

Measurement of exposure to radio-frequency electromagnetic fields — Field strength in the frequency range 100 kHz to 1 GHz

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British Standard

ICS 33.100

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16, an inside back cover and a back cover. This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on 15 June 1998

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English version

Measurement of exposure to radio-frequency electromagnetic fields — Field strength in the frequency range 100 kHz to 1 GHz

(IEC 61566:1997)

Mesure de l'exposition aux champs électromagnétiques à radiofréquence Intensité du champ dans la gamme de fréquences entre 100 kHz et 1 GHz
(CEI 61566:1997)

Messung der Belastung durch hochfrequente elektromagnetische Felder — Feldstärke im Frequenzbereich 100 kHz bis 1 GHz
(IEC 61566:1997)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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Foreword

The text of document 103/1/FDIS, future edition 1 of IEC 61566, prepared by IEC TC 103, Transmitting equipment for radiocommunication, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61566 on 1997-07-01.

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) 1998-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-04-03

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, Annex ZA is normative and Annex A and Annex B are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61566:1997 was approved by CENELEC as a European Standard without any modification.

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Introduction

Recent publications by national and international authorities responsible for developing safety limits on exposure to radiofrequency electromagnetic fields show a consensus towards making specific energy absorption rate (SAR) and induced current in the human body the basic limits.

Since instruments are not yet available to measure SAR directly, and because SAR and circulating current will vary from person to person, depending on their height and weight, recent standards specify derived secondary levels for field strength, and/or equivalent plane-wave power flux density, for worst case conditions of electrical coupling and body size and weight. However, in some situations, where a wide spatial variation of field strength is present, for example, when climbing an antenna tower or mast, it may be more appropriate to measure the contact current through the hands or feet.

Measurements of contact current are not covered by this International Standard.

1 Scope

This International Standard applies to measurements of electromagnetic fields from operational transmitting equipment to ensure that the transmissions do not constitute a potential hazard to workers or to the general public.

The purpose of this standard is to promote a common understanding of technical requirements and precautions necessary for the accurate measurement of electromagnetic fields carried out in conjunction with relevant national exposure regulations.

This standard covers transmissions in the frequency range 100 kHz to 1 GHz.

NOTE Possible extension of this frequency range up to 2 GHz or 3 GHz will be investigated.

This International Standard does not specify limiting values for exposure as these are usually given in exposure standards issued by responsible health authorities. This standard is, therefore, intended to be used in conjunction with the relevant national standards or regulations applicable in the country concerned. In the absence of any national rules restricting exposure to radiofrequency electromagnetic fields, the recommendations of the International Non-Ionizing Radiation Committee (INIRC) may be followed. The 1988 INIRC recommendations on exposure limits are summarized in Annex A.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60215:1987, *Safety requirements for radio transmitting equipment*.

3 Definitions

For the purpose of this International Standard, the following definitions apply.

3.1

dipole, elementary

dipole of short length compared to wavelength. A mathematical concept, widely used in theoretical antenna analysis, based on a short element of wire compared to the wavelength carrying an oscillatory current

3.2

exposure

occurs where a person is subjected to electric, magnetic, or electromagnetic fields or to contact currents other than those originating from physiological processes in the body and other natural phenomena

3.3

exposure, partial — body

occurs where RF fields are substantially non-uniform over the body. Fields which are non-uniform over volumes comparable to the human body may occur due to highly directional sources, standing waves, re-radiating sources, RF hot-spots, or in the near-field

3.4

exposure standard

regulations, recommendations or a standard dealing with limits of permissible exposure, published by a responsible authority