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

GB/T 42756.1-2023

**Cards and security devices for personal identification -
Contactless proximity objects - Part 1: Physical characteristics**

卡及身份识别安全设备 无触点接近式对象 第1部分:物理特性

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Foreword

This document was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 December 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 35.240.15, Chinese classification L70.

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

This document is part 1 of GB/T 42756 "Card and Identification Security Equipment Contactless Proximity Object". GB/T 42756

The following parts have been released.

- Part 1. Physical characteristics;
- Part 2. RF power and signal interface;
- Part 3. Initialization and anti-collision;
- Part 4. Transmission protocol.

This document is modified to adopt ISO /IEC 14443-1:2018 "Card and Identification Security Equipment Contactless Proximity Object Part 1

Subsection. Physical Properties".

The technical differences between this document and ISO /IEC 14443-1:2018 and their reasons are as follows.

a) Replaced ISO /IEC 7810, GB/T 14916-2022 and ISO /IEC 7810 with the normative referenced GB/T 14916.

The degree of consistency between the two documents in 2019 is revised to adapt to my country's technical conditions and improve operability;

b) Replaced ISO /IEC 15457-1, GB/T 28177.1-2011 and ISO /IEC 15457-1 with the normative referenced GB/T 28177.1.

In 2008, the degree of consistency between the two documents was revised to adapt to my country's technical conditions and improve operability;

c) Replaced ISO /IEC 14443.2-2016 with the normatively referenced GB/T 42756.2-2023, consistency between the two documents

The degree of stability is modified to adapt to the technical conditions of our country and improve operability.

The following editorial changes have been made to this document.

--- GB/T 17554.3 was added to the references, because GB/T 17554.3 was mentioned in the note of 4.2.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

This document is proposed and managed by the National Information Technology Standardization Technical Committee (SAC/TC28).

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Introduction

Contactless card standards include ISO /IEC 10536 (tightly coupled card), GB/T 42756 (proximity card) and GB/T 22351 (proximity card)

card) etc. Equipment complying with the above standard categories is intended for operation in close proximity, close proximity and long distance respectively from the associated coupling device.

GB/T 42756 "Card and Identity Recognition Security Equipment Contactless Proximity Object" stipulates that identification cards and identification cards in accordance with GB/T 14916

Comply with the technical requirements for flexible thin cards in GB/T 28177.1, and use these cards for information exchange. This technology provides standard card

Forms other than formats provide the possibility to approach type objects. Furthermore, it does not exclude the use of other technologies on the card, such as those in ref.

GB/T 42756 consists of four parts.

--- Part 1. Physical properties. The purpose is to specify the physical characteristics of proximity objects.

--- Part 2. RF power and signal interface. The purpose is to specify the Proximity Coupling Device (PCD) and the Proximity Card or Object

(PICC) provides the characteristics of the field of energy and two-way communication.

--- Part 3. Initialization and anti-collision. The purpose is to specify requirements for contactless proximity object initialization and anti-collision.

--- Part 4. Transmission protocol. The purpose is to establish a half-duplex block transfer protocol required for a contactless environment and to specify activation and deactivation

A step of.

Contactless proximity objects for card and identification security devices

Part 1. Physical Properties

1 Scope

GB/T 42756.1-2023 covers the physical side of a proximity card, the contactless card read at short range, as against the close-coupled and the long-range families dealt with in other standards. General requirements come first, then the antenna, then the additional requirements attached to the PICC categories, then the behaviour of the card in an alternating magnetic field, with a normative annex defining what counts as a PICC at all. Everything that makes such a card work is sealed inside a piece of plastic that lives in a wallet or a back pocket: the integrated circuit, and the coil running round the edge of the card that both powers it and carries its data. A card is bent, twisted, sat on and passed through the fields of readers it was never designed for, and a single broken antenna turn is invisible from the outside and indistinguishable from a dead chip. Fixing the physical characteristics is what allows a card from one maker to work on a reader from another, and allows a failure to be attributed to one of them. Used with the other parts of GB/T 42756 and with the card dimensions of GB/T 14916, it serves card and reader manufacturers, test houses and the issuers of identification and access credentials.

This document specifies the physical characteristics of a proximity card (PICC).

This document applies to the design, production, application and testing of proximity cards.

This document is used in conjunction with other parts of GB/T 42756.

2 Normative references

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

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 14916 Physical characteristics of identification cards (GB/T 14916-2022, ISO /IEC 7810.2019, MOD)

GB/T 28177.1 Identification card flexible thin card Part 1. Physical characteristics (GB/T 28177.1-2011, ISO /IEC 15457-1.

2008, MOD)

GB/T 42756.2-2023 Cards and identification security equipment Contactless proximity objects Part 2. Radio frequency power and signal

Interface (ISO /IEC 14443-2.2020, MOD)