

# SLOVENSKI STANDARD

## SIST EN 50360:2018

01-januar-2018

Nadomešča:

SIST EN 50360:2001

SIST EN 50360:2001/A1:2012

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**Produktni standard za prikaz skladnosti brezžičnih komunikacijskih naprav z osnovnimi ali izvedenimi mejnimi vrednostmi v povezavi z izpostavljenostjo prebivalstva elektromagnetnim sevanjem v frekvenčnem območju od 300 MHz do 6 GHz: naprave, ki se uporabljajo v bližini ušesa**

Product standard to demonstrate the compliance of wireless communication devices, with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 300 MHz to 6 GHz: devices used next to the ear

[SIST EN 50360:2018](https://standards.iteh.ai/catalog/standards/sist/a35c85a9-ea23-4e42-9c09-2018/EN-50360-2018)

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Produktnorm zum Nachweis der Übereinstimmung von Mobiltelefonen mit den Basisgrenzwerten hinsichtlich der Sicherheit von Personen in elektromagnetischen Feldern (300 MHz bis 3 GHz)

Norme de produit pour démontrer la conformité des dispositifs de communication sans fil aux restrictions de base et aux valeurs limites d'exposition relatives à l'exposition des personnes aux champs électromagnétiques dans la plage de fréquences de 300 MHz à 6 GHz: dispositifs utilisés à proximité de l'oreille

**Ta slovenski standard je istoveten z: EN 50360:2017**

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**ICS:**

13.280	Varstvo pred sevanjem	Radiation protection
33.070.01	Mobilni servisi na splošno	Mobile services in general

**SIST EN 50360:2018** en

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EUROPEAN STANDARD

EN 50360

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2017

ICS 33.070.01

Supersedes EN 50360:2001

English Version

Product standard to demonstrate the compliance of wireless communication devices, with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 300 MHz to 6 GHz: devices used next to the ear

Norme de produit pour démontrer la conformité des dispositifs de communication sans fil aux restrictions de base et aux valeurs limites d'exposition relatives à l'exposition des personnes aux champs électromagnétiques dans la plage de fréquences de 300 MHz à 6 GHz: dispositifs utilisés à proximité de l'oreille

Produktnorm zum Nachweis der Übereinstimmung von schnurlosen Kommunikationsgeräten mit den Basisgrenzwerten und Expositionsgrenzwerten für die Exposition von Personen gegenüber elektromagnetischen Feldern im Frequenzbereich von 300 MHz bis 6 GHz: Geräte, die in enger Nachbarschaft zum Ohr benutzt werden

## iTeh STANDARD PREVIEW

This European Standard was approved by CENELEC on 2017-07-24. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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 50360:2017) 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 (dop) 2018-07-24 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2020-07-24 with this document have to be withdrawn

This document supersedes EN 50360:2001.

EN 50360:2017 includes the following significant technical changes with respect to EN 50360:2001:

- 1) the standard requires that the assessment has to take into account all reasonably foreseeable operating conditions (Clause 4);
- 2) the standard covers equipment intended for use only by workers as well as equipment intended for use by the general public and different limits are given for each case (Clause 5).

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, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

**EN 50360:2017 (E)****1 Scope**

This product standard applies to wireless communication devices used in close proximity to the human ear (e.g. mobile phones, wireless headsets). The applicable frequency range is from 300 MHz to 6 GHz.

The objective of this standard is to demonstrate the compliance of such devices with the basic restrictions and exposure limit values related to human exposure to radio frequency electromagnetic fields.

For devices used next to the body or in front of the face the applicable product standard is EN 50566:2017.

For low power devices the applicable product standard is EN 50663:2017.

**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 62209-1:2016, *Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz)* (IEC 62209 1:2016)

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 L 199, 30.6.1999, p. 59-70)

Directive 2013/35/EU of the European Parliament and of the Council 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) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and repealing Directive 2004/40/EC (Official Journal L 179, 29.6.2013, p. 1–21)

**3 Terms and definitions**

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

**3.1****basic restrictions**

restrictions on exposure of the general public to electric, magnetic, and electromagnetic fields that are based directly on established health effects and biological considerations

Note 1 to entry: Concerning the frequency range of this standard, the physical quantity used is the Specific Absorption Rate (SAR)

**3.2****exposure limit values**

restrictions on exposure of workers to electric, magnetic and electromagnetic fields that are based directly on established health effects and biological considerations

Note 1 to entry: Concerning the frequency range of this standard, the physical quantity used is the Specific Absorption Rate (SAR).

**3.3****Specific Absorption Rate****SAR**

time derivative of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of given mass density ( $\rho$ )

$$SAR = \frac{d}{dt} \left( \frac{dW}{dm} \right) = \frac{d}{dt} \left( \frac{dW}{\rho dV} \right)$$

and expressed in units of watt per kilogram (W/kg)

Note 1 to entry: It is a physical quantity on which the basic restrictions of exposure protection guidelines are based in the frequency range specified in the scope.

**3.4****wireless communication device**

equipment within the scope of this standard

**3.5****worker**

person exposed to electromagnetic fields under the conditions defined in Directive 2013/35/EU

**4 Exposure conditions**

Equipment which meets the limits for general public exposure as given in this document (Clause 5) will automatically meet the limits for workers without further testing.

Equipment which meets the limits for workers will not necessarily meet the limits for the general public and, unless intended only for workers use when at work, equipment shall also be tested against general public limits.

Equipment intended only for use by workers when at work shall have this condition clearly identified in the user instructions. This use condition shall be identified in the test report.

All intended operating conditions as well as the reasonably foreseeable conditions of human exposure from the equipment shall be taken into account in the evaluation.

The reasonably foreseeable conditions of exposure should be based on realistic exposure and/or installation parameters representative of all readily-predictable human and system behaviour such as the duration of exposure, time variability of transmitted power, simultaneously operated frequency bands and time averaging as defined in normative limits.

**5 Normative limits**

For equipment intended for use by the general public the basic restrictions for localized SAR (head and trunk) in Table 1 of Annex II of Council Recommendation 1999/519/EC, and the accompanying notes to that table, shall be applied.

For equipment intended only for use by workers when at work, the exposure limit values for localized SAR in the head and trunk in Table A1 of Annex III of Directive 2013/35/EU, and the accompanying notes to that table, shall be applied.

**6 Evaluation of compliance**

The SAR measurements to demonstrate equipment compliance shall be performed according to EN 62209-1:2016, Clauses 5 and 6.

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Device test positions during SAR measurement to demonstrate equipment compliance shall be according to EN 62209-1:2016, 6.2.4.

Devices shall be evaluated with maximum available transmission power during testing.

Where maximum power is based on hardware implemented time-averaged transmission power control algorithms, these shall be used.

**7 Assessment uncertainty**

The uncertainty of the assessment shall be calculated and used for comparison with limits as defined in EN 62209-1:2016, Clause 7.

**8 Documentation**

The measurement test shall be documented and reported according to EN 62209-1:2016, Clause 8.

Where time averaging or power averaging has been accounted for in the testing then an explanation and rationale shall be included in the test report.

**9 Assessment of compliance**

The wireless communication device is deemed to fulfil the requirements of this standard if all the measured values performed according to Clause 6, are less than or equal to the applicable exposure limits defined in Clause 5.

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## Annex ZZ (informative)

### Relationship between this European Standard and the essential requirements of Directive 2014/53/EU [2014 OJ L153] aimed to be covered

This European Standard has been prepared under a Commission's standardization request as regards radio equipment in support of Directive 2014/53/EU, M/536 / C(2015) 5376 final of 4.8.2015, to provide one voluntary means of conforming to essential requirements of Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [2014 OJ L153].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

**Table ZZ.1 — Correspondence between this European Standard and Article 3 of Directive 2014/53/EU [2014 OJ L153]**

Essential requirements of Directive 2014/53/EU	Clause(s) / subclause(s) of this EN	Remarks / Notes
Article 3 (1) (a)	Clause 5 Normative limits Clause 6 Evaluation of compliance Clause 8 Documentation	This harmonized standard aims to cover Article 3 (1) (a) of Directive 2014/53/EU in accordance with Annex I (2) (a) and (b) of Directive 2014/35/EU.  It addresses exposure to electromagnetic fields only and not any other essential requirement of Directive 2014/53/EU than Article 3 (1) (a).  The degree of the protection of health and safety of persons and of domestic animals and the protection of property provided by this standard is that provided by the limits selected.
Article 3 (1) (a)	Clause 4 Exposure conditions	This harmonized standard aims to cover Article 3 (1) (a) of Directive 2014/53/EU in accordance with Annex I (2) (a) and (b) of Directive 2014/35/EU.  The assessment has also to take into account all reasonably foreseeable operating conditions.

**WARNING 1** — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

**WARNING 2** — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.