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

GB/T 20907-2024

Replacing GB/T 20907-2007

**Technical specification for the automatic fare collection system
of urban rail transit**

城市轨道交通自动售检票系统技术条件

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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 for standardization documents" Drafting is required. This document replaces GB/T 20907-2007 "Technical Requirements for Automatic Ticketing and Checking Systems for Urban Rail Transit" and is compatible with GB/T 20907- Compared with.2007, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) Added the terms "Internet ticketing platform", "line network center system", "ticket", "biometric credential", and "self-service ticketing terminal" "Portable ticket verification machine", "reader/writer", "key", "QR code scanner" and their definitions (see Chapter 3,.2007 Edition) Chapter 3);
- b) the term "ticket checking machine" is changed to "automatic ticket checking machine" (see 3.14, 3.8 of the.2007 edition);
- c) Added content such as system functions, standardization, internal and external interfaces, and new technology applications (see 5.1, 5.6, 5.7, and 5.13);
- d) Change "system structure diagram" to "business logic architecture diagram" (see 6.1, 4.2 of the.2007 edition);
- e) Added requirements for different network architectures for system convergence settings (see 6.2);
- f) Changed "ticket" to "boarding voucher" (see Chapter 7, Chapter 5 of the.2007 edition), and added the classification of boarding vouchers (see 7.1);

- g) Added application file requirements for financial IC cards, QR code tickets, and NFC cards (see 7.5.5, 7.5.6, 7.5.7, and 7.5.8);
- h) Changed the working environment requirements for terminal equipment (see 8.2.3, 6.2.3 of the 2007 edition);
- i) Changed the requirements for the interval time for uploading file data of terminal equipment [see

1 Scope

China's national technical specification for the automatic fare collection system of an urban rail network. It specifies the system architecture, the functional and performance requirements, the equipment requirements, the interfaces, the security and the test and acceptance requirements for the AFC system of urban rail transit. An AFC system is the part of a metro that every passenger touches and the part that is hardest to change once built. It is a five-level architecture - the media in the passenger's hand, the station equipment, the station computer, the line centre and the network clearing centre - and each level has to work when the ones above it are unreachable, because a gate that stops opening when the network link drops closes a station. That requirement for graceful degradation shapes the whole design and is one of the things the specification has to state rather than leave to a supplier. The second is interoperability. A network built over decades has lines from different suppliers and generations, and a passenger's ticket has to work on all of them, which means the data structures on the media, the fare rules and the clearing messages have to be common even where the equipment is not. The third is throughput: a gate must process a passenger in a fraction of a second at rush hour, and the performance requirements are stated in those terms rather than as capabilities. And the fourth is security, since the system handles stored value and its transactions settle money between operators. The specification covers all four, together with the equipment requirements for gates, ticket machines and readers, the interfaces between levels, and the testing and acceptance by which a system is proved before it opens. Issued on 29 September 2024 and in force since 1 April 2025, it replaces GB/T 20907-2007.

51. Readiness Quality requirements and test specifications for RUSP GB/T 28210 Thermal paper

12. Contactless IC Card Payment Specification JT/T 978.2 Technical Specifications for Urban Public Transport IC Cards Part

2. Cards JT/T 1179 Transportation Card QR Code Payment Technical Specification ISO / IEC 14443-

2 Contactless proximity of objects for personal identification cards and security devices Part

2. Radio frequency power and signal interface (Cards and security devices for personal

identification-Contactless proximity objects-Part

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2828.1 Sampling procedures for inspection by attributes Part

GB/T 18284 Quick Response Matrix Code

GB/T 22239 Information security technology Network security level protection basic requirements

GB/T 22240 Information security technology - Guidelines for classification of network security protection levels

GB/T 25000.51 Systems and Software Engineering System and Software Quality Requirements and Evaluation (SQuaRE) Part

GB/T 38674 Information security technology application software security programming guide

GB/T 40660 Information security technology Basic requirements for biometric identification information protection CJ/T 166 Technical requirements for the application of integrated circuit (IC) cards in the construction industry CJJ/T 162 Technical Specification for Testing of Automatic Ticketing and Checking Systems for Urban Rail Transit JR/T 0025.12 China Financial Integrated Circuit (IC) Card Specification Part