SLOVENSKI STANDARD
oSIST prEN IEC 63245-2:2021

01-november-2021

Prostorski brezžični prenos energije na osnovi več magnetnih resonanc (SWPT-MMR) - 2. del: Referenčni model (TA 15)

Spatial wireless power transfer based on multiple magnetic resonances (SWPT-MMR) - Part 2: Reference model (TA 15)

Transfert d'énergie sans fil dans l'espace reposant sur des résonances magnétiques multiples - Partie 2: Modèle de référence (TA 15)

Ta slovenski standard je istoveten z: prEN IEC 63245-2:2021

ICS:

29.240.99	Druga oprema v zvezi z omrežji za prenos in distribucijo električne energije	Other equipment related to power transmission and distribution networks
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

oSIST prEN IEC 63245-2:2021 **en,fr,de**

100/3615/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 63245-2 ED1**	
DATE OF CIRCULATION: **2021-08-20**	CLOSING DATE FOR VOTING: **2021-11-12**
SUPERSEDES DOCUMENTS: **100/3493/CD, 100/3572/CC**	

IEC TA 15 : WIRELESS POWER TRANSFER

SECRETARIAT: Korea, Republic of	SECRETARY: Mr Ock-Woo Nam
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Spatial wireless power transfer based on multiple magnetic resonances (SWPT-MMR) - Part 2: Reference model (TA 15)

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

Rev	Date	Description
Ver 0.1	2019.10.16	1st F2F meeting, NWI has been introduced
Ver 0.2	2020.01.10	Circulation had been started for NP ballot
	2020.03.13	NP had been approved
Ver 0.3	2020.09.16	2rd F2F meeting, updated working draft document had been reviewed by experts of PT 63245-2 and IEC TC100/TA15/WG1
Ver 0.4	2020.09.24	Draft CD had been circulated among experts
	2020.09.18	CD had been circulated
	2020.12.11	Comments for circulated CD had been received and solved.
	2020.12.30	CC of CD circulation had been submitted.
Ver 0.5	2021.05.27	3rd F2F meeting, draft CDV document had been reviewed by experts of PT63245-2 and IEC TC100/TA15/WG1
	2021.06.XX	Circulation had been started for CDV

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SPATIAL WIRELESS POWER TRANSFER BASED ON MULTIPLE MAGNETIC RESONANCES –

PART 2: REFERENCE MODEL

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International Standard IEC XXX has been prepared by subcommittee XX: TITLE, of IEC technical committee XX:

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

The National Committees are requested to note that for this publication the stability date is ....

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

INTRODUCTION

The IEC 63245 (Spatial Wireless Power Transfer based on Multiple Magnetic Resonances, SWPT-MMR) series provide requirements and reference model for implementing spatial wireless power transfer system. The International Standards IEC 63245 consists of the following parts:

- Part 1: Requirements, and

- Part 2: Reference model

Part 1 of IEC 63245 describes requirements of SWPT-MMR.

Part 2 of IEC 63245 describes a reference model of SWPT-MMR.

SPATIAL WIRELESS POWER TRANSFER BASED ON MULTIPLE MAGNETIC RESONANCES –

PART 1: REFERENCE MODEL

1. Scope

This document specifies a reference model for spatial wireless power transfer based on multiple magnetic resonances (SWPT-MMR), which is non-radiative wireless power transfer (WPT). The document contains overview of SWPT-MMR and a reference model.

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 62827-3:2016, *Wireless Power Transfer – Management – Part 3: Multiple source control management*

IEC 63006:2019, *Wireless Power Transfer (WPT) – Glossary of terms*

IEC 63245-1:2021, *Spatial Wireless Power Transfer based on Multiple Magnetic Resonances – Part 1: Requirements*

3. Terms, definitions, and abbreviated terms

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

3.1. Terms and definitions

3.1.1
Null point:
a point or area in the charging zone where the magnetic field cancels out almost entirely or is below a certain specified minimum.

[SOURCE: IEC 63245-1:2021, 3.1.4]

3.1.2
Quiet zone:
magnetic field having an equalized energy density corresponding to each of the magnetic fields formed on the transmitter coils.

[SOURCE: IEC 63245-1:2021, 3.1.3]

3.1.3
Spatial wireless power transfer:
concept of wireless power transfer between multiple sources and multiple receiving devices which are placed at a distance within a spatial space

NOTE 1 to entry: “Spatial” means that receiving devices will take various positions and postures, and will lead to variable transfer efficiency including almost zero percent. This situation may occur when receiving devices are placed far apart from power source and freely rearranged.

[SOURCE: IEC 62827-3:2016, 3.1.2]

3.1.4
Spatial wireless power transfer system:
group implementing spatial wireless power transfer in which the power source can deliver power and data to the power-receiving device.

Note 1 to entry: In special cases, a spatial wireless power transfer system can consist of only a single power source and only a single power-receiving device.

Note 2 to entry: Spatial wireless power transfer system includes the case in which a power source has the ability to access a power-receiving device through a relay from other power sources when the power source attempts to deliver data to the receiving device. In this document, "data" means control and management data for wireless power transfer.

[SOURCE: IEC 62827-3:2016, 3.1.3]

3.1.5
transmitter coil:
component of a wireless power transmitter that converts electric current to magnetic flux.

[SOURCE: IEC 63006:2019, 3.1.48]

3.2. Abbreviated terms

SWPT	Spatial Wireless Power Transfer
SWPT-MMR	Spatial Wireless Power Transfer based on Multiple Magnetic Resonances
WPT	Wireless Power Transfer

4. Overview of spatial wireless power transfer based on multiple magnetic resonances

A spatial wireless power transfer (SWPT) system delivers the electronic power to one or more receivers within a specific space. As a specific implementation of SWPT, spatial wireless power transfer based on multiple magnetic resonances (SWPT-MMR) includes multiple magnetic resonances to generate the specific space, namely a charging zone. In the charging zone, electric power is transferred to one or more receivers regardless of the position and the direction of the receiver(s). Figure 1 shows a conceptual image of SWPT-MMR.