

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electric vehicle wireless power transfer (WPT) systems –
Part 1: General requirements

(standards.iteh.ai)

IEC 61980-1:2020
Systèmes de transfert de puissance sans fil (WPT) Pour véhicules électriques –
Partie 1: Exigences générales

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020>



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2020 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 Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
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 corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

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 It also gives information on projects, replaced and withdrawn publications.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 once a month by email.

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: sales@iec.ch.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22,000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67,000 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.

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.

Recherche de publications IEC - webstore.iec.ch/advsearchform

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 une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

67 000 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.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electric vehicle wireless power transfer (WPT) systems –
Part 1: General requirements

Systemes de transfert de puissance sans fil (WPT) Pour véhicules électriques –
Partie 1: Exigences générales

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 43.120

ISBN 978-2-8322-9022-4

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.

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	11
4 Abbreviated terms	17
5 General	17
6 Classification.....	17
6.1 General.....	17
6.2 Power transfer technology	18
6.3 Environmental condition.....	18
6.4 Electric connection to supply network	18
6.5 Access.....	18
6.6 Protection against electrical shock.....	18
7 General supply device requirements.....	18
7.1 General architecture	18
7.2 Power transfer requirements.....	19
7.3 Efficiency.....	19
7.4 Alignment	19
7.5 Activities provided by WPT system	19
8 Communication.....	19
9 Power transfer interoperability.....	19
10 Protection against electric shock	20
10.1 General requirements	20
10.2 Degrees of protection against access to hazardous-live-parts	20
10.3 Stored energy – Discharge of capacitors.....	20
10.3.1 Stored energy under abnormal or fault conditions	20
10.3.2 Disconnection of plug and cable connected supply device	20
10.4 Fault protection.....	20
10.5 Protective conductor dimensions.....	21
10.6 Residual current protection device	21
10.7 Telecommunication network.....	22
11 Specific requirements for WPT systems.....	22
11.1 General.....	22
11.2 Touch current	22
11.3 Insulation resistance	22
11.4 Dielectric withstand characteristic.....	23
11.4.1 AC dielectric withstand	23
11.4.2 Impulse dielectric withstand (1,2/50 µs).....	23
11.5 Overcurrent protection and short circuit withstand.....	24
11.5.1 General	24
11.5.2 Maximum current for plug and cable connected supply device	24
11.6 Temperature rise and protection against thermal incidents.....	25
11.6.1 General	25
11.6.2 Permissible surface temperature of accessible parts of the WPT system	25

ITEH STANDARD PREVIEW

(standards.iteh.ai)

IEC 61980-1:2020

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020>

11.6.3	Temperature limits for materials	25
11.6.4	Protection against burns from heating of foreign objects	26
11.7	Resistance to abnormal heat and fire due to internal electric effects	26
11.7.1	General	26
11.7.2	Resistance of insulating materials to heat	26
11.7.3	Resistance of insulating materials to abnormal heat and fire due to internal electric effects	26
11.8	Protection from electromagnetic field	27
11.9	Emergency service disconnect (optional)	27
12	Power cable requirements	27
13	Constructional requirements	27
13.1	Supply device dimensions and installation requirements	27
13.2	Connection of plug and cable connected supply device	27
13.3	Earthing electrode and continuity	27
13.4	IP degrees	28
13.5	Breaking capacity of switching devices	28
13.5.1	Switch and switch-disconnector	28
13.5.2	Contactors	28
13.5.3	Circuit-breaker	28
13.5.4	Relays	28
13.6	Clearance and creepage distances	28
14	Strength of materials and parts	29
14.1	General	29
14.2	Verification of mechanical strength for the enclosure of the supply device	29
14.3	Resistance to corrosion	29
14.4	Properties of insulating materials	30
14.4.1	Verification of thermal stability of enclosures	30
14.4.2	Resistance to fire (glow wire)	30
14.4.3	Ball pressure test	30
14.4.4	Resistance to tracking	30
14.4.5	Resistance to ultraviolet radiation	30
15	Service and test conditions	30
15.1	General	30
15.2	Environmental test	31
15.2.1	Ambient air temperature	31
15.2.2	Ambient humidity	31
15.2.3	Dry heat	32
15.3	Heat test under solar radiation	32
16	Electromagnetic compatibility (EMC)	32
16.1	Load and operating conditions	32
16.1.1	Load conditions	32
16.1.2	Operating conditions	32
16.2	Immunity requirements	33
16.3	Disturbance requirements	35
16.3.1	General	35
16.3.2	Limits and test conditions for disturbances in the low frequency (LF) range	36
16.3.3	Limits and test conditions for disturbances in the radio frequency (RF) range	36

17 Marking and instructions 41

 17.1 General 41

 17.2 Marking of supply device 41

 17.3 Legibility 41

 17.4 Connection instructions 41

Bibliography 42

Figure 1 – Example of a WPT system 19

Table 1 – WPT equipment immunity requirement – Environment other than residential 34

Table 2 – WPT equipment immunity requirement – Residential environment 35

Table 3 – Low frequency disturbances 36

Table 4 – Radio frequency (RF) disturbances 37

Table 5 – Limits of the magnetic field strength for WPT system for class A in the range
9 kHz to 150 kHz 38

Table 6 – Limits of the magnetic field strength for WPT system for class B in the range
9 kHz to 150 MHz 39

Table 7 – Limits of the magnetic field strength for WPT system for class A in the range
150 kHz to 30 MHz 40

Table 8 – Limits of the magnetic field strength for WPT system for class B in the range
150 kHz to 30 MHz 40

ITeH STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –**Part 1: General requirements**

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 61980-1 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) the contents of IEC 61980-1:2015 have been re-organized so that this document is generally applicable to any WPT technologies;
- b) technology specific requirements, mostly for MF-WPT in the main text of IEC 61980-1:2015, have been transferred to IEC 61980-2 and IEC 61980-3;
- c) Annex A, Annex B and Annex C have been removed and contents of these annexes have been transferred to the relevant technology specific parts of the IEC 61980 series;
- d) duplications and overlaps of the requirements within IEC 61980-1:2015 have been resolved;

- e) terms and definitions which are specified in IEC 61851-1:2017 and are applicable for WPT system have been directly described in this document, with modification for some terms. The reference to IEC 61851-1 is withdrawn.

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

FDIS	Report on voting
69/731/FDIS	69/736/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.

A list of all parts of the IEC 61980 series, published under the general title *Electric vehicle wireless power transfer (WPT) systems*, can be found on the IEC website.

In this document, the following print types are used:

- *test specifications and instructions regarding the application of this document: italic type;*
- notes: smaller roman type.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://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.

(standards.iteh.ai)

[IEC 61980-1:2020](https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020>

INTRODUCTION

The IEC 61980 series is published in separate parts according to the following structure:

- IEC 61980-1 covers general requirements for electric road vehicle (EV) wireless power transfer (WPT) systems including general background and definitions (e.g. efficiency, electrical safety, EMC, EMF);
- IEC 61980-2 specifically applies to magnetic field wireless power transfer (MF-WPT) for electric road vehicles and covers specific requirements for system activities and communication between the electric road vehicle side and the off-board side including general background and definitions;
- IEC 61980-3 covers specific power transfer requirements for the off-board side of magnetic field wireless power transfer systems for electric road vehicles (e.g. efficiency, electrical safety, EMC, EMF).

The requirements described in this document are general. The technical requirements for the various wireless power transfer technologies are specific. The requirements for magnetic field-wireless power transfer systems are described in IEC 61980-2 and IEC 61980-3. Further parts of this series are reserved to other technologies.

Reference to "technology specific parts" always refer to other parts of the IEC 61980 series.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[IEC 61980-1:2020](https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c35b611101c8/iec-61980-1-2020>

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 1: General requirements

1 Scope

This part of IEC 61980 applies to the supply device for charging electric road vehicles using wireless methods at standard supply voltages per IEC 60038 up to 1 000 V AC and up to 1 500 V DC.

Electric road vehicles (EV) covers road vehicles, including plug-in hybrid road vehicles (PHEV) that derive all or part of their energy from on-board rechargeable energy storage systems (RESS).

This document also applies to wireless power transfer (WPT) equipment supplied from on-site storage systems (e.g. buffer batteries).

The aspects covered in this document include

- the characteristics and operating conditions of a supply device,
- the specification for required level of electrical safety of a supply device,
- communication between EV device and vehicle to enable and control WPT,
- efficiency, alignment and other activities to enable WPT, and
- specific EMC requirements for a supply device.

The following aspects are under consideration for future documents:

- requirements for MF-WPT systems supplying power to EVs in motion;
- requirements for bidirectional power transfer.

This document does not apply to:

- safety aspects related to maintenance,
- WPT system for trolley buses, rail vehicles and vehicles designed primarily for use off-road, and
- any safety or EMC requirements for the vehicle side.

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 60038, *IEC standard voltages*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-5, *Environmental testing – Part 2-5: Tests – Test S: Simulated solar radiation at ground level and guidance for solar radiation testing and weathering*

IEC 60068-2-11, *Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60216 (all parts), *Electrical insulating materials – Thermal endurance properties*

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60309-2, *Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-41:2005/AMD1:2017

[IEC 61980-1:2020](https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-c556f1101e34/iec-61980-1-2020)

IEC 60364-4-42, *Low-voltage electrical installations – Part 4-42: Protection for safety – Protection against thermal effects*

IEC 60364-4-43, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-5-54, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC 60364-7-722:2018, *Low-voltage electrical installations – Part 7-722: Requirements for special installations or locations – Supplies for electric vehicles*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-2-12, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

IEC 60898 (all parts), *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*

IEC 60898-1, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

IEC 60947-2, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

IEC 60947-3, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-4-1, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*

IEC 60947-6-2, *Low-voltage switchgear and controlgear – Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)*

IEC 60950-1:2005, *Information technology equipment – Safety – Part 1: General requirements*

IEC 60950-1:2005/AMD1:2009

IEC 60950-1:2005/AMD2:2013

IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*

IEC 61000-3-2, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

IEC 61000-3-3, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection*

IEC 61000-3-11, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤ 75 A and subject to conditional connection*

IEC 61000-3-12, *Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-4-34, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*

IEC 61008-1, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – General rules*

IEC 61009-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – General rules*

IEC 61180, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

IEC 61439-1:2020, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 61439-7:2018, *Low-voltage switchgear and controlgear assemblies – Part 7: Assemblies for specific applications such as marinas, camping sites, market squares, electric vehicles charging stations*

IEC 61810-1, *Electromechanical elementary relays – Part 1: General and safety requirements*

IEC 61980 (all parts), *Electric vehicle wireless power transfer (WPT) systems*

IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

IEC Guide 117:2010, *Electrotechnical equipment – Temperatures of touchable hot surfaces*

CISPR 11:2015, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

CISPR 11:2015/AMD1:2016

CISPR 11:2015/AMD2:2019

CISPR 32:2015, *Electromagnetic compatibility of multimedia equipment – Emission requirements*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1
wireless power transfer
WPT

transfer of electrical energy from a power source to an electrical load without galvanic connection

3.2
WPT system

system comprising all necessary components for wireless power transfer and control

SEE Figure 1.

3.3
charging

all functions necessary to condition voltage and/or current provided by the AC or DC supply network to assure the supply of electric energy to RESS

[SOURCE: IEC 61851-1:2017, 3.1.8]

3.4
conductive part

part which can carry electric current

[SOURCE: IEC 60050-195:1998, 195-01-06]

3.5
live part

conductor or conductive part intended to be energized in normal operation, including a neutral conductor, but by convention not a PEN conductor or PEM conductor or PEL conductor

<https://standards.iteh.ai/catalog/standards/sist/715c273d-d93f-4993-8e1b-195-02-19>

[SOURCE: IEC 60050-195:1998, 195-02-19, modified – The note to entry has been deleted.]

3.6
hazardous-live-part

live part which, under certain conditions, can give a harmful electric shock

[SOURCE: IEC 60050-195:1998, 195-06-05]

3.7
exposed conductive part

conductive part of electrical equipment, which can be touched and which is not normally live, but which can become live when basic insulation fails

[SOURCE: IEC 60050-442:1998, 442-01-21, modified – The note to entry has been deleted.]

3.8
fault protection

protection against electric shock under single fault conditions

[SOURCE: IEC 60050-195:1998, 195-06-02]

3.9
insulation

all the materials and parts used to insulate conductive elements of a device, or a set of properties which characterize the ability of insulation to provide its function

[SOURCE: IEC 61851-1:2017, 3.2.8]

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.10**basic insulation**

insulation of hazardous-live-parts which provides basic protection

[SOURCE: IEC 60050-826:2004, 826-12-14, modified – The note has been deleted.]

3.11**supplementary insulation**

independent insulation applied in addition to basic insulation for fault protection

[SOURCE: IEC 60050-826:2004, 826-12-15]

3.12**double insulation**

insulation comprising both basic insulation and supplementary insulation

[SOURCE: IEC 60050-826:2004, 826-12-16]

3.13**reinforced insulation**

insulation of hazardous-live-parts which provides a degree of protection against electric shock equivalent to double insulation

Note 1 to entry: Reinforced insulation may comprise several layers which cannot be tested singly as basic insulation or supplementary insulation.

[SOURCE: IEC 60050-195:1998, 195-06-09]

3.14**standby mode**

mode in which the WPT system is ready to transfer energy from supply device to EV device

3.15**active mode**

mode in which the WPT system is transferring energy between supply device and EV device

3.16**permanently connected supply device**

supply device that is intended for connection to the building installation wiring using screw terminals or other reliable means

3.17**plug and cable connected supply device**

supply device that can be connected to, or disconnected from, the socket-outlet of AC or DC supply network by the use of a plug

3.18**supply device**

off-board component assembly of WPT system

SEE Figure 1.

3.19**EV device**

on-board component assembly of WPT system

SEE Figure 1.