

TECHNICAL SPECIFICATION



**Electric vehicle wireless power transfer (WPT) systems –
Part 2: Specific requirements for communication between electric road vehicle
(EV) and infrastructure**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	7
INTRODUCTION.....	9
1 Scope.....	10
2 Normative references	10
3 Terms and definitions	11
4 Abbreviated terms	14
5 Communication of WPT systems	14
5.1 General.....	14
5.2 System architecture	14
5.3 General system requirements	16
5.3.1 General	16
5.3.2 Interoperability requirements	16
5.3.3 System configuration	16
5.3.4 Communication security.....	17
5.3.5 Timing	17
6 Power transfer process with respect to communication	17
6.1 General.....	17
6.2 Overview of operation process activities	17
6.3 Activities	18
6.3.1 Communication setup and service selection.....	18
6.3.2 Reject WPT session	18
6.3.3 Fine positioning.....	18
6.3.4 Pairing.....	19
6.3.5 Final compatibility check.....	19
6.3.6 Initial alignment check	20
6.3.7 Prepare power transfer.....	20
6.3.8 Time scheduled power transfer (informative)	21
6.3.9 Perform power transfer	22
6.3.10 Stop power transfer	23
6.3.11 WPT session	24
6.3.12 EV leaves WPT spot.....	24
6.3.13 Safety monitoring and diagnostics	24
6.3.14 Terminate communication.....	25
6.3.15 Terminate safety monitoring and diagnostics	25
6.3.16 Wake-up after power outage.....	25
7 Control process states.....	26
7.1 Supply device state definitions.....	26
7.1.1 Supply device state diagram.....	26
7.1.2 Stand by (WPT_S_SB)	27
7.1.3 Service initiated (WPT_S_SI).....	27
7.1.4 WPT session rejected	28
7.1.5 Awaiting alignment (WPT_S_AA)	29
7.1.6 Idle (WPT_S_IDLE)	31
7.1.7 Power transfer (WPT_S_PT).....	32
7.1.8 Service terminated occupied (WPT_S_STO).....	33
7.1.9 Out of service (WPT_S_OOS).....	34

7.1.10	Sleep mode WPT_S_SLP	34
7.2	Supply device state transitions	35
7.3	EV device state definitions	36
7.3.1	EV device state diagram	36
7.3.2	Stand by (WPT_V_SB)	37
7.3.3	Service initiated (WPT_V_SI).....	38
7.3.4	Awaiting alignment (WPT_V_AA).....	39
7.3.5	Idle (WPT_V_IDLE)	40
7.3.6	Power transfer active (WPT_V_PT)	40
7.3.7	Off (WPT_V_OFF)	40
7.4	EV state transitions.....	40
7.5	Exception handling.....	41
7.5.1	General	41
7.5.2	Supply device exception handling (WPT_S_ERR).....	41
7.5.3	EV device exception handling (WPT_V_ERR).....	41
7.5.4	Exception descriptions.....	42
8	Communication parameter for WPT systems	42
8.1	General.....	42
8.2	General parameters	42
8.3	Communication setup	42
8.4	Service selection	43
8.5	Fine positioning	45
8.5.1	General	45
8.5.2	Starting fine positioning	45
8.5.3	Fine positioning data exchange	45
8.5.4	Terminating fine positioning.....	46
8.6	Pairing.....	46
8.6.1	General.....	46
8.6.2	Start pairing.....	46
8.7	Initial alignment check	47
8.7.1	General.....	47
8.7.2	Initial alignment check request/response	47
8.8	Prepare power transfer	48
8.8.1	General	48
8.8.2	Final compatibility check.....	48
8.9	Perform power transfer	49
8.10	Stop power transfer	50
8.11	Terminate communication	50
8.12	Exception handling.....	50
9	Message sequences of communication with WLAN.....	51
9.1	General.....	51
9.2	Messages of communication for power transfer.....	51
9.3	Communication setup	51
9.4	Service selection	51
9.5	Fine positioning	52
9.6	Pairing.....	52
9.7	Final compatibility check.....	52
9.8	Initial alignment check	52
9.9	Prepare power transfer	53

9.10	Perform power transfer	53
9.11	Stop power transfer	54
9.12	Terminate communication	54
Annex A	(informative) Use cases	55
A.1	General.....	55
A.2	Use case descriptions	57
A.2.1	UC select supply device	57
A.2.2	UC service selection	59
A.2.3	UC fine positioning	60
A.2.4	UC prepare power transfer	62
A.2.5	UC safety monitoring and diagnostics	64
A.2.6	UC perform power transfer	64
A.2.7	UC stop power transfer	65
A.2.8	UC sleep mode (optional)	67
Annex B	(informative) Physical definition of links and signals.....	69
B.1	General.....	69
B.2	System architecture	69
B.3	WLAN	69
B.4	SR signal	69
B.5	LF signal (EV device to supply device).....	70
B.6	Magnetic vector (EV device to supply device)	72
B.7	LPE (supply device to EV device)	72
Annex C	(informative) Usage of supplemental signals.....	73
C.1	General.....	73
C.2	Fine positioning	73
C.2.1	General	73
C.2.2	Manual	73
C.2.3	Low power excitation (LPE)	73
C.2.4	LF signal	74
C.2.5	Magnetic vector	77
C.3	Pairing.....	77
C.3.1	General	77
C.3.2	Coding pattern specification.....	77
C.3.3	Low power excitation (LPE)	78
C.3.4	SR signal.....	79
C.3.5	LF signal	79
C.3.6	Magnetic vector	79
C.4	Initial alignment check	80
C.4.1	General	80
C.4.2	LPE target current check	80
C.4.3	RSSI method	81
C.5	Continuous alignment check	82
C.5.1	General	82
C.5.2	System anomaly check	82
C.5.3	SR signal.....	83
C.6	Emergency shutdown.....	83
C.6.1	General	83
C.6.2	RF signal.....	83
C.6.3	Power termination.....	83

Bibliography.....	84
Figure 1 – Possible elements of combination in a communication subsystem.....	15
Figure 2 – WPT site with a single supply device.....	16
Figure 3 – Operation process of activities for the WPT.....	17
Figure 4 – Supply device state diagram	26
Figure 5 – Activity communication setup	27
Figure 6 – Activity service selection	28
Figure 7 – Activity reject WPT session.....	29
Figure 8 – Activity from fine positioning to initial alignment check	30
Figure 9 – Activity prepare power transfer.....	31
Figure 10 – Activity terminate WPT session	32
Figure 11 – Activity Sleep	32
Figure 12 – Activity stop power transfer	33
Figure 13 – Activity EV leave WPT spot.....	34
Figure 14 – Activity wake-up.....	35
Figure 15 – EV device state diagram	37
Figure 16 – Activity communication setup (EV device state).....	38
Figure 17 – Activity service selection (EV device state).....	38
Figure 18 – Activity from fine positioning to initial alignment check (EV device state).....	39
Figure 19 – Activity prepare power transfer (EV device state)	40
Figure A.1 – Use cases particularly for wireless power transfer.....	55
Figure A.2 – Use cases from ISO 15118-1 reusable for WPT systems.....	56
Figure A.3 – Activity diagram for UC select supply device.....	58
Figure A.4 – Activity diagram for UC fine positioning.....	61
Figure A.5 – Activity diagram for UC prepare power transfer.....	63
Figure A.6 – Activity diagram for UC perform power transfer.....	65
Figure A.7 – Activity diagram for UC stop power transfer	66
Figure A.8 – Activity diagram for UC sleep mode	68
Figure B.1 – Example arrangement of the auxiliary LF antennas for the primary device (left) and the vehicle (right).....	71
Figure B.2 – Example arrangement of the auxiliary LF antennas for the primary device (left) and the EV (right)	72
Figure C.1 – Explanation of parameters for LF fine positioning	76
Figure C.2 – Coding pattern timing and examples	78
Figure C.3 – Symmetrical antenna configuration for signal comparison with zero offset	81
Figure C.4 – Symmetrical antenna configuration for signal comparison with given offset.....	82
Table 1 – Supply device state transitions	35
Table 2 – EV device state transitions	41
Table 3 – Exception handling.....	42
Table 4 – Service selection EVCC request parameters	43
Table 5 – Service selection SECC response parameters.....	43
Table 6 – Method list for fine positioning.....	44

Table 7 – Method list for pairing.....	45
Table 8 – Method list for initial alignment.....	45
Table 9 – Fine positioning response.....	45
Table 10 – Pairing start request.....	46
Table 11 – Pairing start response.....	46
Table 12 – Pairing confirmation request.....	47
Table 13 – Pairing confirmation response.....	47
Table 14 – Initial alignment check request.....	47
Table 15 – Initial alignment check response.....	47
Table 16 – Final compatibility check request parameters.....	48
Table 17 – Final compatibility check response parameters.....	48
Table 18 – Perform power transfer request parameters.....	49
Table 19 – Perform power transfer response parameters.....	49
Table 20 – Error request parameters.....	50
Table 21 – Error respond parameters.....	50
Table A.1 – UC select supply device.....	57
Table A.2 – UC service selection.....	59
Table A.3 – UC fine positioning.....	60
Table A.4 – UC prepare power transfer.....	62
Table A.5 – UC safety monitoring and diagnostics.....	64
Table A.6 – UC perform power transfer.....	64
Table A.7 – UC stop power transfer.....	65
Table A.8 – UC sleep mode.....	67
Table C.1 – Data of the antenna arrangement at EV to send to SECC.....	74
Table C.2 – Data of the antenna arrangement at primary device to send to EVCC.....	75
Table C.3 – Data exchanged between EVCC and SECC during fine positioning.....	76

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 2: Specific requirements for communication between electric road vehicle (EV) and infrastructure

FOREWORD

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 61980-2, which is a Technical Specification, has been prepared by IEC technical committee TC 69: Electric road vehicles and electric industrial trucks.

The text of this Technical Specification is based on the following documents:

Draft TS	Report on voting
69/529/DTS	69/585B/RVDTS

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO Directives, Part 2.

In this Technical Specification, the following print types are used:

- *conformity statements: in italic type;*
- **states and messages: bold type.**

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.

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.

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

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);
- IEC TS 61980-2 covers specific requirements for communication between electric road vehicle (EV) and wireless power transfer (WPT) systems including general background and definitions;
- IEC TS 61980-3 covers 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).

The requirements described in IEC 61980-1 are general. The technical requirements for the various wireless power transfer (WPT) technologies are very different; they are specified in the technology specific parts of the IEC 61980 series. A list of possible WPT technologies is listed in IEC 61980-1. The requirements for magnetic field-wireless power transfer systems (MF-WPT) are described in IEC TS 61980-3. Further parts of the IEC 61980 series will describe other technologies such as power transfer via electric field or via electromagnetic 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 refers to each parts of the IEC 61980 series. The structure of the "technology specific parts" follows the structure of IEC 61980-1.

WPT systems are still under development. For this reason, there is the future but not immediate possibility of an agreement to publish an International Standard. The committee has decided, by following the procedure set out in ISO/IEC Directives, Part 1:2018, 2.3, that the publication of a Technical Specification is appropriate. The reasons for publishing the Technical Specification is a high market need for a first basic technical description.

IEC TS 61980-2, also published as a Technical Specification for the same reasons as IEC TS 61980-3, deals with communication and for this reason has an independent structure. The numbering of the clauses does not follow the numbering of the other parts of the IEC 61980 series.

The electric road vehicles (EV) requirements of the MF-WPT system are covered by ISO/PAS 19363.

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 2: Specific requirements for communication between electric road vehicle (EV) and infrastructure

1 Scope

This Part of IEC 61980, which is a Technical Specification, applies to communication between electric road vehicle (EV) and wireless power transfer (WPT) systems when connected to the supply network, at standard supply voltages per IEC 60038 up to 1000 V AC and up to 1500 V DC.

This document also applies to wireless power transfer equipment supplied from on-site storage systems (e.g. buffer batteries) at standard supply voltages per IEC 60038 up to 1000 V AC and up to 1500 V DC.

The aspects covered in this document include

- standards for operational characteristics and functional characteristics of the WPT communication subsystem,
- communication requirements for WPT system while driving, which are under consideration,
- communication requirements for two- and three-wheel vehicles, which are under consideration, and
- communication requirements for bidirectional power transfer are under consideration

This document does not apply to

- safety aspects related to maintenance, and
- trolley buses, rail vehicles and vehicles designed primarily for use off-road.

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 61980-1, *Electric vehicle wireless power transfer (WPT) systems – Part 1: General requirements*

IEC TS 61980-3:2019, *Electric vehicle wireless power transfer (WPT) systems – Part 3 Specific requirements for the magnetic field wireless power transfer systems*

ISO 15118 (all parts), *Road vehicles – Vehicle to grid communication interface*

ISO 15118-2, *Road vehicles – Vehicle to grid communication interface – Part 2: Network and application protocol requirements*¹

¹ Second edition under preparation. Stage at the time of publication: ISO/DIS 15118-2:2019.

ISO 15118-8:2018, *Road vehicles – Vehicle to grid communication interface – Part 8: Physical layer and data link layer requirements for wireless communication*

ISO 15118-20, *Road vehicles – Vehicle to grid communication interface – Part 20: 2nd generation network and application protocol requirements²*

Withdrawn

² Under preparation. Stage at the time of publication: ISO/DIS 15118-20:2019.