IEC 63563-1

Edition 1.0 2025-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Qi Specification version 2.0 – Part 1: Introduction

Spécification Qi version 2.0 – Partie 1 : Introduction

ICS 29.240.99, 35.240.99

ISBN 978-2-8327-0536-0

IEC 63563-1:2025-06(en-fr)

IEC Secretariat
3, rue de Varembé
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 It also gives information on projects, replaced and withdrawn publications.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.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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.

IEC Products & Services Portal - products.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

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.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

QI SPECIFICATION VERSION 2.0 –

Part 1: Introduction

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63563-1 has been prepared by technical area 15: Wireless Power Transfer, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

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

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

Draft	Report on voting
100/4247/FDIS	100/4274/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.

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.

WIRELESS POWER CONSORTIUM

Qi Specification

Introduction

Version 2.0

April 2023

DISCLAIMER

The information contained herein is believed to be accurate as of the date of publication, but is provided "as is" and may contain errors. The Wireless Power Consortium makes no warranty, express or implied, with respect to this document and its contents, including any warranty of title, ownership, merchantability, or fitness for a particular use or purpose. Neither the Wireless Power Consortium, nor any member of the Wireless Power Consortium will be liable for errors in this document or for any damages, including indirect or consequential, from use of or reliance on the accuracy of this document. For any further explanation of the contents of this document, or in case of any perceived inconsistency or ambiguity of interpretation, contact: info@wirelesspowerconsortium.com.

RELEASE HISTORY

Specification Version	Release Date	Description
2.0	April 2023	Initial release of the v2.0 Qi Specification.

Table of Contents

1 About the Wireless Power Consortium

The Wireless Power Consortium (WPC) is a worldwide organization that develops and promotes the global interface standard for wireless power transfer called *Qi*[1]. Interface standards ensure the interoperability of devices that conform to that standard. Supported by more than 600 companies and with thousands of certified products, Qi has become the international wireless-charging standard for hand-held consumer electronics.

This document introduces the *Qi Specification*, which applies to flat surface devices such as mobile phones and tablets that use up to 15 W of power.[2]

The WPC actively investigates new applications for wireless power transfer, such as a cordless kitchen solution that uses Power Transmitters installed underneath countertops and tables that enable a variety of kitchen appliances and smart cookware to operate without power cords.

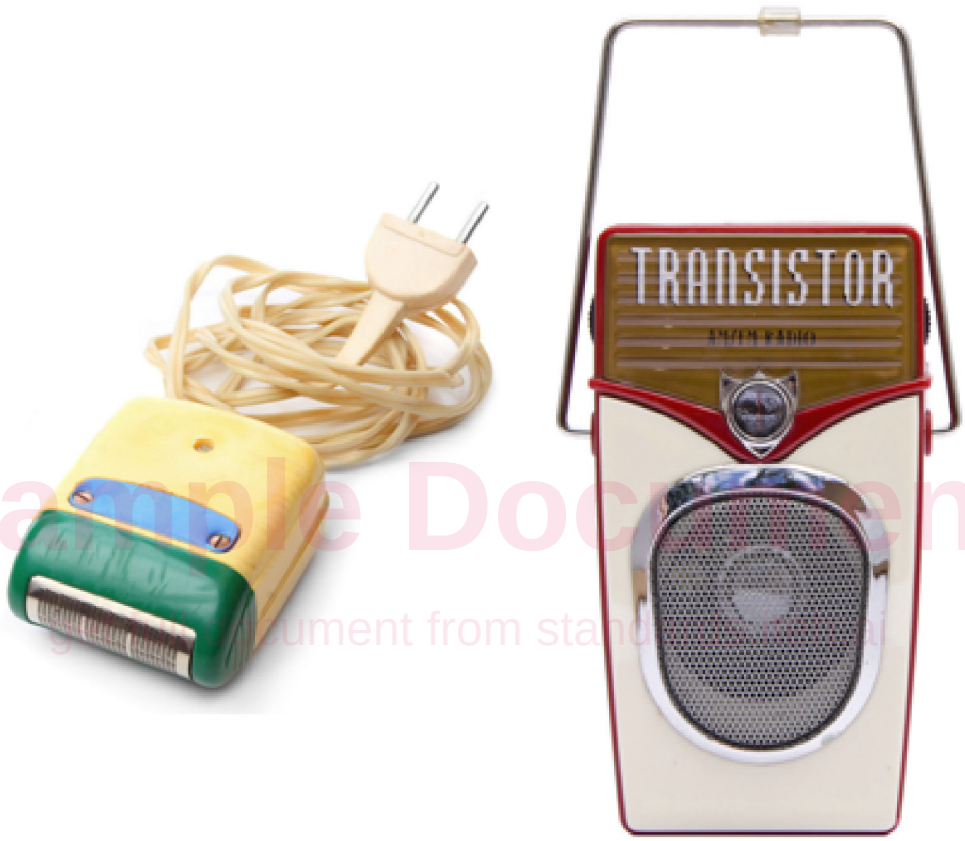
[1] Qi (氣 ; qì) is pronounced “chee,” and is the Chinese word for energy flow or life force.

[2] Version 1.2 of the *Qi Specification* introduced fast charging, which covers transmitter and receiver products that use up to 15 W of power. However, the architectural limit of the extended power profile is about 30 W, which will accommodate a growing family of Qi product designs.

2 What is the Qi wireless power transfer system?

The powering of hand-held devices is continuing to evolve. Originally, electrical devices had to be plugged directly into outlets, and the range of operation was limited by the length of the power cord. Next came disposable batteries that severed the power cord's range restriction.

Figure 1. Corded appliance (c. 1950) to battery-powered consumer electronics (c. 1955)

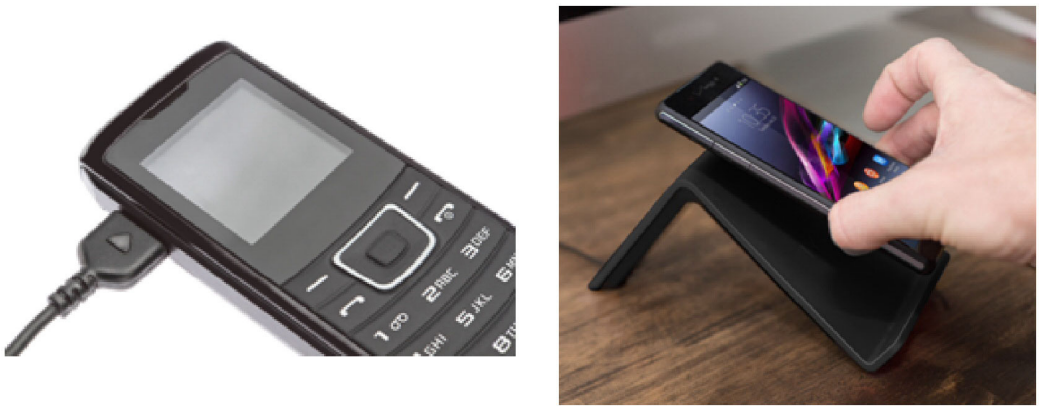


In recent years, rechargeable batteries have all but replaced disposable batteries, eliminating the need to purchase, store, and throw large quantities of these batteries into landfills. But for frequently-used devices—smartphones in particular—recharging became a daily ritual of plugging and unplugging charging cables.

A new era of convenience emerged in 2011 when the first Qi wireless smartphone case was introduced, followed shortly thereafter by smartphones with built-in Qi wireless support. Qi wireless devices need only to be set down on a Qi wireless charger for recharging to occur. The device remains unplugged and ready to be picked up and used at any moment. With the deployment of Qi chargers in cars, enterprises, and public locations, it becomes possible to no longer worry about running out of charge or carrying charger cables.

Figure 1 and Figure 2 show the evolution of corded power to wirelessly-charged portable devices.

Figure 2. Plug-in rechargeable mobile phones (c. 1999) to wirelessly-charged[1] smartphones (since 2012)



The adoption of the Qi standard has grown significantly since the first products were introduced. In a 2014 consumer survey conducted by IHS Inc., 36% of consumers in China, the UK, and the U.S. said they had heard of wireless charging. One year later that number doubled, reaching 76% consumer awareness. In 2015 more than 150 million Qi systems have been shipped, over 83% of smartphone users wanted wireless charging, and over 80 phone models around the world were Qi-enabled. From 2016 to 2018, the number of consumers who use wireless charging has grown from 10% to 40%, and awareness of the wireless power technology has increased to 89%.

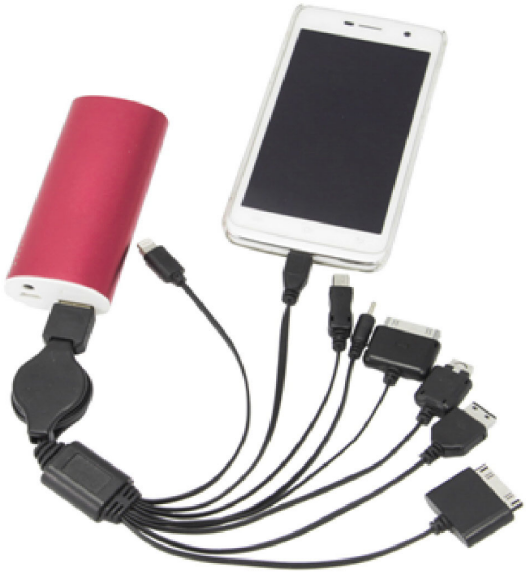
Qi wireless chargers are becoming more prevalent and are appearing in varied forms. There are three basic categories of chargers: desktop chargers, power banks, and embedded chargers. Desktop chargers may be in the form of a charging pad or stand, and power banks are similar but are designed for travel and contain batteries to provide power when it cannot be plugged into an outlet. Embedded chargers may be built into furniture, automobiles, other appliances like clock-radios or computer monitors, or provided in public locations like restaurants and hotel rooms. The largest demand for chargers is for home use, autos, and offices, but the deployment of public chargers has contributed significantly to public awareness.

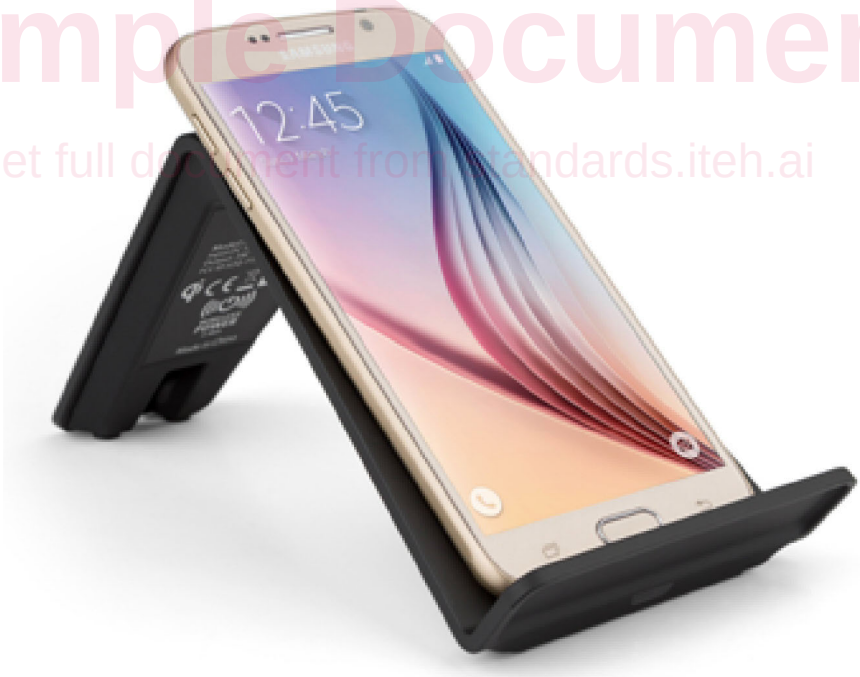
The continued growth of Qi wireless devices and chargers is also reducing the need for product-specific cables (see Figure 3). This simplifies charging for consumers and reduces the frequent failure of the device's charging connector. As wireless charging becomes ubiquitous throughout the consumer's journey, it will be possible to decrease the size of the battery, and with it, the size, weight, and cost of the device itself.

The Qi wireless power transfer system offers both a solution to the daily inconvenience of handling cables and adapters, as well as an opportunity for manufacturers to further distinguish their products in the marketplace.

[1] Photo of the TYLT Vu wireless charger (right) is reprinted by permission from Technocel.

Figure 3. Cable clutter can be replaced with Qi wireless charging





3 How Qi wireless power transfer works

3.1 Basic concepts

The Qi wireless power transfer system uses magnetic induction to transfer power from a Power Transmitter Product (charger) to a Power Receiver Product (smartphone).

Figure 1. A Qi wireless smartphone on a charging pad

Within these products are Power Transmitter (PTx) and Power Receiver (PRx) subsystems, which contain coils, as shown in the conceptual diagram in Figure 2, as well as circuitry that handles the communication and power transfer between them.

Figure 2. Coils in charger and smartphone