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Technical requirements and test methods for roadside intelligent cooperative control devices in cooperative vehicle-infrastructure systems

车路协同系统智能路侧协同控制设备技术要求和测试方法

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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. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Technical Committee for Standardization of Intelligent Transport Systems (SAC/TC 268). This document was drafted by: Highway Research Institute of the Ministry of Transport, Shenzhen Chenggu Technology Co., Ltd., Jiangsu Leike Defense Technology Co., Ltd. Ltd., China Academy of Telecommunications Science and Technology Co., Ltd., Beijing Sutong Technology Co., Ltd., Shandong Hi-Speed Group Co., Ltd., Sichuan Digital Communications Tong Technology Co., Ltd., Beijing Xingyun Internet Technology Co., Ltd., Beijing Baidu Zhixing Technology Co., Ltd., and Beijing University of Aeronautics and Astronautics. The main drafters of this document are. Cen Yanqing, Song Xianghui, Zhao Jiahai, Liu Nan, Yang Fengman, Lu Liyang, Zhang Hongbin, Yang Tian, You Xin, Mao Dong, Tang Yong, Zhang Wei, Wang Yizhi, Zhang Beihai, Fang Jiayi, Liu Weiwei, Chen Ken, Wang Fuhai, Nie Yuren, Hou Dezao, Zhou Wei, Zhu Xiaotian, Zhang Zhuomin, Li Honghai, Wang Dongzhu, Sun Ling, Li Yameng, Zhang Jiancang, Yu Haiyang, Zhang Hailin, Zhou Bin. Intelligent roadside cooperative control equipment for vehicle-road cooperative system Technical requirements and test methods

1 Scope

GB/T 44417-2024 sets the technical requirements and test methods for the roadside intelligent cooperative control device in a Chinese cooperative vehicle-infrastructure system. China has taken the infrastructure-heavy road to automated driving rather than the vehicle-only one: rather than expecting every car to perceive everything itself, the roadside

is instrumented and broadcasts what it sees to the vehicles around it. The device this standard specifies is the box at the roadside that does that, and it has to fuse the sensors, control the local signals, talk to the vehicles over the V2X link and to the cloud platform above it, and do all of that in a cabinet on a pole in the weather. The document sets the entity relationships and the device architecture, the application service functions, the basic, management and security functions, the interface requirements in full, the performance requirements, the electrical and environmental adaptability requirements, and the test methods. For a roadside unit maker, a road authority or an integrator working on Chinese smart road projects, this is the specification.

This document specifies the entity relationship and equipment architecture, application service functions, basic Functions, management functions, security functions, interface requirements, performance requirements, electrical and environmental adaptability requirements and test methods. This document applies to the design, production, use and testing of intelligent roadside cooperative control equipment in vehicle-road cooperative systems.

2 Road traffic signs

GB/T 6461 Rating of samples and test pieces after corrosion tests on metal and other inorganic coatings on metal substrates

GB/T 10125 Artificial atmosphere corrosion test Salt spray test

GB/T 17626.2 Electromagnetic compatibility test and measurement technology Electrostatic discharge immunity test

GB/T 17626.4-2018 Electromagnetic compatibility test and measurement technology Electrical fast transient pulse group immunity test

GB/T 17626.5-2019 Electromagnetic compatibility test and measurement technology surge (impact) immunity test

GB/T 17626.11-2023 Electromagnetic compatibility test and measurement technology Part

11.For each phase input current less than or equal to 16 A equipment immunity test for voltage dips, short interruptions and voltage variations

GB/T 20851 (all parts) Short-range communications for electronic toll collection

GB/T 29100 Classification and coding of traffic events for road traffic information services GA

36 Motor vehicle license plate of the People's Republic of China GA/T 543.9-2016 Public Security Data Element (9) GA/T 1743 Road traffic signal controller information release interface specification JT/T 489 Vehicle Type Classification for Toll Road Vehicle Tolls QB/T 4054 Time Synchronization System