



IEC 62827-3

Edition 1.0 2016-12

INTERNATIONAL STANDARD



**Wireless power transfer – Management –
Part 3: Multiple source control management**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 43.120

ISBN 978-2-8322-3683-3

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

CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope	7
2 Normative references	7
3 Terms, definitions and abbreviated terms	7
3.1 Terms and definitions	7
3.2 Abbreviated terms	9
4 Basic overview of WPMS	9
5 Requirements in WPMSs	11
5.1 General model for WPMSs	11
5.2 Required functionalities	11
5.2.1 General	11
5.2.2 Consideration for mismatch of receiving power and required power	13
5.2.3 Wireless power distribution	13
5.3 Message type by WPMS-S	13
6 Control and management method on WPMS	14
6.1 Formation of WPMS-S group	14
6.2 Preparation of wireless power transfer for multiple WPMS-Ds	15
6.2.1 WPMS-D identification and authentication	15
6.2.2 Reception of power transfer information of WPMS-Ds	15
6.2.3 Detection of WPMS-D positions	16
6.2.4 Setting of the WPMS-S power transmitting condition	16
6.3 Wireless power transfer mode	18
6.3.1 General	18
6.3.2 Wireless power distribution	18
6.3.3 Synchronizing method of magnetic fields in WPMS	18
6.4 Reconfiguration of WPMS	19
6.4.1 General	19
6.4.2 Completion and resumption of wireless power transfer	19
6.4.3 Appearance and disappearance of WPMS-D	20
6.4.4 Appearance and disappearance of WPMS-S	20
6.5 Power transfer to WPMS-D with a flat battery	20
6.6 Termination of wireless power transfer	20
Bibliography	21
Figure 1 – Conceptual image of WPMS: Example 1	9
Figure 2 – Conceptual image of WPMS: Example 2	10
Figure 3 – Conceptual image of WPMS: Example 3	10
Figure 4 – Structure of a WPMS	11
Figure 5 – Overall procedure of WPMSs	12
Figure 6 – Reception of power transfer information of WPMS-Ds	15
Figure 7 – Completion and resumption of wireless power transfer	19
Table 1 – Message type	14
Table 2 – Notices of WPMS-S	15

Table 3 – Configuration on mutual work areas	16
Table 4 – Find WPMS-D	16
Table 5 – Request for sending power information	17
Table 6 – Exchange manageable WPMS-D	17
Table 7 – Notify power transfer setting.....	17
Table 8 – Suspend power transfer	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**WIRELESS POWER TRANSFER –
MANAGEMENT –****Part 3: Multiple source control management****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.

International Standard IEC 62827-3 has been prepared by technical area 15: Wireless power transfer, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

CDV	Report on voting
100/2604/CDV	100/2724/RVC

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.

A list of all parts in the IEC 62827 series, published under the general title *Wireless power transfer – Management*, can be found on the IEC website.

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.

A bilingual version of this publication may be issued at a later date.

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

Wireless power transfer technology transmits electric power from the power source to the power-consuming device without the use of wire. The most widely used technology is electromagnetic induction technology and magnetic resonance technology. The wireless power transfer system eliminates the need for the user to connect a power cable to the electrical outlet. Through electromagnetic induction technology, users place the power-receiving device within a short distance from the power source in order to charge a battery without removing it from its device.

In parallel to this, magnetic resonance technology for wireless power transfer systems is also being developed. Magnetic resonance technology gives a spatial effect to power transfer. A spatial effect on wireless power transfer enables multiple power sources to deliver electric power to multiple receiving devices at a distance in the same vicinity.

In order to efficiently manage and support the wireless power transfer in spatial space, multiple power sources need to communicate and coordinate with each other.

WIRELESS POWER TRANSFER – MANAGEMENT –

Part 3: Multiple source control management

1 Scope

This document specifies methods and procedures to form groups for a spatial wireless power-transfer system. The group of spatial wireless power-transfer systems that include multiple power sources provides power transfer to receiving devices based on magnetic resonance technology.

In order to achieve efficient power transfer to multiple receiving devices, this document also specifies methods and procedures to set, share, and control the conditions of power transfer between multiple power sources and receiving devices.

NOTE Expected power-receiving devices are audio, video and multimedia equipment.

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 62827-1, *Wireless power transfer – Management – Part 1: Common components*