

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 50647:2017 sisaldab Euroopa standardi EN 50647:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 50647:2017 consists of the English text of the European standard EN 50647:2017.
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 02.06.2017.	Date of Availability of the European standard is 02.06.2017.
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ICS 17.220.20, 17.240

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ICS 17.220.20; 17.240

English Version

**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**

Norme fondamentale pour l'évaluation de l'exposition des  
travailleurs aux champs électriques et magnétiques produits  
par les équipements et installations de production, transport  
et distribution d'électricité

Basisnorm für die Evaluierung der beruflichen Exposition  
gegenüber elektrischen und magnetischen Feldern  
ausgehend von Komponenten und Anlagen zur Erzeugung,  
Übertragung und Verteilung elektrischer Energie

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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 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: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document [EN 50647:2017] 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) 2018-04-10
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2020-04-10

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

## 1 Scope

This European Standard provides a general procedure to assess workers' exposure to electric and magnetic fields (EMF) in work places associated with the production, transmission and distribution of electric energy, and to demonstrate compliance with exposure limit values and action levels as stated in the Council and European Parliament "EMF" Directive 2013/35/EU [11].

NOTE 1 The Council and European Parliament Directive 2013/35/EU will be transposed into national legislation in all the EU member countries. It is important 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 may have additional requirements that are not covered by this standard

It has the role of a specific workplace standard. It takes into account the non-binding application guide for implementing the EMF Directive [10] and it defines the assessment procedures and compliance criteria applicable to the electric industry.

The frequency range of this standard covers from DC to 20 kHz, which is sufficient to include the power frequency used for electric power supply systems throughout Europe (50 Hz) and the various harmonics and inter-harmonics occurring in the supply system. In this extremely low frequency range, electric and magnetic fields are independent and, therefore, they both have to be addressed in the exposure assessment.

NOTE 2 Electrical companies also use radio frequency transmissions to operate and maintain their networks and power plants. Similarly, other exposures to EMF may occur during maintenance operations, for instance, due to the use of hand-held electrical tools. All these EMF sources are outside the scope of this standard.

NOTE 3 Regarding EMF in the low frequency range, the scientific basis of the EMF directive is the ICNIRP health guidelines published in 2010 [13]. Reference is made to this scientific basis when necessary for justifying or clarifying some of the technical statements of the present document.

## 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.

EN 61786-1, *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)*

EN 50527-1, *Procedure for the assessment of the exposure to electromagnetic fields of workers bearing active implantable medical devices - Part 1: General*

EN 50527-2-1, *Procedure for the assessment of the exposure to electromagnetic fields of workers bearing active implantable medical devices - Part 2-1: Specific assessment for workers with cardiac pacemakers*

IEC 61786-2, *Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 2: Basic standard for measurements*