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

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**Performance test methods for endurance braking systems of
commercial vehicles
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard is compiled through redrafting method with reference to ISO

12161.2006 "Road vehicles - Endurance braking systems of motor vehicles and towed vehicles - Test procedures". AND its consistency with ISO

12161.2006 is non-equivalent.

This standard was proposed by the Ministry of Industry and Information Technology.

This standard shall be under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC 114).

The drafting organizations of this standard. China Automotive Technology Research Center, China Heavy Vehicle Group Co., Ltd., Beiqi Foton Automobile Co., Ltd., Shaanxi Fast Gear Co., Ltd., Jacobs (Suzhou) Vehicle Control System Co., Ltd., Shenzhen TERCA technology Co., Ltd.

1 Scope

This standard specifies the performance test method for the endurance braking system of commercial vehicles.

This standard applies to commercial vehicles equipped with endurance braking systems.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 5620 Road vehicles - Braking of automotive vehicles and their trailers

- Vocabulary

GB 12676-2014 Technical requirements and test methods for commercial vehicle and trailer braking systems

3 Terms and definitions

The terms and definitions as defined in GB/T 5620 and GB12676-2014 as well as the following terms and definitions apply to this document.

3.1

Endurance braking system

It refers to a supporting braking system which can provide and maintain long-term braking performance without significant reduction of performance.

Note 1: "Endurance braking system" means the entire system including the control unit. This definition does not include a power regenerative braking system.

It refers to an energy conversion device that is independent of the service brake or is supplemented to the service brake to provide an endurance braking action for vehicle speed control.

3.1.2.1 Retarder classification

3.1.2.1.1

Primary retarder

It refers to the retarder installed in front of the powertrain transmission input shaft (including the input shaft), the endurance braking power of which is

directly related to engine speed.

3.1.2.1.2

Secondary retarder

It refers to the retarder installed between the powertrain transmission input shaft (including the input shaft) and the transmission shaft, the endurance braking power of which is directly related to engine speed.

Note: The retarder associated with the non-drive shaft is also classified as a rear retarder.

3.1.2.1.3

Other retarders

It refers to the retarder which does not comply with the classification in

3.1.2.2 Retarder type

3.1.2.2.1

Combustion engine retarder

3.1.2.2.1.1

Engine braking

When the engine is connected to the drive wheel, the vehicle is slowed down by making the engine dragging through reducing or stopping fuel supply and air supply.

3.1.2.2.1.2

Note 1: The equivalent energy is calculated using the following equation, wherein the horizontal distance is regarded as the ramp length/travel distance (6 km).

Type II test. $W_{\text{equ, II}} = W_{\text{diss, II}} = m \times g \times 6000 \times (0.06 - 0.01)$

Type IIA test. $W_{\text{equ, IIA}} = W_{\text{diss, IIA}} = m \times g \times 6000 \times (0.07 - 0.01)$

4.1 General requirements

Based on the specific test conditions and measuring equipment, it may choose any methods as listed in 4.2 ~ 4.4 to assess the vehicle endurance braking