EESTI STANDARD

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Electric and magnetic field levels generated by AC power systems - Measurement procedures with regard A. 'S' BORNIEN ORACINE STATUS to public exposure



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

standard EN 62110:2009.
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EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 62110

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English version

Electric and magnetic field levels generated by AC power systems -Measurement procedures with regard to public exposure (IEC 62110:2009)

Champs électriques et magnétiques générés par les systèmes d'alimentation à courant alternatif -Procédures de mesure des niveaux d'exposition du public (CEI 62110:2009)

Magnetische Felder, die von Wechselstrom-Energieversorgungssystemen erzeugt werden -Messverfahren im Hinblick auf die Exposition der Allgemeinbevölkerung (IEC 62110:2009)

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CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 106/177/FDIS, future edition 1 of IEC 62110, 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 was approved by CENELEC as EN 62110 on 2009-11-01.

The following dates were fixed:

-	latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-08-01
-	latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-11-01

Terms defined in Clause 3 appear in *italics* throughout the document.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62110:2009 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 61000-2-2

NOTE Harmonized as EN 61000-2-2:2002 (not modified).

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	<u>EN/HD</u>	<u>Year</u>
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INTRODUCTION

All populations of the world are now exposed to electric and magnetic fields and the levels will continue to increase with developing industry and technology. A number of countries have implemented regulations on public exposure to these fields. Therefore, in order to evaluate human exposure levels to these fields adequately, common measurement procedures are required by not only professionals of national authorities and electric power industries, but also the general public.

This standard is applied to the measurement of fields generated by AC power systems in areas accessible to the public. It establishes a common measurement procedure to evaluate the exposure levels of the human body to electric and magnetic fields among the general public.

The values obtained are for use to determine whether the fields comply with exposure limits by comparing them with the field limits for general public exposure such as the reference levels from the ICNIRP (International Commission on Non-Ionizing Radiation Protection) Guidelines [1]¹, MPE (maximum permissible exposure) from the IEEE (Institute of Electrical and Electronics Engineers) [2] or in national regulations. If the values obtained are higher than the reference level or MPE, it does not necessarily mean that the basic restriction has been exceeded, in which case other methods must be used to ensure that basic restriction is not exceeded.

The values obtained by using the procedures in this standard are for the load conditions occurring at the time of measurement. Therefore, in the case of magnetic field, in order to check compliance with some exposure guidelines or regulations these values may need to be extrapolated to take account of the maximum load of the circuits.

This standard is not applicable to occupational exposure associated with, for example, the operation and/or maintenance of the power systems. Such exposure may occur when working inside a distribution or transmission substation, a power plant, in a manhole or a tunnel for underground cables, or on an overhead line tower or pole.

¹⁾ Numbers in square brackets refers to the Bibliography.

ELECTRIC AND MAGNETIC FIELD LEVELS GENERATED BY AC POWER SYSTEMS – MEASUREMENT PROCEDURES WITH REGARD TO PUBLIC EXPOSURE

1 Scope

This International Standard establishes measurement procedures for electric and magnetic field levels generated by AC power systems to evaluate the exposure levels of the human body to these fields. This standard is not applicable to DC power transmission systems.

This International Standard is applicable to public exposure in the domestic environment and in areas accessible to the public.

This standard specifies fundamental procedures for the measurement of fields, and, with regard to human exposure, for obtaining a field value that corresponds to a spatial average over the entire human body.

This standard is not applicable to occupational exposure associated with, for example, the operation and/or maintenance of the power systems. Such exposure may occur when working inside a distribution or transmission substation, a power plant, in a manhole or a tunnel for underground cables, or on an overhead line tower or pole.

2 Normative references

The following referenced documents are indispensable for the application 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 61786, Measurement of low-frequency magnetic and electric fields with regard to exposure of human beings – Special requirements for instruments and guidance for measurements

3 Terms and definitions

For the purposes of this document, the following terms and definitions given below apply. Internationally accepted SI-units are used throughout the standard.

NOTE The distinction between "magnetic flux density" and "magnetic field strength" is only relevant when considering magnetic fields in magnetic materials. In air it is common to use "magnetic fields" as a generic term to cover both of these two quantities.

3.1

single-point measurement

procedure to measure the field level at a specified height, used for uniform fields

NOTE The conditions under which the field can be considered as uniform or non-uniform are given in section 5.1.

3.2

three-point measurement

procedure to measure the field levels at three specified heights at a single location, used for non-uniform fields