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Metod för mätning av specifik absorptionshastighet (SAR) avseende exponering för radiofrekventa elektromagnetiska fält från handhållen och kroppsburen trådlös kommunikationsutrustning – Del 1: Apparater som används nära örat (frekvensområde 300 MHz till 6 GHz)

*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)*

Som svensk standard gäller europastandarden EN 62209-1:2016. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62209-1:2016.

Nationellt förord

Europastandarden EN 62209-1:2016

består av:

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- **IEC 62209-1, Second edition, 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)**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62209-1, utgåva 1, 2006, gäller ej fr o m 2019-08-10.

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English Version

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)

Procédure de mesure pour l'évaluation du débit
d'absorption spécifique de l'exposition humaine aux champs
radiofréquences produits par les dispositifs de
communications sans fil tenus à la main ou portés près du
corps - Partie 1: Dispositifs utilisés à proximité de l'oreille
(Plage de fréquences de 300 MHz à 6 GHz)
(IEC 62209-1:2016)

Sicherheit von Personen in hochfrequenten Feldern von
handgehaltenen und am Körper getragenen schnurlosen
Kommunikationsgeräten - Körpermodelle, Messgeräte und -
verfahren - Teil 1: Verfahren zur Bestimmung der
spezifischen Absorptionsrate (SAR) von Geräten, die in
enger Nachbarschaft zum Ohr benutzt werden
(Frequenzbereich von 300 MHz bis 6 GHz)
(IEC 62209-1:2016)

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 106/361/FDIS, future edition 2 of IEC 62209-1 prepared by IEC/TC 106X "Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62209-1:2016.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-05-10
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2019-08-10
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62209-1:2006.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO/IEC 17025	2005	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	2005
ISO/IEC 17043	2010	Conformity assessment - General requirements for proficiency testing	EN ISO/IEC 17043	2010

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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)**

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International Standard IEC 62209-1 has been prepared by IEC technical committee 106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.

This second edition cancels and replaces the first edition published in 2005. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Extension of the frequency range to 300 MHz to 6 GHz.
- b) Fast SAR methods.

- c) Test reduction techniques.
- d) SAR measurements of terminals with multiple antennas and multiple transmitters.
- e) Deviation of dielectric characteristics of the tissue-equivalent liquids is relaxed up to 10 %.
- f) Uncertainty evaluation guidelines for temperature and dielectric parameter deviations of tissue-equivalent liquids.
- g) Addition of the following annexes:
 - Annex K (informative) Measurement uncertainty of specific fast SAR methods and fast SAR examples
 - Annex L (informative) SAR test reduction supporting information
 - Annex M (informative) Applying the head SAR test procedures
 - Annex N (informative) Studies for potential hand effects on head SAR
 - Annex O (informative) Quick start guide.

The text of this standard is based on the following documents:

FDIS	Report on voting
106/361/FDIS	106/365/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- specific test protocols: in *italic* type.

A list of all parts in the IEC 62209 series, published under the general title *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*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC TC 106 has the scope to prepare International Standards on measurement and calculation methods used to assess human exposure to electric, magnetic and electromagnetic fields. IEC TC 106 has developed this part of IEC 62209 to provide procedures to evaluate the specific absorption rate (SAR) of human exposures due to electromagnetic field (EMF) transmitting devices when held close to the ear. The types of devices include but are not limited to mobile telephones, cordless telephones, headphones, etc., which are used close to the ear. The IEC TC 106 standards do not deal with the exposure limits. Conformity assessment depends on the policy of national regulatory bodies. While basic restrictions on SAR in the ICNIRP Guidelines [64]¹ go up to 10 GHz, the frequency range for this part of IEC 62209 is limited to an upper end frequency of 6 GHz since current wireless handsets operate below this frequency.

IEC TC 106 and IEEE/ICES TC34² worked together formally through common membership to achieve the goal of harmonization, between IEC TC 106 Maintenance Team 1 for this part of IEC 62209 and IEEE/ICES TC34 for IEEE Std 1528 [66]. During the process a primary effort involved was to harmonize these two standards.

To aid the user of this part of IEC 62209, a quick start guide has been prepared and included as an informative annex (see Annex O). The quick start guide is not a substitute for following the detailed procedure of the standard.

¹ Numbers in square brackets refer to the Bibliography.

² The International Committee on Electromagnetic Safety of the IEEE.

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)

1 Scope

This part of IEC 62209 specifies protocols and test procedures for measurement of the peak spatial-average SAR induced inside a simplified model of the head with defined reproducibility. It applies to certain electromagnetic field (EMF) transmitting devices that are positioned next to the ear, where the radiating structures of the device are in close proximity to the human head, such as mobile phones, cordless phones, certain headsets, etc. These protocols and test procedures provide a conservative estimate with limited uncertainty for the peak-spatial SAR that would occur in the head for a significant majority of people during normal use of these devices. The applicable frequency range is from 300 MHz to 6 GHz.

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.

ISO/IEC 17043:2010, *Conformity assessment – General requirements for proficiency testing*

ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*