SLOVENSKI STANDARD
SIST EN 50554:2011

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Osnovni standard za terensko ocenjevanje mesta oddajanja v zvezi z izpostavljenostjo ljudi elektromagnetnim sevanjem

Basic standard for the in-situ assessment of a broadcast site related to general public exposure to radio frequency electromagnetic fields

Grundnorm für die Bewertung eines Rundfunkstandorts vor Ort in Bezug auf die Exposition der Allgemeinbevölkerung gegenüber hochfrequenten elektromagnetischen Feldern

Norme de base pour l'évaluation in-situ de l'exposition du public aux champs électromagnétiques de radiofréquence d'un site de radiodiffusion

Ta slovenski standard je istoveten z: **EN 50554:2010**

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17.240	Merjenje sevanja	Radiation measurements

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English version

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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 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 106X, Electromagnetic fields in the human environment.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50554 on 2010-11-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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)	2011-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-11-01

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1 Scope

This basic standard specifies the method for assessing overall exposure from all fixed radio frequency sources at a broadcast site. This assessment may be applied at any time but must be carried out when the exposure situation changes in or around this site.

It plays an essential role in the coordination of different stakeholders, with respect to ensuring EMF exposure compliance in and around a broadcast site especially for equipment installed within the site.

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.

EN 50383, *Basic standard for the calculation and measurement of electromagnetic field strength and SAR related to human exposure from radio base stations and fixed terminal stations for wireless telecommunication systems (110 MHz – 40 GHz)*

EN 50413, *Basic standard on measurement and calculation procedures for human exposure to electric, magnetic and electromagnetic fields (0 Hz – 300 GHz)*

EN 50492, *Basic standard for the in-situ measurement of electromagnetic field strength related to human exposure in the vicinity of base stations*

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

3 Terms and definitions

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

3.1
basic restriction
restriction on exposure to time-varying electric, magnetic, and electromagnetic fields that is based directly on established health effects

NOTE In the frequency range from 30 MHz to 10 GHz, the physical quantity used is the specific absorption rate. Between 10 GHz and 40 GHz, the physical quantity is the power density.

3.2
broadcasting service
radiocommunication services in which the transmissions are intended for direct reception by the general public

NOTE This service may include sound transmissions, television transmissions or other types of transmission.

3.3
broadcast site
site where one or more broadcast transmitters are operated

3.4
controlled area
area in which the operator may decide who is permitted to enter or remain or an area which, due to actual circumstances, the public is prohibited from entering

3.5
employer
natural or legal person who has an employment relationship with the worker and has responsibility for the undertaking and/or establishment

[Directive 89/391/EEC [4]]

3.6
Exposure Ratio
ER
for an individual source, between 100 kHz to 10 GHz:

$$ER = MAX\left[\left(\frac{E}{EL}\right)^2, \left(\frac{H}{HL}\right)^2\right];$$

between 10 GHz and 40 GHz:

$$ER = \left(\frac{S}{SL}\right)$$

where

ER is the exposure ratio at frequency f for the source;

EL is the investigation E-field reference level at frequency f;

HL is the investigation H-field reference level at frequency f;

E is the assessed E-field at frequency f for the source;

H is the assessed H-field at frequency f for the source;

SL is the power flux density limit at frequency f;

S is the assessed power flux density at frequency f for the source;

f is the frequency of the source

3.7
Member States
European Community Member States

3.8
reference levels
reference levels of exposure are provided for comparison with measured values of physical quantities; compliance with all reference levels given in these guidelines (Council Recommendation 1999/519/EC [2]) will ensure compliance with basic restrictions

NOTE If measured values are higher than reference levels, it does not necessarily follow that the basic restrictions have been exceeded, but a more detailed analysis is necessary to assess compliance with the basic restrictions.

3.9
relevant domain
in the absence of a national or local definition, domain surrounding the site where the sum of the exposure ratios from all sources of the site shall be more than 5 % at some height

3.10
relevant source
the principle of relevance establishes the conditions under which a radio source is considered relevant such that account has to be taken of the contribution of that source when assessing RF exposure

NOTE In the absence of a national or local definition, the relevant source is a fixed radio source, in the frequency range 100 kHz to 40 GHz, which has an exposure ratio more than 5 % in the relevant domain.

3.11
site operator
party controlling access to the controlled area

3.12
Stakeholder
SH
party involved in the process of this European Standard in accordance with the local or national legislation

NOTE More than one stakeholder can be concerned (national authority, licence holder, broadcaster, site operator, etc.).

3.13
Threshold Distance
TD
minimum distance in a given direction, beginning from the boundary of the controlled area, at which compliance with reference level is achieved at all heights when considering emissions from the site alone

3.14
worker
person employed by an employer, including trainees and apprentices but excluding domestic servants

[Directive 89/391/EEC [4]]

4 Assessment fundamentals

4.1 Level of protection

In Council Recommendation 1999/519/EC [2], it is stated:

"II. Member States, in order to provide for a high level of health protection against exposure to electromagnetic fields, should:

(a) adopt a framework of basic restrictions and reference levels using Annex I.B as the basis;

(b) ...

(c) aim to achieve respect of the basic restrictions given in Annex II for public exposure."

and

"(15) Member States may, in accordance with the Treaty, provide for a higher level of protection than that set out in this recommendation;"

In consequence, national or local relevant regulations define the level of protection for applying this European Standard, expressed in basic restrictions and/or reference levels.

4.2 Worker/public exposure

In [2], it is stated:

"(14) In accordance with the principle of proportionality, this recommendation provides general principles and methods for the protection of members of the public while leaving it to the Member States to provide for detailed rules as regards the sources and practices which give rise to exposure to electromagnetic fields and the classification, as work-related or not, of conditions of exposure of individuals, in accordance with Community provisions concerning the safety and health protection of workers;"

Worker exposure at broadcast sites is dealt with in EN 50496 in accordance with Directives 2004/40/EC and 2008/46/EC [3].

4.3 Stakeholders

In [2], it is stated:

"II. Member States, in order to provide for a high level of health protection against exposure to electromagnetic fields, should:

(a) ...

(b) implement measures according to this framework,...;"

and

"III. Member States, in order to facilitate and promote respect of the basic restrictions given in Annex II:

(a) ...

(b) should evaluate situations involving sources of more than one frequency in accordance with the formulae set out in Annex IV, both in terms of basic restrictions and reference levels;"

In consequence, national or local relevant regulations define the stakeholders responsible for applying this European Standard.

Potentially involved stakeholders:

a) site owner;

b) licence holder;

c) national authority;

d) technical operator;

e) community representatives;

f) broadcaster;

g) local authority;

h) content provider;

i) party originating the change;

j) assessment manager;

k) measurement laboratory.

4.4 Actions required

In [2], it is stated:

"IV. Member States should consider both the risks and benefits in deciding whether action is required or not, pursuant to this recommendation, when deciding on policy or adopting measures on exposure of members of the public to electromagnetic fields."

4.5 Simultaneous exposure to fields at different frequencies

In Annex IV of [2], it is stated:

"In situations where simultaneous exposure to fields of different frequencies occurs, the possibility that these exposures will be additive in their effects must be considered."