IEC 62827-1

Edition 1.0 2016-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Wireless power transfer – Management – Part 1: Common components

Transfert de puissance sans fil – Gestion – Partie 1: Composants communs

IEC 62827-1:2016-04(en-fr)

Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2016 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org
Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

IEC 62827-1

Edition 1.0 2016-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Wireless power transfer – Management – Part 1: Common components

Transfert de puissance sans fil – Gestion – Partie 1: Composants communs

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.240.99; 35.240.99

ISBN 978-2-8322-3248-4

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.

AVA Documents
Document Sharing Hub

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Full document details: IEC 62827-1 2016

CONTENTS

FOREWORD 3
INTRODUCTION 5
1 Scope 6
2 Terms, definitions and abbreviations 6
2.1 Terms and definitions 6
2.2 Abbreviations 7
3 Overview 7
4 Reference models 8
4.1 General 8
4.2 WPT of one source to one device (1:1) 8
4.3 WPT of one source to many devices (1:N) 9
4.4 A WPT of many sources to many devices (M:N) 10
4.5 WPMS with WPMS-Rs 10
5 Components in WPMS-S and WPMS-D 12
6 Functionalities 13

Figure 1 – Concept of a wireless power management system 8
Figure 2 – Structure of 1:1 wireless power transfer network 9
Figure 3 – Structure of a 1:N wireless power transfer network 9
Figure 4 – Structure of a M:N wireless power transfer network 10
Figure 5 – WPMS-R as power receiver 11
Figure 6 – WPMS-R as power transmitter 12
Figure 7 – Components of WPMS-S and WPMS-D in WPMS 12

Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

INTERNATIONAL ELECTROTECHNICAL COMMISSION

WIRELESS POWER TRANSFER – MANAGEMENT –

Part 1: Common components

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 62827-1 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
100/2451/CDV	100/2538/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.

AVA Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

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.

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.

Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

INTRODUCTION

The IEC 62827 (Wireless power transfer – Management) series provides the management protocol for a wireless power transfer system in which power sources can deliver power to receivers at a distance. IEC 62827 consists of the following parts:

– Part 1: Common components
– Part 2: Multiple devices control management
– Part 3: Multiple sources control management

Part 1 of IEC 62827 defines the definition and functionality for a wireless power transfer system.

Part 2 of IEC 62827 specifies the management protocol of wireless power transfer for multiple devices.

Part 3 of IEC 62827 specifies the management protocol of wireless power transfer for multiple sources.

Documents
Document Sharing Hub

Full document details: IEC 62827-1 2016

WIRELESS POWER TRANSFER – MANAGEMENT –

Part 1: Common components

1 Scope

This part of IEC 62827 specifies common components of management for multiple sources and devices in a wireless power transfer system, and justifies various functions for wireless power transfer.

This part of IEC 62827 defines the reference models for possible configurations of a wireless power transfer system. The models are specified in additional parts in more detail.

NOTE This standard is applied to a wireless power transfer system for audio, video and multimedia equipment.

2 Terms, definitions and abbreviations

2.1 Terms and definitions

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

2.1.1
wireless power receiver
device which receives electric power wirelessly

Note 1 to entry: There are two types of wireless power receivers. One is a wireless power receiver with battery. The other is a wireless power receiver without battery, such as speakers and displays.

2.1.2
wireless power source
transmitter which delivers electric power to power receiver wirelessly

2.1.3
wireless power transfer
transfer of electric power without the physical contact of electrodes

2.1.4
wireless data communication zone
area that includes wireless power sources or wireless power receivers, and enables data communication without physical contact

Note 1 to entry: A wireless data communication zone includes a wireless power transfer zone.

Note 2 to entry: A wireless data communication zone can be a union of multiple wireless data communication zones managed by multiple wireless power sources.

2.1.5
wireless power transfer zone
area that includes wireless power sources or wireless power receivers, and enables power transfer without physical contact

Note 1 to entry: A wireless power transfer zone can be a union of multiple wireless power transfer zones managed by multiple wireless power sources.

Documents
Document Sharing Hub
Full document details: IEC 62827-1 2016

2.1.6
wireless power management system
management system that is capable of transferring wireless power from either one or multiple power sources to either one or multiple power devices with wireless communication

Note 1 to entry: In case that areas or regions, where both data and power can be transferred, are emphasized, the term "wireless power transfer network" may be used.

2.1.7
wireless power management system
<source> wireless power source which can transfer power to a number of WPMS devices (WPMS-Ds) or relay transmitters (WPMS-Rs)

2.1.8
wireless power management system
<device> wireless power receiver which can receive power from the WPMS sources (WPMS-Ss) or relay transmitters (WPMS-Rs)

2.1.9
wireless power management system
<repeater> wireless power relay transmitter which can transfer electric power from one or multiple source(s) to one or multiple device(s)

Note 1 to entry: To relay electric power wirelessly, it performs a source (WPMS-S) and a device (WPMS-D) at a time.

2.2 Abbreviations

WPT	Wireless Power Transfer
WDCZ	Wireless Data Communication Zone
WPTZ	Wireless Power Transfer Zone
WPTN	Wireless Power Transfer Network
WPMS	Wireless Power Management System
WPMS-S	Wireless Power Management System – Source
WPMS-R	Wireless Power Management System – Repeater
WPMS-D	Wireless Power Management System – Device

3 Overview

WPMS is the management system of WPT for multiple WPMS-Ss and WPMS-Ds. Conventional charging via a cable is inconvenient to users. WPT is a technology that eliminates a conventional charging method via a wired cable. It utilizes the characteristics of electromagnetic coupling to deliver power at a distance. WPMS aims to provide consumers of various mobile devices an option to be able to fully utilize WPT that delivers power wirelessly. To break away from conventional 1:1 wireless charging (1:1 WPT), WPMS will be managing power transfer for multiple WPMS-Ss and WPMS-Ds (M:N WPT) simultaneously.

Documents
Document Sharing Hub
Full document details: IEC 62827-1 2016