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

GB/T 44850-2024

**Driving safety test items and methods for intelligent and
connected vehicles**

智能网联汽车运行安全测试项目和方法

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1 Scope

GB/T 44850-2024 sets the driving safety test items and methods for intelligent and connected vehicles, and at 42,000 words it is the largest of the Chinese automated driving test standards. It is the document that turns the requirements of the other standards into something a vehicle can be put through: the catalogue of scenarios an intelligent vehicle has to be shown to handle before it goes on the road. The standard sets out the test conditions and the test site requirements, the instrumentation and the reference measurement, and then the test items themselves, grouped by the situation they represent, following a lead vehicle and responding to its braking, cut-in and cut-out, stationary and slow-moving obstacles, pedestrians and cyclists crossing and emerging from occlusion, lane keeping and lane change, junctions and turning across traffic, traffic signals and signs, and the degraded conditions of poor weather, poor markings and sensor blockage, with for each the procedure, the parameters varied and the pass criteria. For a carmaker, a test centre or a regulator in China, this is the examination paper.

This document describes the corresponding test methods for the driving safety test of intelligent connected vehicles. This document applies to the driving safety test of intelligent connected vehicles with Level 3 driving automation (conditional automated driving) and above as specified in GB/T 40429, including intelligent connected passenger cars, buses, trucks and special- purpose vehicles. Other vehicles with automated driving function shall refer to this guideline.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest

version (including all amendments) is applicable to this document.

GB 5768 (all parts), Road traffic signs and markings

GB 14886, Specifications for road traffic signal setting and installation

GB 14887, Road traffic signal lamps

GB 19151, Warning triangles for motor vehicle

GB/T 24720, Traffic cones GB/T 24973, Toll barrier

GB/T 28650, Road safety barrel

GB/T 43766, Technical requirements for driving safety test for intelligent and connected vehicles

GB/T 43758.1, Technical specifications for driving safety test environment for intelligent and connected vehicles - Part

3 Terms and definitions

For the purpose of this document, the following terms and definitions, as well as those given in GB/T 43766 and GB/T 43758.1, apply.

3.1 driving safety test Activity of evaluating the basic driving capability, safe and courteous driving capability, and emergency evasive capability of intelligent connected vehicles using methods such as field test, road test, and simulation test.

3.2 target vehicle; TV Passenger cars, simulators, and other equipment used in conjunction with vehicle under test to complete testing.

3.3 design operational condition A general term of the collective conditions determined during the design of the automated driving system that are suitable for its functional operation. Note

1.The operational conditions for the automated driving system include the operational design domain, vehicle status, driver and passenger status, and other necessary conditions. Note

2.The operational design domain refers to the external environmental conditions suitable for its functional operation that are determined during the design of the automated driving system. Typical external environmental conditions include roads, traffic, weather, and lighting. [Source: GB/T 40429-2021, 2.12, modified]

4 Test items

4.1 The test items for basic driving capability, safe and courteous driving capability, and emergency evasive driving capability of the driving safety test of intelligent connected

vehicles are shown in Table 1, Table 2, and Table 3, respectively.

4.2 During the tests, the corresponding test sub-items should be selected according to the design operational conditions of the vehicle under test.

5.1.1 Vehicle under test

5.1.1.1 The vehicle under test shall be in good condition and shall not have any fault information related to driving safety.

5.1.1.2 During the test, the vehicle under test shall not have its software or hardware replaced or upgraded.

5.1.2 Test equipment and target objects

5.1.2.1 Data collection records shall include the following content.

- b) Motion state parameters. 1) Vehicle longitudinal speed; 2) Vehicle lateral speed; 3) Vehicle longitudinal acceleration; 4) Vehicle lateral acceleration; 5) Vehicle yaw angle.
- c) Vehicle location coordinates (latitude and longitude).
- d) Vehicle driving mode.
- e) Control parameters. 1) Vehicle gear position; 2) Vehicle brake pedal/brake controller status; 3) Vehicle accelerator pedal/throttle controller status; 4) Vehicle steering wheel angle/torque.
- f) Lighting status parameters. 1) Vehicle turn signal status; 2) Vehicle warning light status.
- g) Surrounding perception information.

5.1.2.2 The test equipment shall meet the following requirements.

- a) The speed control accuracy of the target vehicle shall be equal to or better than ± 2 km/h;
- b) The speed acquisition accuracy shall be equal to or better than ± 0.1 km/h;
- c) The lateral and longitudinal position acquisition accuracy shall be equal to or better than ± 0.03 m;
- d) The acceleration acquisition accuracy shall be equal to or better than $\pm$