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NORME INTERNATIONALE

Qi Specification version 2.0 –
Part 6: Communications Protocol

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QI SPECIFICATION VERSION 2.0 –

Part 6: Communications Protocol

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It is based on *Qi Specification version 2.0, Communications Protocol* and was submitted as a Fast-Track document.

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

Draft	Report on voting
100/4251/FDIS	100/4281/RVD

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

The language used for the development of this International Standard is English.

The structure and editorial rules used in this publication reflect the practice of the organization which submitted it.

This document was 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.

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April 2023

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v2.0 Final Draft	April 2023	Initial release of the v2.0 Qi Specification.

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Table of Contents

1 General 3

1.1 Structure of the Qi Specification..... 3

1.2 Scope 4

1.3 Compliance..... 4

1.4 References..... 4

1.5 Conventions 5

1.6 Power Profiles..... 7

2 Overview 8

2.1 Protocol phases..... 8

2.2 Power Transfer Contract..... 10

2.3 Data packet types 15

2.4 High-level messages and data transport streams..... 16

2.5 Backward compatibility..... 17

3 Power Receiver and Power Transmitter identification 18

4 Ping phase 19

4.1 Ping phase state diagram..... 21

4.2 Ping phase timings..... 24

5 Configuration phase 28

5.1 Configuration phase state diagram..... 29

5.2 Configuration phase timings..... 34

6 Negotiation phase 37

6.1 Negotiable elements of the Power Transfer Contract..... 39

6.2 Updating the Power Transfer Contract 40

6.3 Foreign Object Detection support..... 41

6.4 Wireless power ID..... 42

6.5 NFC tag protection support..... 43

6.6 Negotiation phase state diagram 44

6.7 Negotiation phase timings 56

7 Power transfer phase 61

7.1 Power transfer state diagram 63

7.2 Data transport stream 69

7.3 Power transfer phase timings..... 85

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8 Power Receiver data packets 94

8.1	Auxiliary Data Control—ADC (0x25; simple query)	96
8.2	Auxiliary Data Transport—ADT (multiple header codes; simple query)	97
8.3	Charge Status—CHS (0x05; status update)	98
8.4	Configuration—CFG (0x51; simple query)	99
8.5	Control Error—CE (0x03; power control)	101
8.6	Data Stream Response—DSR (0x15; data request)	102
8.7	End Power Transfer—EPT (0x02; power control)	103
8.8	Extended Identification—XID (0x81; status update)	105
8.9	FOD Status—FOD (0x22; simple query)	106
8.10	General Request—GRQ (0x07; data request)	108
8.11	Identification—ID (0x71; status update)	109
8.12	Power Control Hold-off—PCH (0x06; status update)	110
8.13	Proprietary—PROP (multiple headers; multiple types)	111
8.14	Received Power—RP8 (0x04; status update)	112
8.15	Received Power—RP (0x31; simple query)	113
8.16	Renegotiate—NEGO (0x09; simple query)	115
8.17	Signal Strength—SIG (0x01; status update)	116
8.18	Specific Request—SRQ (0x20; simple query)	117
8.19	Wireless Power ID—WPID (0x54, 0x55; simple query)	125
8.20	Reserved	126

9 Power Transmitter data packets 127

9.1	Auxiliary Data Control—ADC (0x25)	129
9.2	Auxiliary Data Transport—ADT (multiple header codes)	130
9.3	Data Not Available—NULL (0x00)	131
9.4	Power Transmitter Capabilities—CAP (0x31)	132
9.5	Power Transmitter Extended Capabilities—XCAP (0x32)	133
9.6	Power Transmitter Identification—ID (0x30)	134
9.7	Proprietary—PROP (multiple headers)	135
9.8	Reserved	136

1 General

The Wireless Power Consortium (WPC) is a worldwide organization that aims to develop and promote global standards for wireless power transfer in various application areas. A first application area comprises flat-surface devices such as mobile phones and chargers in the Baseline Power Profile (up to 5 W) and Extended Power Profile (above 5 W).

1.1 Structure of the Qi Specification

General documents

- Introduction
- Glossary, Acronyms, and Symbols

System description documents

- Mechanical, Thermal, and User Interface
- Power Delivery
- Communications Physical Layer
- Communications Protocol
- Foreign Object Detection
- NFC Tag Protection
- Authentication Protocol

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1.2 Scope

The *Qi Specification, Communications Protocol* (this document) defines the messaging between a Power Transmitter and a Power Receiver. The primary purpose of this messaging is to set up and control the power transfer. As a secondary purpose, it provides a transport mechanism for higher-level applications such as Authentication. The communications protocol comprises both the required order and timing relations of successive messages.

1.3 Compliance

All provisions in the *Qi Specification* are mandatory, unless specifically indicated as recommended, optional, note, example, or informative. Verbal expression of provisions in this Specification follow the rules provided in ISO/IEC Directives, Part 2.

Table 1: Verbal forms for expressions of provisions

Provision	Verbal form
requirement	“shall” or “shall not”
recommendation	“should” or “should not”
permission	“may” or “may not”
capability	“can” or “cannot”

1.4 References

[IEC 63563-6:2025](#)

<https://standards.iteh.ai/> For undated references, the most recently published document applies. The most recent WPC 63563-6-2025 publications can be downloaded from <http://www.wirelesspowerconsortium.com>.

1.5 Conventions

1.5.1 Notation of numbers

- Real numbers use the digits 0 to 9, a decimal point, and optionally an exponential part.
- Integer numbers in decimal notation use the digits 0 to 9.
- Integer numbers in hexadecimal notation use the hexadecimal digits 0 to 9 and A to F, and are prefixed by "0x" unless explicitly indicated otherwise.
- Single bit values use the words ZERO and ONE.

1.5.2 Tolerances

Unless indicated otherwise, all numeric values in the *Qi Specification* are exactly as specified and do not have any implied tolerance.

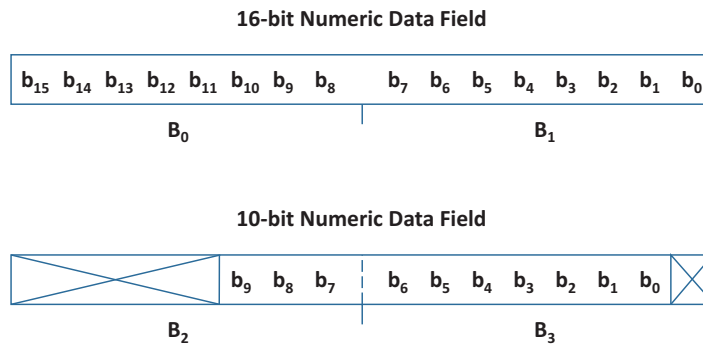
1.5.3 Fields in a data packet

A numeric value stored in a field of a data packet uses a big-endian format. Bits that are more significant are stored at a lower byte offset than bits that are less significant. Table 2 and Figure 1 provide examples of the interpretation of such fields.

Table 2: Example of fields in a data packet

	b ₇	b ₆	b ₅	b ₄	b ₃	b ₂	b ₁	b ₀	
B ₀	(msb) 16-bit Numeric Data Field (lsb)								
B ₁									
B ₂	Other Field					(msb)			
B ₃	10-bit Numeric Data Field						(lsb)		Field

Figure 1. Examples of fields in a data packet



1.5.4 Notation of text strings

Text strings consist of a sequence of printable ASCII characters (i.e. in the range of 0x20 to 0x7E) enclosed in double quotes ("). Text strings are stored in fields of data structures with the first character of the string at the lowest byte offset, and are padded with ASCII NUL (0x00) characters to the end of the field where necessary.

EXAMPLE: The text string "WPC" is stored in a six-byte field as the sequence of characters 'W', 'P', 'C', NUL, NUL, and NUL. The text string "M:4D3A" is stored in a six-byte field as the sequence 'M', ':', '4', 'D', '3', and 'A'.

1.5.5 Short-hand notation for data packets

In many instances, the *Qi Specification* refers to a data packet using the following shorthand notation:

<MNEMONIC>/<modifier>

In this notation, <MNEMONIC> refers to the data packet's mnemonic defined in the *Qi Specification, Communications Protocol*, and <modifier> refers to a particular value in a field of the data packet. The definitions of the data packets in the *Qi Specification, Communications Protocol*, list the meanings of the modifiers.

For example, EPT/cc refers to an End Power Transfer data packet having its End Power Transfer code field set to 0x01.

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1.6 Power Profiles

A Power Profile determines the level of compatibility between a Power Transmitter and a Power Receiver. Table 3 defines the available Power Profiles.

- *BPP PTx*: A Baseline Power Profile Power Transmitter.
- *EPP5 PTx*: An Extended Power Profile Power Transmitter having a restricted power transfer capability, i.e. $P_L^{(pot)} = 5 \text{ W}$.
- *EPP PTx*: An Extended Power Profile Power Transmitter.
- *BPP PRx*: A Baseline Power Profile Power Receiver.
- *EPP PRx*: An Extended Power Profile Power Receiver.

Table 3: Capabilities included in a Power Profile

Feature	BPP PTx	EPP5 PTx	EPP PTx	BPP PRx	EPP PRx
Ax or Bx design	Yes	Yes	No	N/A	N/A
MP-Ax or MP-Bx design	No	No	Yes	N/A	N/A
Baseline Protocol	Yes	Yes	Yes	Yes	Yes
Extended Protocol	No	Yes	Yes	No	Yes
Authentication	N/A	Optional	Yes	N/A	Optional

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