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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 40783.2-2022

**Information technology - Telecommunications and information
exchange between systems - Magnetic field area network(MFAN) - Part
2: In-band control protocol for wireless power transfer**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 2 of GB/T 40783 "Magnetic Domain Network for Remote Communication and Information Exchange between Information Technology Systems".

GB/T 40783 has released the following parts.

--- Part 1. Air interface;

--- Part 2. In-band wireless charging control protocol.

This document is equivalent to ISO /IEC 15149-2:2015 "Telecommunication and Information Exchange Magnetic Area Networks between Information Technology Systems Part 2"

Points. In-band Wireless Charging Control Protocol.

The following editorial changes have been made to this document.

--- Delete the abbreviations "CRC" "DRA" "GSRq" "GSRA" "SIFS" not mentioned in the ISO /IEC 15149-2:2015 text.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

GB/T 40783 provides the information communication protocol within the Magnetic Area Network (MFAN). MFAN supports wireless communication and complex environments

wireless energy transmission and other services. MFAN generally includes four parts of the protocol. air interface protocol, in-band control protocol, relay protocol and security

protocol. This document is proposed to consist of four parts.

--- Part 1. Air interface. The purpose is to establish the physical layer and media access control layer protocol suitable for low carrier frequency magnetic field environment air interface.

--- Part 2. In-band wireless charging control protocol. The purpose is to enable simultaneous wireless energy transmission and

In-band network systems for data transmission establish specific requirements.

--- Part 3. Extended range relay protocol. The purpose is to establish addressing, requesting, and responding to relay protocols in an extended range.

Code related rules should be used.

--- Part 4. Security authentication protocol. The purpose is to establish security for wireless sensor networks that operate reliably in special environments

Authentication protocol requirements.

Telecommunication and information exchange between information technology systems

Magnetic Domain Network Part 2. In-band Wireless Charging Control Protocol

1 Scope

This document specifies an in-band network system that can simultaneously perform wireless energy transmission and data transmission in the same frequency band.

The network and remote and continuous energy supply provide technical solutions.

The design of the network is based on the principles given in ISO /IEC 15149 Magnetic Domain Networks, in this way to achieve priority in equipment control

At the same time, wireless energy transmission management is performed for multiple devices in the request. This document focuses on the PHY layer and MAC layer protocols and does not involve

Matters related to upper-layer protocols. The PHY layer and the MAC layer jointly perform the following tasks. data transmission, signal control, wireless energy transmission.

This document is expected to perform well in the following use cases.

--- Mobile phones. provide a ubiquitous charging environment for portable devices;

--- Household appliances. There is no need to use wires and power plugs, and electrical appliances can be arranged without restriction.

The MAC layer protocol specified in this document is expected to perform well in the

following scenarios.

- Variable superframe structure for wireless energy transmission of multiple devices;
- Simple and effective network topology for efficient wireless energy transfer;
- Efficient time-sharing dynamic address allocation among multiple devices.

The PHY layer protocol specified in this document is expected to perform well in the following scenarios.

- a frequency band used for both wireless energy transfer and magnetic field communication;
- Low implementation cost and minimal error margin for convenient, robust modulation;
- Variable encoding and bandwidth for dynamic charging environments.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 40783.1-2021 Remote Communication and Information Exchange Magnetic Area Networks between Information Technology Systems Part 1.Air Interface

(ISO /IEC 15149-1.2014, MOD)

Note. There is no technical difference between the quoted content of GB/T 40783.1-2021 and the quoted content of ISO /IEC 15149-1.2014.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

Wireless charging

A method of continuously and simultaneously transferring energy to a single or multiple devices within a range without physical contact.