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

GB/T 25021-2026

Replacing GB/T 25021-2010

**Railway heavy-duty maintenance machinery - Track inspection
cars**

铁路大型养路机械 轨道检查车

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 25021-2010 "Railway Inspection Vehicle". Compared with GB/T 25021-2010, the main differences are structural adjustments and editorial changes. Aside from the modifications, the main technical changes are as follows:

- a) The application conditions have been increased (see 4.2);
- b) Increased requirements for power supply harmonic content (see 6.2.3);
- c) Increased the protection level requirements for external equipment of the detection system (see 7.1.3);
- d) Increased wiring requirements for the detection system (see 7.1.4);
- e) The requirements for continuous normal operation of the on-board detection system have been changed (see 7.1.5, 10.3.3 in the 2010 version);
- f) The requirements for uninterruptible power supply equipment have been changed (see 7.1.6, 4.3.3 of the 2010 version);
- g) The technical specifications for track geometry inspection have been changed (see Table 1, 2010 version);
- h) Added positioning synchronization requirements (see 7.3);
- i) The rail profile requirements have been changed (see 7.4, Chapter 7 of the 2010 edition);
- j) The requirement for the rail corrugated wear measurement subsystem has been removed (see Chapter 8 of the 2010 edition);

1 Scope

GB/T 25021-2026 is the Chinese national standard covering the track recording car - the vehicle that measures gauge, alignment, level, twist and rail profile at line speed, and whose output decides where the maintenance machines will work that night. It replaces GB/T 25021-2010 and has been in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, replacing GB/T 25021-2010. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the

document itself, delivered in full with the English translation.

This document specifies the composition and operating conditions of the track inspection vehicle, vehicle requirements, interface device requirements, on-board testing system requirements, and testing methods. Laws and inspection rules. This document applies to track inspection vehicles for newly constructed standard gauge railways with a design speed of 200 km/h or less. Non-standard gauge railways... The same applies to road-mounted track inspection vehicles.

4 Composition and Application Conditions

4.1 Composition The track inspection vehicle consists of a vehicle, an interface device, and an on-board detection system.

- a) The vehicle is the carrier of the on-board detection system and should be a standard railway passenger car.
- b) Interface devices are the associated or shared parts between the vehicle and the on-board detection system equipment, including mechanical interface devices and electrical interface devices. Mechanical interface devices include the connection structure for equipment such as detection beams, sensors, external antennas, and detection cabinets; electrical interface devices refer to... The power supply device provided by the vehicle to the on-board detection system.
- c) The on-board detection system should have synchronous detection functions for track geometry and positioning, and configuration can also be selected according to application scenarios and user needs. It has detection functions such as rail profile and environmental monitoring.

4.2 Application Conditions The environmental conditions, track conditions, and power supply conditions for the operation of track inspection vehicles should meet the relevant requirements of the corresponding type of vehicles.

5 Vehicle Requirements

5.1 Vehicle requirements shall comply with the provisions of GB/T 12817.

5.2 After the interface device and detection system equipment are installed, the vehicle clearance shall comply with the provisions of GB 146.1.

5.3 After the interface device and testing system equipment are installed, the electromagnetic compatibility of the vehicle shall comply with the provisions of GB/T 24338.3.

5.4 Vehicles shall be equipped with work areas and living areas, and the flame retardant requirements for non-metallic materials inside shall comply with the provisions of TB/T

3138.

5.5 The interior design of work and living areas should meet environmental protection and human health requirements, and the limits for indoor volatile organic compounds should comply with regulations. The provisions of TB/T 3139.

6.1 Mechanical interface device

6.1.1 The strength design shall comply with the relevant provisions of TB/T 3548.

6.1.2 The test beam should have functions such as vibration reduction and height adjustment.

6.1.3 External mechanical interface devices and their installation should adopt an anti-loosening design.

6.2 Electrical interface device

6.2.1 The power supply provided by the vehicle to the detection system should be AC220V±AC22V or AC380V±AC38V, with a frequency of 50Hz or 60Hz.

6.2.2 The power supply capacity shall be configured according to the power requirements of the vehicle-mounted detection system and shall be greater than the total rated power of the vehicle-mounted detection system.

6.2.3 The power supply device shall take electrical isolation and voltage stabilization measures, and the power supply harmonic content shall be less than or equal to 5%.

7.1 Basic Requirements

7.1.1 The shock and vibration performance of the equipment shall comply with the provisions of GB/T 21563.

7.1.2 The electromagnetic compatibility performance of the equipment shall comply with the requirements of GB/T 24338.4.

7.1.3 The protection level of external equipment should not be lower than IP65.

7.1.4 The cabling shall comply with the provisions of GB/T 34571.

7.1.5 It should meet the requirement of continuous normal operation for 4000km or 48h.

7.1.6 An uninterruptible power supply (UPS) shall be installed to provide emergency power for the vehicle-mounted detection system for a normal working time of not less than 30 minutes.

7.1.7 It should have bidirectional detection capabilities to collect and process data in real time.