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

GB/T 25340-2010

**Technical specification for automatic equipment identification
of railway rolling stock**

铁路机车车辆自动识别设备技术条件

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Composition and functions of the automatic identification equipment
 - 3.1 Basic composition
 - 3.2 Basic functions of the tag
 - 3.3 Basic functions of the ground automatic identification equipment (AEI)
 - 3.4 Basic functions of the tag programming equipment
 - 3.4.1 Locomotive tag programmer
 - 3.4.2 Vehicle tag programming equipment
 - 3.5 Basic functions of the equipment for centralised management, monitoring and repeating of data
- 4 Technical requirements
- 5 Installation requirements
- 6 Inspection

Foreword

GB/T 25340-2010 was issued on 10 November 2010 by the General Administration of Quality Supervision, Inspection and Quarantine and the Standardization Administration of the People's Republic of China, and has been in force since 1 May 2011.

The document is a recommended national standard: the /T in the designation marks it as recommended rather than compulsory.

1 Scope

China's national technical specification for the automatic equipment identification of railway rolling stock. Every wagon and locomotive on the Chinese network carries a passive tag under the vehicle body, and trackside readers record it as the vehicle passes - which is how a freight railway of several hundred thousand wagons knows where its assets are. Without it a wagon's location is known only when someone writes it down, and the historic reality of freight railways everywhere was that a substantial share of the fleet was effectively lost at any moment. The requirements are shaped by an unforgiving environment: the tag must be read reliably at line speed, in rain and snow, on a vehicle covered in brake dust, with no power of its own, for the twenty or thirty years the vehicle lasts. The standard specifies the technical and installation requirements for the equipment - the ground readers, the tags and

the on-board programmers - and applies to their design, manufacture and inspection.

This standard specifies the technical requirements and the installation requirements for the automatic identification equipment of railway locomotives and rolling stock, including the ground automatic identification equipment, the tags and the on-board programmers.

This standard applies to the design, manufacture and inspection of automatic identification equipment for railway locomotives and rolling stock.

2 Normative references

The following documents contain provisions which, through reference in this standard, constitute provisions of this standard. For dated references, subsequent amendments (excluding corrections) or revisions do not apply; however, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions. For undated references, the latest edition applies.

GB 146.1 Standard gauge railway rolling stock gauge

GB 146.2 Standard gauge railway structure gauge

GB 9254 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

GB/T 17618-1998 Limits and methods of measurement of immunity of information technology equipment

GB/T 17626.1, GB/T 17626.2, GB/T 17626.3, GB/T 17626.4, GB/T 17626.5, GB/T 17626.6, GB/T 17626.8, GB/T 17626.9 and GB/T 17626.11 Electromagnetic compatibility - Testing and measurement techniques

GB 50057-1994 Design code for protection of structures against lightning

GJB 150.16-1998 Environmental test methods for military equipment - Vibration test

GJB 150.18-1998 Environmental test methods for military equipment - Shock test

TB/T 1736-1996 Rules for the model and number coding of diesel and electric locomotives

TB/T 2435-1993 Coding of type, model and number of railway freight cars

TB/T 3021 Railway locomotive and rolling stock electronic equipment

YD/T 944-2007 Technical requirements and test methods for lightning protection of telecommunication power equipment

3.1 Basic composition

The automatic identification equipment for locomotives and rolling stock shall consist of the following basic parts: a) the tag fitted to the underside of the locomotive or vehicle body; b)

the automatic identification equipment installed at the trackside; c) the tag programming equipment; d) the equipment for the centralised management, monitoring and repeating of the data.

3.2 Basic functions of the tag

The tag shall have the following basic functions: a) when a locomotive or vehicle fitted with a tag passes the ground automatic identification equipment, the tag information can be identified by microwave backscatter modulation; b) it stores the identification information of the locomotive or vehicle; c) the coding of the tag data is suited to transmission to the ground automatic identification equipment; d) the tag can be entered by the user with an alternative code.

3.3 Basic functions of the ground automatic identification equipment (AEI)

The ground automatic identification equipment shall have the following basic functions: a) automatic identification of the tags of locomotives and vehicles; b) automatic determination of the position within the train of identified and unidentified locomotives or vehicles; c) automatic identification of the train number; d) automatic acquisition of the running speed of the train; e) automatic axle counting, detecting the total number of vehicles behind the locomotive in each passing train; f) automatic identification of the type and number of locomotives; g) automatic distinction between passenger vehicles, freight vehicles and multiple units; h) automatic identification of the mounting position of the tag; i) on-line detection of the equipment status; j) remote maintenance; k) uploading of ground information to the locomotive tag.

3.4.1 Locomotive tag programmer

The locomotive tag programmer shall have the following functions: a) a portable locomotive tag programmer shall be able to write and read back for verification the fixed information of the locomotive tag; b) an on-board locomotive tag programmer shall be able to write the dynamic locomotive tag information into the locomotive tag through a cable connected to it.

3.4.2 Vehicle tag programming equipment

The vehicle tag programming equipment shall have the following functions: a) it shall be able to write and read back for verification the information of the vehicle tag; b) the vehicle tag programming shall be carried out using the vehicle number programming network.

3.5 Basic functions of the equipment for centralised management, monitoring and repeating of data

3.5.1 The centralised data management equipment (CPS) shall carry out real-time communication management of the AEI equipment, receive the train information messages,

store, analyse and process the message data, and at the same time forward the vehicle number information to the management, monitoring and repeating equipment.

3.5.2 The AEI monitoring equipment shall carry out real-time monitoring of the operating condition of the AEI equipment under its control and display the equipment status in real time.

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