

<b>STN</b>	<b>Postupy merania na posúdenie špecifickej miery absorpcie pri vystavení človeka účinkom vysokofrekvenčných polí z bezdrôtových komunikačných ručných zariadení a zariadení upevnených na tele</b> <b>Časť 3: Vektorové systémy založené na meraniach (Frekvenčný rozsah od 600 MHz do 6 GHz)</b>	<b>STN EN IEC 62209-3</b>  36 7080
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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 3: Vector measurement-based systems (Frequency range of 600 MHz to 6 GHz)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/20

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**EN IEC 62209-3**

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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 3: Vector measurement-based systems (Frequency range  
of 600 MHz to 6 GHz)  
(IEC 62209-3:2019)

Procédure de mesure pour l'évaluation du débit  
d'absorption spécifique de l'exposition humaine aux champs  
radiofréquence produits par les dispositifs de  
communications sans fil tenus à la main ou portés près du  
corps - Partie 3: Systèmes basés sur la mesure vectorielle  
(plage de fréquences comprise entre 600 MHz et 6 GHz)  
(IEC 62209-3:2019)

Messverfahren für die Beurteilung der spezifischen  
Absorptionsrate bei der Exposition von Personen  
gegenüber hochfrequenten Feldern von handgehaltenen  
und am Körper getragenen schnurlosen  
Kommunikationsgeräten - Teil 3: Auf Vektormessungen  
basierende Systeme (Frequenzbereich von 600 MHz bis 6  
GHz)  
(IEC 62209-3:2019)

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**EN IEC 62209-3:2019 (E)****European foreword**

The text of document 106/494/FDIS, future edition 1 of IEC 62209-3, prepared by IEC/TC 106 "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 IEC 62209-3:2019.

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ISO/IEC 17025	NOTE	Harmonized as EN ISO/IEC 17025
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ISO/IEC 17043	NOTE	Harmonized as EN ISO/IEC 17043

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 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)	EN 62209-1	2016
IEC 62209-2	2010	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)	EN 62209-2	2010
IEC 62479	-	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)	EN 62479	-
IEC TR 62630	2010	Guidance for evaluating exposure from multiple electromagnetic sources	-	-
ISO/IEC Guide 98-1 2009		Uncertainty of measurement – Part 1: Introduction to the expression of uncertainty in measurement	-	-
ISO/IEC Guide 98-3 -		Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-
IEC/IEEE 62704-1 -		Determining the peak spatial-average specific absorption rate (SAR) in the human body from wireless communications devices, 30 MHz to 6 GHz - Part 1: General requirements for using the finite difference time-domain (FDTD) method for SAR calculations	-	-



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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

HORIZONTAL STANDARD

NORME HORIZONTALE

**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 3: Vector measurement-based systems (Frequency range of 600 MHz to 6 GHz)**

**Procédure de mesure pour l'évaluation du débit d'absorption spécifique de l'exposition humaine aux champs radiofréquence produits par les dispositifs de communications sans fil tenus à la main ou portés près du corps –**

**Partie 3: Systèmes basés sur la mesure vectorielle (plage de fréquences comprise entre 600 MHz et 6 GHz)**



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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 3: Vector measurement-based systems  
(Frequency range of 600 MHz to 6 GHz)**

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IEC 62209-3 has been prepared by IEC technical committee 106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
106/494/FDIS	106/497/RVD

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

This document 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.

This standard contains attached files in the form of four \*.IGS files of inner and outer surfaces for the left and right halves extracted from the CAD model of the SAM phantom (see A.1.2). These files are available in the supporting documents folder at [www.iec.ch/tc106/supportingdocuments](http://www.iec.ch/tc106/supportingdocuments).

This standard contains attached files for the analytical functions that are to be used for the evaluation of the reconstruction algorithm uncertainty in Table H.1. These files are available in the supporting documents folder at [www.iec.ch/tc106/supportingdocuments](http://www.iec.ch/tc106/supportingdocuments).

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,
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## INTRODUCTION

This document specifies the requirements for vector measurement-based systems to measure the Specific Absorption Rate (SAR) of devices that are used in close proximity to the human body or head.

Because SAR measurement systems are used for showing compliance with national and international exposure limits, the test procedures have to be standardized. This standardization aims at achieving comparable results for the equipment approval process.

Vector measurement-based systems and the associated protocols can differ from traditional SAR measurement systems and protocols. These systems use more advanced field reconstruction methods, allowing the application of indirect measurement approaches in which the SAR is evaluated in three dimensions from a limited number of measurement points that may be located in a limited part of the volume of interest, or even outside this volume. Such new SAR assessment approaches result in significantly reduced SAR measurement times.

# 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 3: Vector measurement-based systems (Frequency range of 600 MHz to 6 GHz)

### 1 Scope

This part of IEC 62209 specifies measurement protocols and test procedures for the reproducible measurement of peak spatial-average specific absorption rate (psSAR) induced inside a simplified model of a human head or body by radio-frequency (RF) transmitting devices, with a specified measurement uncertainty. Requirements are provided for psSAR assessment using vector measurement-based systems. Such systems determine the psSAR by three-dimensional (3D) field reconstruction within the volume of interest in accordance with the requirements herein for the measurement system, calibration, uncertainty assessment and validation methods. The protocols and procedures apply for the psSAR assessments covering a significant majority of people including children during use of wireless communication devices operated in close proximity to the head or body.

This document is applicable to wireless communication devices intended to be used at a position near the human head or body at distances up to and including 200 mm. This document may be employed to evaluate SAR compliance of different types of wireless communication devices used next to the ear, in front of the face, mounted on the body, combined with other RF-transmitting or non-transmitting devices or accessories (e.g. belt-clip), or embedded in garments. The overall applicable frequency range is from 600 MHz to 6 GHz.

The *system validation* procedures provided within this document cover frequencies from 600 MHz to 6 GHz.

With a vector measurement-based system this document can be employed to evaluate SAR compliance of different types of wireless communication devices.

The wireless communication device categories covered include but are not limited to mobile telephones, cordless microphones, auxiliary broadcast devices and radio transmitters in personal computers, desktop and laptop devices, multi-band, multi-antenna, and push-to-talk devices.

### 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.

IEC 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 62209-2:2010, *Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)*

IEC 62479, *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 TR 62630:2010, *Guidance for evaluating exposure from multiple electromagnetic sources*

ISO/IEC Guide 98-1:2009, *Uncertainty of measurement – Part 1: Introduction to the expression of uncertainty in measurement*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

IEC/IEEE 62704-1, *Determining the peak spatial-average specific absorption rate (SAR) in the human body from wireless communications devices, 30 MHz to 6 GHz – Part 1: General requirements for using the finite difference time-domain (FDTD) method for SAR calculations*

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