

INTERNATIONAL STANDARD

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

**Systèmes de transfert de puissance sans fil (WPT) pour véhicules électriques –
Partie 1: Exigences générales**



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

**Systèmes de transfert de puissance sans fil (WPT) pour véhicules électriques –
Partie 1: Exigences générales**

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CONTENTS

FOREWORD.....	7
INTRODUCTION.....	9
1 Scope.....	10
2 Normative references	10
3 Terms and definitions	14
4 Abbreviations	16
5 General	17
6 Classification.....	17
6.1 General.....	17
6.2 Transfer technologies	17
6.3 Transfer power classes	18
6.4 Environmental conditions	18
6.5 Installation	18
7 Interoperability	18
8 General system requirements	19
8.1 General.....	19
8.2 Efficiency.....	20
8.3 Measurement convention	21
8.3.1 General	21
8.3.2 Orientation.....	21
8.3.3 Measurement convention of the parking space	21
8.3.4 Measurement convention of offset	22
8.3.5 Measurement convention of the primary device	23
8.3.6 Distance between the primary and secondary device (mechanical air gap).....	23
8.3.7 Primary device mounting	24
8.3.8 In-ground-mounting	24
8.3.9 On-ground-mounting	24
8.4 Primary and secondary device construction	25
9 Communication.....	25
9.1 Command and control communication.....	25
9.2 High level communication	25
10 Protection against electric shock	26
10.1 General requirements	26
10.2 Protection against direct contact	26
10.2.1 Degrees of protection against access to hazardous parts	26
10.2.2 IP degrees for the enclosures	26
10.2.3 IP degrees for primary device	26
10.3 Stored energy – discharge of capacitors	26
10.4 Fault protection.....	27
10.5 Protective conductor dimensions.....	27
10.6 Supplementary measures.....	27
10.6.1 Additional protection	27
10.6.2 Manual/automatic reset	28
10.7 Telecommunication network.....	28
11 Specific requirements for WPT systems.....	28

11.1	General.....	28
11.2	Leakage – touch current	28
11.3	Insulation resistance	29
11.4	Dielectric withstand characteristic	29
11.4.1	Dielectric withstand voltage	29
11.4.2	Impulse dielectric withstand (1,2/50 μ s)	29
11.5	Overload protection and short circuit withstand	30
11.5.1	General	30
11.5.2	Earthing electrode and continuity test	30
11.5.3	Earthing path test	30
11.5.4	Short circuit withstand strength.....	30
11.6	Temperature rise and protection against thermal incidents.....	30
11.6.1	General	30
11.6.2	Permissible surface temperature of accessible parts of the WPT system	31
11.6.3	Temperature limits for materials	32
11.6.4	Protection against burns from heating of foreign objects.....	33
11.7	Heat, fire and tracking.....	34
11.8	Protection against mechanical incident	34
11.8.1	Incidents induced by sharp edge.....	34
11.8.2	Incidents induced by steps from flat ground	34
11.9	Areas of protection.....	34
11.10	Protection from electro-magnetic field	35
11.11	Operational safety.....	35
11.12	Emergency service disconnect (optional)	35
12	Power cable assembly requirements.....	35
13	Constructional requirements	36
13.1	General.....	36
13.2	Breaking capacity of switching devices	36
13.2.1	General	36
13.2.2	Switch and switch-disconnector	36
13.2.3	Contactors.....	36
13.2.4	Circuit-breakers	36
13.2.5	Relays	36
13.3	Clearance and creepage distances	36
13.4	Protection measures	37
14	Strength of materials and parts	37
14.1	General.....	37
14.2	Stability/Mechanical impact.....	37
14.2.1	Locations with restricted access	37
14.2.2	Locations with non-restricted access	38
14.2.3	Vehicle drive-over.....	38
14.2.4	Lateral force by thrust power	38
14.3	Mechanical load.....	38
14.3.1	General	38
14.3.2	Static load	38
14.3.3	Shock load	39
14.3.4	Torsional stress	39
14.3.5	Strength of doors.....	39
14.3.6	Mechanical shock impacts induced by sharp edged objects	39

14.4	Strength of materials and parts	39
14.4.1	Protection against corrosion	39
14.4.2	Test criteria	39
14.5	Environmental conditions	40
14.6	Properties of insulating materials	40
14.6.1	Verification of thermal stability of enclosures	40
14.6.2	Resistance to fire (Glow wire)	40
14.6.3	Ball pressure test	40
14.6.4	Resistance to tracking	40
14.6.5	Resistance to ultra-violet radiation	41
14.7	Static strength and stability	41
14.8	Vibration	41
15	Service and test conditions	41
15.1	General	41
15.2	Environmental test	41
15.2.1	Ambient air temperature	41
15.2.2	Ambient humidity	42
15.2.3	Ambient air pressure	42
15.2.4	Altitude	42
15.2.5	Pollution degree	43
15.2.6	Dry heat	43
15.2.7	Cold test	43
15.3	Special service conditions	43
15.4	Conditions during transport, storage and installation	43
15.5	Outdoor exposure	44
15.5.1	Cold test for extreme cold climates	44
15.5.2	Heat test under solar radiation	44
15.6	Damp and salt mist test for marine and coastal environments	44
15.7	Condensation within the assembly	44
15.8	Vibration and shock	44
15.9	Safety specifications	44
16	Electromagnetic Compatibility (EMC)	44
16.1	Immunity requirements	44
16.2	Disturbance requirement	46
16.2.1	Load and operating conditions	46
16.2.2	Disturbance limits	47
17	Marking and instructions	50
17.1	General	50
17.2	Marking of EV supply equipment	51
17.3	Legibility	51
17.4	Connection instructions	51
	Annex A (informative) Use cases	52
A.1	General	52
A.2	Use case descriptions	53
A.2.1	UC Select "charging spot"	53
A.2.2	UC Compatibility Check	54
A.2.3	UC Fine Positioning	55
A.2.4	UC Pairing Confirmation	56

A.2.5	UC Start Power Transfer.....	57
A.2.6	UC Perform Power Transfer.....	59
A.2.7	UC Safety Monitoring and Diagnostics (see Table A.7)	61
A.2.8	UC Stop Power transfer	61
Annex B (informative)	EMC tables, EV connected to an WPT system.....	63
B.1	General.....	63
B.2	WPT equipment immunity requirement (informative)	63
B.3	Radio frequency (RF) disturbances	63
B.4	WPT system with EV included (radiated disturbances in the range 30 MHz to 1 000 MHz)	63
Annex C (informative)	EMF, protection from electromagnetic field	66
C.1	Protection from electromagnetic field	66
C.2	Assessment of electronic and electrical equipment	66
C.3	EMF measurement procedure	66
C.4	Measurement points.....	68
C.4.1	Area 3 measurement points of nominal position	68
C.4.2	Area 3 measurement points of offset positions.....	69
C.4.3	Area 4 measurement points	69
Bibliography.....		70
Figure 1 – Installation		18
Figure 2 – Wireless Power Transfer system		20
Figure 3 – Position of axes relative to orientation.....		21
Figure 4 – Position of the primary device		22
Figure 5 – X and Y maximum offset		23
Figure 6 – In-ground-mounting.....		24
Figure 7 – On-ground-mounting		25
Figure 8 – Qualitative example of material temperature		31
Figure 9 – Example for areas of protection, for ground mounted systems.....		35
Figure A.1 – Use cases particularly for wireless power transfer.....		52
Figure A.2 – Use cases from ISO/IEC 15118-1 reusable for WPT systems.....		53
Figure A.3 – Activity diagram for UC Select "Charging Spot".....		54
Figure A.4 – Activity diagram for UC Compatibility Check		55
Figure A.5 – Activity diagram for UC Fine Positioning		56
Figure A.6 – Activity diagram for UC Pairing Confirmation		57
Figure A.7 – Activity diagram for UC Start Power Transfer		59
Figure A.8 – Activity diagram for UC Perform Power Transfer		60
Figure A.9 – Activity diagram for UC Stop Power Transfer		62
Figure B.1 – EV model for the radiated emission measurement (top view)		64
Figure B.2 – EV model for radiated emission measurements (side view)		65
Figure C.1 – Top view		68
Figure C.2 – Front view.....		68
Figure C.3 – Seats position.....		69
Figure C.4 – Measurement points of seats		69

Table 1 – Transfer technologies	17
Table 2 – Position of primary device	22
Table 3 – Offset	23
Table 4 – Primary device	23
Table 5 – Mechanical air gap	24
Table 6 – Touch currents	28
Table 7 – Values of temperature rise in normal use	33
Table 8 – WPT equipment immunity requirement – Environment other than residential	45
Table 9 – WPT equipment immunity requirement – residential environment	46
Table 10 – Low frequency disturbances	47
Table 11 – Radio frequency (RF) disturbances	49
Table 12 – Limits of the magnetic field strength for WPT system.....	50
Table A.1 – UC Select "charging spot"	53
Table A.2 – UC Compatibility Check	55
Table A.3 – UC Fine Positioning	56
Table A.4 – UC Pairing Confirmation	57
Table A.5 – UC Start Power Transfer	58
Table A.6 – UC Perform Power Transfer	60
Table A.7 – UC Safety Monitoring and Diagnostics	61
Table A.8 – UC Stop Power transfer	61
Table B.1 – Environment other than residential environment with EV	63
Table B.2 – Residential environment with EV	63
Table B.3 – Radio frequency (RF) disturbances – WPT system with EV	63

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 1: General requirements

FOREWORD

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International Standard IEC 61980-1 has been prepared by Technical Committee 69: Electric road vehicles and electric industrial trucks.

This bilingual version (2015-01) corresponds to the monolingual English version, published in 2015-07.

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

FDIS	Report on voting
69/370/FDIS	69/380/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.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This part is to be used in conjunction with the appropriate part of IEC 61980 series.

NOTE The following print types are used:

- requirements: in roman type;
- test specifications: in italic type;
- notes: in small roman type.

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INTRODUCTION

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

Part 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).

Future Part 2 will cover specific requirements for communication between electric road vehicle (EV) and wireless power transfer (WPT) systems including general background and definitions.

Future Part 3 will cover specific requirements for electric road vehicle (EV) magnetic field wireless power transfer (MF-WPT) systems including general background and definitions (e.g. efficiency, electrical safety, EMC, EMF).

The requirements described in Part 1 are general. The technical requirements for the various wireless power transfer (WPT) technologies are very different, they will be treated in technology specific parts of the 61980 series. A list of possible WPT technologies can be seen in 6.2. The requirements for magnetic field-wireless power transfer systems (MF-WPT) will be described in future Part 3. Further parts of this series will describe other technologies such as power transfer via electric field wireless power transfer systems (EF-WPT) or electromagnetic field-WPT systems also named microwave-WPT systems (MW-WPT).

Reference to "technology specific parts" always refer to the technology specific future Part 3 and further technology specific parts of this series. The structure of the "technology specific parts" will follow the structure of Part 1.

Electric road vehicle (EV) will be covered by ISO 19363¹.

¹ Under consideration.

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 1: General requirements

1 Scope

This part of IEC 61980 applies to the equipment for the wireless transfer of electric power from the supply network to electric road vehicles for purposes of supplying electric energy to the RESS (Rechargeable energy storage system) and/or other on-board electrical systems in an operational state when connected to the supply network, at standard supply voltages ratings per IEC 60038 up to 1 000 V a.c. and up to 1 500 V d.c.

This standard also applies to Wireless Power Transfer (WPT) equipment supplied from on-site storage systems (e.g. buffer batteries, etc.).

The aspects covered in this standard include:

- the characteristics and operating conditions;
- the specification for required level of electrical safety;
- requirements for basic communication for safety and process matters if required by a WPT system;
- requirements for basic positioning, efficiency and process matters if required by a WPT system;
- requirements for two- and three-wheel vehicles (under consideration);
- requirements for WPT system while driving (under consideration);
- requirements for bidirectional power transfer (under consideration);
- specific EMC requirements for WPT systems.

This standard does not apply to:

- safety aspects related to maintenance;
- trolley buses, rail vehicles and vehicles designed primarily for use off-road;
- WPT vehicle power supply circuit, which is covered by ISO 6469 series, ISO 19363²;
- EMC requirements for on-board equipment while connected, which are covered in IEC 61851-21-1³;
- high level communication which are covered in ISO/IEC 15118 series.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

² Under consideration.

³ Under consideration.