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

GB/T 42442.1-2023

Smart city - Smart parking - Part 1: General requirements

智慧城市 智慧停车 第1部分：总体要求

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Foreword

This document was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 October 2023.

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

1 Scope

GB/T 42442.1-2023 sets the overall architecture for smart parking in a city, as the first part of GB/T 42442. Clause 5 establishes that architecture and clauses 6 to 9 work up through its layers: Internet of Things perception, described in the text as unified sensing and intelligent edge processing that supplies data collection and control; network communications, treated as the networks connecting equipment to each other and to the platform; computing storage; and data support. Clause 10 covers application services and divides them by who is served - public services, operation services and regulatory services. That division is the one that matters, because the driver hunting a space, the operator billing for it and the authority policing kerbside rules all read the same occupancy data for different ends, and a platform built around only one of them cannot serve the other two. Clause 11 sets security requirements and refers to GB/T 22239-2019 and GB/T

40645-2021, while clause 4 lists the abbreviations used. Written for city transport authorities, parking operators, and vendors building parking platforms and roadside sensing equipment.

This document establishes the overall architecture of smart parking, and specifies the basic requirements for Internet of Things perception, network communication, computing storage, data support, application services and security, etc.

This document is applicable to the planning, design, construction, operation and maintenance of smart parking.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 20851 (all parts) Electronic Toll Collection - Dedicated Short Range Communication

GB/T 22239-2019 Information Security Technology - Baseline for Classified Protection of Cybersecurity

GB/T 34678-2017 Smart City - Technical Reference Model

GB/T 35070 (all parts) Parking Electronic Toll Collection

GB/T 35273-2020 Information Security Technology - Personal Information Security Specification

GB/T 40645-2021 Information Security Technology - General Requirements for Security of Internet Information Services

YD/T 3400-2018 General Technical Requirements of LTE-based Vehicular Communication

YD/T 3922-2021 Technical Requirements for User Equipment of LTE Digital Cellular Mobile Telecommunication Network (Phase 4)

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 smart parking

Smart parking is a smart application that utilizes information and communication technology

to realize the monitoring, management and service of urban parking resources, and improves

the utilization rate of urban parking resources, parking management efficiency and parking service quality.

3.2 parking lot

Parking lot refers to the site, as well as aboveground and underground structures for motor vehicle parking. Generally speaking, it is composed of entrances and exits, parking spaces, passages and ancillary facilities.

NOTE: the parking lot referred to in this document includes on-street parking spaces and urban

public parking lots. Among them, urban public parking lot refers to the independently occupied parking lot for public services located outside the red line of the road and the not independently occupied parking lot for public services built by constructions.

[source: GB/T 51149-2016, 2.0.1, modified]

3.3 parking space

Parking space refers to the space of parking divided for vehicle parking or the part of mechanical parking equipment for vehicle parking. It consists of the dimensions of the vehicle

itself plus the necessary space around it.

[source: GB/T 51149-2016, 2.0.2]

3.4 on-street parking space

On-street parking space refers to the parking space designated for the parking of motor vehicles

within the red line of the road.

[source: GB/T 51149-2016, 2.0.7]

3.5 parking guidance

Parking guidance refers to a function that utilizes electronic display screens and mobile terminals, etc. as information carriers to implement real-time release of information such as parking lot orientation and number of parking spaces to guide vehicles to choose a parking lot.

[source: GB/T 27545-2011, 3.1]

3.6 smart parking platform

Smart parking platform refers to an information system that realizes the integration and opening

of smart parking data and business, and provides users with the access, management, sharing

and exchange, and application support services of parking data for the demands of public services, operation services and regulatory services, etc.

b) Network communication: this part provides reliable network communication service support and guarantee for the Internet of Things perception equipment, parking lot communication equipment, smart parking platform and among vehicles through wired communication network and wireless communication network;

c) Computing storage: this part provides basic computing and storage support and guarantee for smart parking application services through relevant computing resources, storage resources and software resources;

d) Data support: this part provides data source support and guarantee for smart parking application services through relevant data collection, processing and storage, management, sharing and exchange;

e) Application services: this part provides urban parking smart services for the public, parking operating organizations and government supervision departments, and supports the realization of convenient public services, refined operation services and standardized regulatory services;

f) Security: this part provides guarantee capabilities in terms of equipment security, network communication security, data security and application service security for