INIMESELE TOIMIVATE ELEKTRI-, MAGNET- JA ELEKTROMAGNETVÄLJADE (0 HZ KUNI 300 GHZ) MÕÕTMIS- JA ARVUTUSVIISIDE PÕHISTANDARD

Basic standard on measurement and calculation procedures for human exposure to electric, magnetic and electromagnetic fields (0 Hz - 300 GHz)

EVS EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50413:2019+A1:2025 sisaldab Euroopa standardi EN 50413:2019 ja selle muudatuse A1:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 50413:2019+A1:2025 consists of the English text of the European standard EN 50413:2019 and its amendment A1:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.10.2019, muudatus A1 28.11.2025.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 25.10.2019, for A1 28.11.2025.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega ⟦A1⟩ ⟨A1⟧. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags ⟦A1⟩ ⟨A1⟧. The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 17.200.20; 33.100.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50413 + A1

October 2019, November 2025

ICS 17.200.20; 33.100.01

Supersedes EN 50413:2008 and all of its amendments and corrigenda (if any)

English Version

Basic standard on measurement and calculation procedures for human exposure to electric, magnetic and electromagnetic fields (0 Hz - 300 GHz)

Norme de base pour les procédures de mesures et de calculs pour l'exposition des personnes aux champs électriques, magnétiques et électromagnétiques (0 Hz - 300 GHz)

Grundnorm zu Mess- und Berechnungsverfahren der Exposition von Personen in elektrischen, magnetischen und elektromagnetischen Feldern (0 Hz bis 300 GHz)

This European Standard was approved by CENELEC on 2019-09-23. Amendment A1 was approved by CENELEC on 2025-10-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendment 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 and its Amendment A1 exist 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.

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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

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European foreword

This document (EN 50413:2019) has been prepared by CLC/TC 106X “Electromagnetic fields in the human environment”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2020-09-23
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-09-23

This document supersedes EN 50413:2008 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.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

[A1] Amendment A1 European foreword

This document (EN 50413:2019/A1:2025) has been prepared by CLC/TC 106X " Electromagnetic fields in the human environment ".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-11-30
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2028-11-30

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This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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. [A1]

1 Scope

This document provides general methods for measurement and calculation of quantities associated with human exposure to electromagnetic fields in the frequency range from 0 Hz to 300 GHz. It is intended specifically to be used for the assessment of emissions from products and comparison of these with the exposure limits for the general public given in Council Recommendation 1999/519/EC, and those given for workers in Directive 2013/35/EU, as appropriate. It also is intended to be used for assessment of human exposure to electromagnetic fields in the workplace to determine compliance with the requirements of Directive 2013/35/EU.

This standard deals with quantities that can be measured or calculated external to the body, notably electric and magnetic field strength or power density, and includes the measurement and calculation of quantities inside the body that form the basis for protection guidelines. In particular the standard provides information on:

— definitions and terminology,

— characteristics of electromagnetic fields,

— measurement of exposure quantities,

— instrumentation requirements,

— methods of calibration,

— measurement techniques and procedures for evaluating exposure,

— calculation methods for exposure assessment.

Where an applicable electromagnetic field standard specific to a product or technology exists it is expected to be used rather than this document. EN 62311:—, Table 1 gives a list of relevant standards.

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.

Council Recommendation 1999/519/EC of 12 July 1999, *on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), Official Journal, L199, of 1999-7-30, p.59-70*

Directive 2013/35/EU of 26 June 2013, *on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields). Official Journal, L179, of 2013-6-29, p. 1–21*

EN 61786-1:2014, *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)*

EN 62232:2017, *Determination of RF field strength, power density and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure (IEC 62232:2017)*

EN 62311:—,[1] *Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz) (IEC 62311:—)*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

[1] Under preparation. Stage at time of Formal Vote: FprEN 62311:2019.