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

GB/T 46414-2025

**Test methods for straightline braking stability of commercial
vehicles**

商用车直线制动稳定性试验方法

(English Translation)

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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 is modified to adopt ISO 16552:2014 "Straight-line braking stopping distance for heavy commercial vehicles and buses with ABS".

Loop and closed-loop test methods.

This document has undergone significant structural adjustments compared to ISO 16552:2014. A comparison of the structural numbering changes between the two documents is provided below.

See Appendix A for the table.

The technical differences between this document and ISO 16552:2014, and the reasons therefor, are as follows.

---ISO 3833 has been replaced by GB/T 15089, and ISO 8855 has been replaced by GB/T 12549, which are normative references, and normative standards have been added.

The reference document GB/T 5620 (see Chapter 3) is used to adapt to my country's

technical conditions and increase operability;

---ISO 15037-2:2002 (see Chapter 3, 5.1, 5.4.1, 5.4.2, 5.4.4) has been replaced by the normatively referenced GB/T 40499.

(6.1, 6.3, 6.4.2, 6.4.3) to adapt to my country's technological conditions and increase operability;

---The terms "fully exerted average deceleration" and "fully exerted braking distance" and their definitions have been added (see 3.2 and 3.3);

---The terms "brake actuation time" and "braking distance between two speeds" and their definitions have been removed (see 3.1 and 3.4 of ISO 16552);

---The symbols in formulas (1) to (7) have been changed;

---The requirements for road ramps have been changed (see 5.2) to align with GB 12676-2104;

---ISO 8349 (see 5.2) has been replaced with the normatively referenced GB/T 26987 to adapt to my country's technical conditions and increase operability.

Actual nature;

---Added wind speed requirements (see 5.3), consistent with GB 12676-2104;

---Note (see 7.4.2 of ISO 16552:2014) has been changed to the main text (see 5.4.2) to clarify the applicability of the technical requirements;

---The normative reference document QC/T 556 (see 6.3) has been added to adapt to my country's technical conditions and increase operability;

---Requirements for steering wheel angle and longitudinal acceleration have been added (see Table 1) to standardize measurement requirements.

The following editorial changes have been made to this document.

---The standard name has been changed to "Test Method for Straight-Line Braking Stability of Commercial Vehicles".

---The calibration content has been removed (see Annex C of ISO 16552:2014). Previously, calibration was required when using optical sensors; now it is not.

GPS or base station equipment no longer requires calibration.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC114).

1 Scope

This document specifies the measurement distance and braking force during full braking in straight-line driving conditions for commercial vehicles equipped with anti-lock braking systems (ABS).

Stability testing methods.

This document applies to vehicles of categories M3, N2, N3, O3, and O4 as specified in GB/T 15089.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 5620 Road Vehicles - Motor Vehicles and Trailers - Braking - Terminology and Definitions (GB/T 5620-2020, ISO 611.

2003, IDT)

GB/T 12549 Terminology and Definitions for Vehicle Handling Stability GB/T 15089 Classification of Motor Vehicles and Trailers GB/T 26987 Determination of road vehicle pavement friction characteristics (GB/T 26987-2011, ISO 8349:2002, IDT) GB/T 40499-2021 General conditions for testing the handling stability of heavy-duty vehicles (ISO 15037-2:2002, MOD) QC/T 556 Automotive Brake Temperature Measurement and Thermocouple Installation

3 Terms and Definitions

The terms and definitions defined in GB/T 15089, GB/T 5620, GB/T 12549, and GB/T 40499, as well as the following terms and definitions, apply to this document.

Braking distance

The distance the vehicle travels during the total braking time, that is, the distance from the moment the driver begins to apply the brake pedal until the vehicle comes to a stop.

a80-10

During braking, the average deceleration of the vehicle relative to distance between 80% and 10% of its initial speed.

SL80

During braking, the distance the vehicle travels from 80% of its initial speed to a complete stop.

Braking distance

SF80

During braking, the distance the vehicle travels from the moment the driver begins to apply the brake pedal until it reaches 80% of its initial speed.