TÖÖTAJATELE TOIMIVATE ELEKTROMAGNETVÄLJADE HINDAMISE PROTSEDUUR

Procedure for the assessment of the exposure of workers to electromagnetic fields

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50499:2019 sisaldab Euroopa standardi EN 50499:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 50499:2019 consists of the English text of the European standard EN 50499:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.10.2019.	Date of Availability of the European standard is 04.10.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

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English Version

Procedure for the assessment of the exposure of workers to electromagnetic fields

Procédure pour l'évaluation de l'exposition des travailleurs aux champs électromagnétiques

Verfahren für die Beurteilung der Exposition von Arbeitnehmern gegenüber elektromagnetischen Feldern

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

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Contents

European foreword

This document (EN 50499:2019) 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)	2020-08-20
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-08-20

This document supersedes EN 50499:2008 and all of its amendments and corrigenda (if any).

EN 50499:2019 includes the following significant technical changes with respect to EN 50499:2008:

— the replacement of directive 2004/40/EC by directive 2013/35/UE. The requirements in the document were modified accordingly, as for example the assessment process.

The latest editions of standards of basic and generic standards was also taken into account, for example in the annex D for multiple frequencies

This standard is intended to be a standard under which other standards related to the assessment of a workplace can be used.

The approaches outlined in this standard, are intended to be simple, allowing most employers to make an assessment with the minimum of technical knowledge and effort.

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.

1 Scope

The scope of this document is to provide a general procedure for the assessment of workers' exposure to electric, magnetic and electromagnetic fields in a workplace in order to determine compliance with exposure limit values and/or action levels as stated in European Directive 2013/35/EU.

The purpose of this document is to

— specify how to perform an initial assessment of the levels of workers' exposure to electromagnetic fields (EMF), if necessary, including specific exposure assessment of such levels by measurements and/or calculations,

— determine whether it is necessary to carry out a detailed risk assessment of EMF exposure.

This document can be used by employers for the risk assessment and, where required, measurement and/or calculation of the exposure of workers. Based on specific workplace and other standards, it can be determined whether preventive measures/actions have to be taken to comply with the provisions of the Directive.

The frequencies covered are from 0 Hz to 300 GHz.

NOTE 1 This document relates to the exposure limits as specified in the Directive 2013/35/EU. It is intended to protect workers from risks to their health and safety arising or likely to arise from exposure to electromagnetic fields (0 Hz to 300 GHz) during their work. However, this and other Directives can include additional measures for the protection of specific groups of workers and/or specific workplaces for which the employer is required to investigate other protective measures as a part of the overall risk assessment. See Annex A.

NOTE 2 Directive 2013/35/EU has been transposed into national legislation in all the EU member countries. It is intended that users of this standard consult the national legislation related to this transposition in order to identify the national regulations and requirements. These national regulations and requirements can have additional requirements that are not covered by this standard.

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 50413:—,[1] *Basic standard on measurement and calculation procedures for human exposure to electric, magnetic and electromagnetic fields (0 Hz - 300 GHz)*

EN 50496, *Determination of workers' exposure to electromagnetic fields and assessment of risk at a broadcast site*

EN 50647:2017, *Basic standard for the evaluation of workers' exposure to electric and magnetic fields from equipment and installations for the production, transmission and distribution of electricity*

EN 50663:2017, *Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz)*

[1] Under preparation. Stage at the time of publication: FprEN 50413:2019.

EN 50664:2017, *Generic standard to demonstrate the compliance of equipment used by workers with limits on exposure to electromagnetic fields (0 Hz - 300 GHz), when put into service or in situ*

EN 60601-2-33:2010/A2:2015, *Medical electrical equipment – Part 2-33: Particular requirements for the basic safety and essential performance of magnetic resonance equipment for medical diagnosis (IEC 60601-2-33:2010/A2:2015)*

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

EN IEC 62311:—,[2] *Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz) (IEC 62311)*

EN 62479:2010, *Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz) (IEC 62479)*

EN 62822-2:2016, *Electric welding equipment – Assessment of restrictions related to human exposure to electromagnetic fields (0 Hz to 300 GHz) – Part 2: Arc welding equipment*

EN IEC 62822-3:2018, *Electric welding equipment – Assessment of restrictions related to human exposure to electromagnetic fields (0 Hz to 300 GHz) – Part 3: Resistance welding equipment*

3 Terms and definitions

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

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

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

3.1
action levels
ALs
operational levels of directly measurable parameters provided in terms of electric field strength (*E*), magnetic field strength (*H*), magnetic flux density (*B*) and power density (*S*), contact current and limb induced current established for the purpose of simplifying the process of demonstrating the compliance with relevant ELVs or, where appropriate, to take relevant protection or prevention measures specified in Directive 2013/35/EU

3.1.1
low ALs
<for electric fields> action levels which relate to the specific protection or prevention measures specified in Directive 2013/35/EU

<for magnetic fields> action levels which relate to the sensory effects ELVs

Note 1 to entry: the values of the low ALs are given in Table B.1 o Directive f2013/35/EU for electric field.

Note 2 to entry: The Low AL for external electric field is based both on limiting the internal electric field below ELVs and on limiting spark discharges in the working environment.

Note 3 to entry: the values of the low ALs are given in Table B.2 for magnetic field.

[2] Under preparation. Stage at the time of publication: FprEN IEC 62311:2019.