

### SLOVENSKI STANDARD SIST EN IEC 63245-2:2023

01-oktober-2023

Prostorski brezžični prenos energije na osnovi več magnetnih resonanc - 2. del: Referenčni model (IEC 63245-2:2022)

Spatial wireless power transfer based on multiple magnetic resonances - Part 2: Reference model (IEC 63245-2:2022)

Räumliche drahtlose Energieübertragung basierend auf mehrfachen magnetischen Resonanzen - Teil 2: Referenzmodell (IEC 63245-2:2022)

Transfert d'énergie sans fil dans l'espace reposant sur des résonances magnétiques multiples - Partie 2: Modèle de référence (IEC 63245-2:2022)

Ta slovenski standard je istoveten z: EN IEC 63245-2:2023

ICS:

29.240.99 Druga oprema v zvezi z Other equipment related to

omrežji za prenos in power transmission and

distribucijo električne energije distribution networks

35.200 Vmesniška in povezovalna Interface and interconnection

oprema equipment

SIST EN IEC 63245-2:2023 en,fr,de

**SIST EN IEC 63245-2:2023** 

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 63245-2:2023

https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726-572826dc42b2/sist-en-iec-63245-2-2023

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM **EN IEC 63245-2** 

January 2023

ICS 29.240.99; 35.200

### **English Version**

## Spatial wireless power transfer based on multiple magnetic resonances - Part 2: Reference model (IEC 63245-2:2022)

Transfert d'énergie sans fil dans l'espace reposant sur des résonances magnétiques multiples - Partie 2: Modèle de référence (IEC 63245-2:2022) Räumliche drahtlose Energieübertragung basierend auf mehrfachen magnetischen Resonanzen - Teil 2: Referenzmodell (IEC 63245-2:2022)

This European Standard was approved by CENELEC on 2023-01-18. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization Comité Européen de Normalisation Electrotechnique Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

#### EN IEC 63245-2:2023 (E)

### **European foreword**

The text of document 100/3839/FDIS, future edition 1 of IEC 63245-2, prepared by technical area 15 "Wireless Power Transfer" of IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63245-2:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2023-10-18 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-01-18

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

### **Endorsement notice**

### iTeh STANDARD PREVIEW

The text of the International Standard IEC 63245-2:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726-

IEC 62827-3:2016 NOTE Approved as EN 62827-3:2017 (not modified)

IEC 63006:2019 NOTE Approved as EN IEC 63006:2019 (not modified)

EN IEC 63245-2:2023 (E)

## 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 63245-1	2021	Spatial wireless power transfer based on multiple magnetic resonances - Part 1:	EN IEC 63245-1	2021

# iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN IEC 63245-2:2023</u> https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726 **SIST EN IEC 63245-2:2023** 

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 63245-2:2023

https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726-572826dc42b2/sist-en-iec-63245-2-2023



IEC 63245-2

Edition 1.0 2022-12

## INTERNATIONAL STANDARD

## NORME INTERNATIONALE



Spatial wireless power transfer based on multiple magnetic resonances – Part 2: Reference model

Transfert d'énergie sans fil dans l'espace reposant sur des résonances magnétiques multiples – <u>SIST EN IEC 63245-2:2023</u>

Partie 2: Modèle de référence talog/standards/sist/1583ac1b-30cc-441a-8726-

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.240.99; 35.200 ISBN 978-2-8322-6305-1

Warning! Make sure that you obtained this publication from an authorized distributor.

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

### CONTENTS

FOREWORD	3		
INTRODUCTION	5		
1 Scope	6		
2 Normative references	6		
3 Terms, definitions, and abbreviated terms	6		
3.1 Terms and definitions	6		
3.2 Abbreviated terms			
4 Overview of spatial wireless power transfer based on multiple magnetic			
resonances			
5 Reference model			
5.1 Overview			
5.2 Components of an SWPT-MMR system			
5.2.1 Power source			
5.2.2 Capacitor			
5.2.3 Inverter			
5.2.5 Communication module			
Bibliography			
TIERSTANDAKD PKEVIEW			
Figure 1 – Conceptual image of SWPT-MMR [IEC 63245-1]	8		
Figure 2 – The reference model of an SWPT-MMR system			
Figure 3 – Example configuration of an SWPT-MMR system with power sources			
Figure 4 – Configuration on an SWPT-MMR system with transmitter coils connected to			
capacitors	10		
Figure 5 – Configuration of an SWPT-MMR system with an inverter controlling a phase of magnetic field formed on transmitter coils connected in parallel	11		
Figure 6 – Configuration of an SWPT-MMR system with an inverter controlling a phase	4.4		
of magnetic field formed on transmitter coils connected in series			
Figure 7 – An example of an SWPT-MMR system with two transmitter coils			
Figure 8 – An example of an SWPT-MMR system with two pairs of transmitter coils	13		
Table 1 – Power source-related requirements defined in IEC 63245-1	9		
Table 2 – Capacitor-related requirements defined in IEC 63245-1	10		
Table 3 – Inverter-related requirements defined in IEC 63245-1			
Table 4 – Transmitter coil-related requirements defined in IEC 63245-1	13		
Table 5 – Communication module-related requirements defined in IEC 63245-1			

#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

### SPATIAL WIRELESS POWER TRANSFER BASED ON MULTIPLE MAGNETIC RESONANCES –

Part 2: Reference model

#### **FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63245-2 has been prepared by technical area 15: Wireless Power Transfer, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

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

Draft	Report on voting	
100/3839/FDIS	100/3864/RVD	

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

The language used for the development of this International Standard is English.

A list of all parts in the IEC 63245 series, published under the general title *Spatial wireless* power transfer based on multiple magnetic resonances, can be found on the IEC website.

IEC 63245-2:2022 © IEC 2022

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at <a href="https://www.iec.ch/members\_experts/refdocs">www.iec.ch/members\_experts/refdocs</a>. The main document types developed by IEC are

described in greater detail at www.iec.ch/standardsdev/publications.

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

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

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 63245-2:2023
https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726-572826dc42b2/sist-en-iec-63245-2-2023

– 4 –

IEC 63245-2:2022 © IEC 2022

- 5 -

#### INTRODUCTION

The IEC 63245 series (Spatial wireless power transfer based on multiple magnetic resonances, SWPT-MMR) provides requirements and a reference model for implementing spatial wireless power transfer systems. The IEC 63245 series consists of the following parts:

- Part 1: Requirements, and
- Part 2: Reference model

IEC 63245-1 describes requirements of SWPT-MMR.

IEC 63245-2 (this document) describes the reference model of SWPT-MMR.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN IEC 63245-2:2023</u> https://standards.iteh.ai/catalog/standards/sist/1583ac1b-30cc-441a-8726-572826dc42b2/sist-en-iec-63245-2-2023