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Electric vehicle wireless power transfer (WPT) systems – Part 6: Specific requirements for magnetic field dynamic power transfer (MF-D-WPT) system communication and activities

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IEC 61980-6 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks. It is a Publicly Available Specification.

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

Draft	Report on voting
69/1022/DPAS	69/1040/RVDPAS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

This PAS shall remain valid for an initial maximum period of 2 years starting from the publication date. The validity may be extended for a single period up to a maximum of 2 years, at the end of which it shall be transformed, with or without changes, into another type of normative document, or shall be withdrawn.

The language used for the development of this Publicly Available Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

NOTE In accordance with ISO/IEC Directives, Part 1, IEC PASs are automatically withdrawn after 4 years.

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);

– IEC 61980-4[1] covers specific power transfer requirements for the off-board side of magnetic field high power wireless power transfer (H-WPT) systems for electric vehicles electric road vehicles (e.g. efficiency, electrical safety, EMC, EMF);

– IEC PAS 61980-5 covers specific power transfer requirements for the off-board side of magnetic field dynamic wireless power transfer (MF-D-WPT) systems for electric vehicles electric road vehicles (e.g. efficiency, electrical safety, EMC, EMF);

– IEC 61980-6 specifically applies to magnetic field dynamic wireless power transfer 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.

Requirements for the on-board side of MF-WPT and MF-D-WPT for electric road vehicles are covered in ISO 5474-6.

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[1] Under preparation. Stage at the time of publication: IEC/CD 61980-4:2024.

ELECTRIC VEHICLE WIRELESS POWER TRANSFER (WPT) SYSTEMS –

Part 6: Specific requirements for magnetic field dynamic power transfer (MF-D-WPT) system communication and activities

1 Scope

This part of IEC 61980 addresses communication and activities of magnetic field dynamic wireless power transfer (MF-D-WPT) systems. The power transfer takes place while the electric vehicle (EV) is in motion.

NOTE 1 "In motion" includes a temporally stop on the road.

The requirements in this document are intended to be applied for MF-D-WPT systems according to IEC PAS 61980-5 and ISO 5474-6.

Supply device fulfilling the requirements in this document are intended to operate with EV devices fulfilling the requirements described in ISO 5474-6.

The aspects covered in this document include:

– operational and functional characteristics of the MF-D-WPT communication system and related activities
– operational and functional characteristics of the positioning system

The following aspects are under consideration for future documents:

– requirements for two- and three-wheel vehicles,
– requirements for bidirectional power transfer

NOTE 2 Any internal communication at supply device or EV device is not in the scope of this document

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 61980-1:2020, *Electric vehicle wireless power transfer (WPT) systems – Part 1: General requirements*

IEC 61980-2:2023, *Electric vehicle wireless power transfer (WPT) systems – Part 2: Specific requirements for MF-WPT system communication and activities*

IEC 61980-3:2022, *Electric vehicle wireless power transfer (WPT) systems – Part 3: Specific requirements for magnetic field wireless power transfer systems*

ISO PAS CD 5474-6:2023, *Electrically propelled road vehicles — Functional requirements and safety requirements for power transfer — Part 6: Magnetic field wireless power transfer — Safety and interoperability requirements for heavy-duty vehicles*

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