RTE).....	15
Figure A.1 – Deviation in percentage departure of calculated axial field [7]	22
Figure A.2 – Coordinate system and geometry of rectangular loop of many turns of wire (see Equation (A. 1))	23
Figure A.3 – Circular Helmholtz coils	24
Figure A.4 – Deviation in percentage of calculated B_z from centre value (see Equation (A.4))	25
Figure A.5 – Schematic view of a circuit for calibration of magnetic field meter using a square loop to produce a known field	25
Figure A.6 – Diagram for voltage injection technique	27
Figure A.7 – Calculated normalized electric field at plate surfaces and midway between plates as a function of the normalized distance from the edge of the plate	28
Figure A.8 – Parallel plates system for calibrating free-body electric field meters.....	30
Figure A.9 – Arrangement with parallel plates orientated perpendicular to the floor.....	31
Figure A.10 – Diagram for current injection technique	32
Figure C.1 – Oscillating and rotating field quantities for cases of elliptical polarization, linear polarization, and circular polarization	36
Figure C.2 – Magnetic field from current in straight and circular conductors	37
Figure C.3 – Perturbation of electric field distribution B by a person (from IEC 62226-3-1).....	38
Figure C.4 – Proximity effect with a 25 kV line and a building (from IEC 62110).....	38
Figure D.1 – Schematic view of simple magnetic field meter with coil-type probe	39
Figure D.2 – Approximate equivalent circuit of a coil probe when connected to the detector	41
Figure E.1 – Single-axis free-body meter geometries	44
Figure E.2 – Designs for flat plate probes used with ground-referenced electric field meters	45
Figure F.1 – Test in the climatic chamber with the normal tripod (left) and the offset tripod (right) (photograph EDF R&D).....	47
Figure F.2 – E field measured as a function of the humidity with a normal tripod.....	48
Figure F.3 – E field measured as a function of the humidity with an offset tripod.....	48
Table 1 – Mains terminal disturbance voltage limits for class B group 1 equipment measured on a test site.....	17
Table A.1 – Calculated normalized electric field values midway between plates and at plate surfaces	30
Table B.1 – Example of uncertainty calculation	33

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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**

FOREWORD

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International Standard IEC 61786-1 has been prepared by IEC technical committee 106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.

The first editions of IEC 61786-1 and IEC 61786-2 replace IEC 61786:1998. Part 1 deals with measuring instruments, and Part 2 deals with measurement procedures. The content of the standard was revised in order to give up-to-date and practical information to the user.

It has the status of a horizontal standard in accordance with IEC Guide 108.

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

FDIS	Report on voting
106/292/FDIS	106/298/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 of the IEC 61786 series, published under the general title *Measurement of DC magnetic fields and AC magnetic and electric fields from 1 Hz to 100 kHz with regard to exposure of human beings*, 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,
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- replaced by a revised edition, or
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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

1 Scope

This part of IEC 61786 provides guidance for measuring instruments used to measure the field strength of quasi-static magnetic and electric fields that have a frequency content in the range 1 Hz to 100 kHz and with DC magnetic fields to evaluate the exposure levels of the human body to these fields.

Sources of fields include devices that operate at power frequencies and produce power frequency and power frequency harmonic fields, as well as devices that produce fields within the frequency range of this document, including devices that produce static fields, and the earth's static magnetic field. The magnitude ranges covered by this standard are 0,1 μ T to 200 mT in AC (1 μ T to 10 T in DC) and 1 V/m to 50 kV/m for magnetic fields and electric fields, respectively.

When measurements outside this range are performed, most of the provisions of this standard will still apply, but special attention should be paid to specified uncertainty and calibration procedures.

Specifically, this standard

- defines terminology;
- identifies requirements on field meter specifications;
- indicates methods of calibration;
- defines requirements on instrumentation uncertainty;
- describes general characteristics of fields;
- describes operational principles of instrumentation.

NOTE Measurement methods that achieve defined goals pertaining to assessment of human exposure are described in IEC 61786-2

Sources of uncertainty during calibration are also identified. In regard to electric field measurements, this standard considers only the measurement of the unperturbed electric field strength at a point in free space (i.e. the electric field prior to the introduction of the field meter and operator) or above conducting surfaces.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

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 61000-3-2, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

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 61000-4-6, *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*

CISPR 11, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

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