

ICS 03.220.01
CCS A 00



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

GB/T 46141-2025

**Smart community infrastructures - Application guidance for
digitally processed payment in smart transportation**

智慧城市基础设施 智慧交通数字化应用支付指南

(English Translation)

Issued on: August 29, 2025

Implemented on: August 29, 2025

**Issued by: State Administration for Market Regulation, National
Standardization Administration**

Table of Contents

- Preface
- Introduction
- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Overview
 - 4.1 Smart Transportation Digital Payment
 - 4.2 Digital Payment Features
 - 4.3 Applicable users and application scenarios of digital payment
- 5 Digital Payment Security
 - 5.1 Digital Payment Security
 - 5.2 Payment Process Security
 - 5.3 Payment Wallet Security
 - 5.4 Privacy Information Security
- 6 Basic operations of digital payment
 - 6.1 User Digital Payment
 - 6.2 Institutional Digital Payment
- 7 Digital Payment Operation and Maintenance Management
 - 7.1 Supporting Infrastructure
 - 7.2 Data Exchange and Sharing
 - 7.3 Observation of Digital Payment Operation
- References

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 for standardization documents" Drafting.

This document is modified to adopt ISO 37165:2020 "Guidelines for smart transport using digitally processed payments for smart city infrastructure".

This document has the following structural adjustments compared to ISO 37165:2020.

--- Adjust 4.2 of ISO 37165:2020 to 5.1;

- Delete 4.3 of ISO 37165:2020;
- Adjust Chapter 5 of ISO 37165:2020 to 4.3, delete 5.1.3 and 5.2, and merge other clauses;
- Adjust Chapter 6 of ISO 37165:2020 to 4.2;
- Adjust Chapter 7 of ISO 37165:2020 to Chapter 5, and adjust 7.1 and 7.2 to 5.2 and 5.3;
- Adjust Chapter 8 of ISO 37165:2020 to Chapter 6 and split it into multiple sections, corresponding to 6.1, 6.1.1, 6.1.2, 6.2, 6.2.1, 6.2.2, 6.2.3;
- Adjust Chapter 9 of ISO 37165:2020 to Chapter 7, delete 9.1 and 9.2.1 under this chapter, add 7.2, and adjust Article number under this chapter;
- Adjust Chapter 10 of ISO 37165:2020 to 7.3 and merge the contents of this chapter.

The technical differences between this document and ISO 37165:2020 and their reasons are as follows.

a) Deleted the term "digital payment for smart transportation" in 3.1 of ISO 37165:2020. The standard already contains the term "digital payment".

the term;

b) Changed the overview of digital payment in "Digital Payment for Smart Transportation" to clarify the concept of digital payment and its role in smart transportation.

The ability of digital payment is explained (see 4.1) to meet the development of digital payment in my country and facilitate users to understand and Standards implementation;

c) Changed the feature description in "Digital Payment Features" (see 4.2), based on the technological development and practice of digital payment in my country Make inductions;

d) Changed the description of "Applicable Users and Application Scenarios for Digital Payment" (see 4.3), merged and simplified the subsections, and changed the original description.

The description is too complex and difficult for users to understand;

e) The title "Digital Payment Empowers Transportation" was changed to "Payment System Security", and the phrase "shall not be tampered with" was deleted from "Digital Payment Security".

Description of the transaction process that cannot be denied or repudiated and the transaction traceability (see 5.1);

f) Added a detailed description of the security of the digital payment process in "Payment Process Security" and added normative references.

GB/T 43245-2023 and GB/T 42420-2023 (see 5.2) are in line with the technological

development and implementation of digital payment in my country.

Practice, to facilitate users' understanding and standard implementation;

g) Deleted the specific description of the use of public key cryptographic algorithms in 7.2 of ISO 37165:2020 and replaced it with the description of application security management.

A brief description of transaction and data security and key system is provided, and the normative reference is made to GB/T 36625.3-2021.

Security technology (see 5.3) to comply with the technological development and practice of my country's digital security field and integrate with the existing smart city field.

The standards are connected with national standards in different fields, which is convenient for users to understand and implement the standards;

h) Increased privacy information security (see 5.4) to comply with my country's requirements for personal information protection;

i) Added "Digital Payment Wallet Acquisition and Activation" and "Digital Payment Wallet Activation" to "Digital Payment Basic Operations".

The details of "Digital Payment Wallet Recharge, Payment and Withdrawal" (see 6.1) are provided to make digital payment operations more accurate and specific.

It is consistent with the progress and current status of digital payment in my country, and is easy for users to understand and implement in a standardized manner;

j) Added "Payment System", "Transaction Processing" and "Fund Settlement" to "Basic Digital Payment Operations" for "Institutional Digital Payment" the details of the content (see 6.2) are to make digital payment operations more accurate and specific, in line with the progress and current status of digital payment in my country.

Facilitate users' understanding and implementation of standards, and improve the applicability of standards;

k) The description of mobile payment in Chapter 8 of ISO 37165:2020 has been deleted. my country's digital payment is no longer limited to mobile payment.

This payment method is no longer available, so the content description does not apply.

l) Changed the description of the "Service Management Module" (see 7.1.1) and refined the specific content to conform to the technological development of digital payment in my country.

and current status, to facilitate user understanding and standard implementation;

m) Changed the description of "Terminal Application Module" (see 7.1.5) and refined the specific content to conform to the technological development of digital payment in my country.

and current status, to facilitate user understanding and standard implementation;

n) Added the content of "Data Exchange and Sharing" and added the normative references GB/T 43245-2023 and GB/T 42420-2023 (see 7.2), to make Chapter 7 more complete and facilitate users to fully manage the digital support of smart transportation in the implementation of the standard.

Pay, improve the applicability of standards;

o) The title "Quality Maintenance" was changed to "Digital Payment Operation Observation", and the description of "Digital Payment Operation Observation" was changed, and the following was added.

The normative references GB/T 36749-2018 and ISO 37122:2019 (see 7.3) are incorporated, and the subsections are merged.

The following editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the standard will be changed to "Guidelines for Digital Payment Applications in Smart City Infrastructure and Smart Transportation";

---The title of Chapter 4 was changed from "Concept of Digital Payment for Smart Transportation" to "Overview";

---4.3 The title is changed from "Expectations for the use of digital payments in smart transportation" to "Applicable users and application scenarios of digital payments";

---7.1.2 The title is changed from "Big Data Analysis Center" to "Data Analysis Module" (see 7.1.2), and the title of 7.1.3 is changed from "Registration Center" to Changed to "Identity Registration Module" (see 7.1.3).

Introduction

Transportation and related services are an important part of users' daily life and business activities. When using these services, cash payment is usually Digital payment is a method of paying fees through an account or digital currency.

Using digital payment can not only improve the convenience of users in enjoying smart transportation services, but also reduce the operator's burden of handling large amounts of cash and fee collection failures.

resulting in economic losses.

Due to the large number of users of transportation and related services, the total amount of fees charged by operators is huge. Therefore, the security of digital payment applications is the security requirements are very high, and it is necessary to ensure user payments, operator charges and management, and transfer transactions between operators and