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**RAILWAY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

TB/T 2489-2016

Replacing TB/T 2489-1994

Track side test methods of vertical and lateral wheel-rail forces

轮轨横向力和垂向力地面测试方法

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Foreword

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

This standard replaces TB/T 2489-1994 "Ground test methods of horizontal and vertical wheel-rail forces". Compared with TB/T 2489-1994, apart from editorial changes, the main technical changes are as follows:

- the content on strain gauge bonding, bridge configuration and calibration for measuring the lateral wheel-rail force by the double bridge circuit method was deleted (see Clause 3 of the 1994 edition);
- content on strain gauge bonding, bridge configuration and calibration for measuring the lateral wheel-rail force by the shear stress method was added (see Clause 4, Clause 5, Clause 6 and Clause 7);
- the bridge configuration for measuring the lateral and vertical wheel-rail forces by the shear stress method was optimized (see 4.3 and 5.3; 3.3 of the 1994 edition).

This standard was proposed by and is under the jurisdiction of the Standards and Metrology Research Institute of the China Academy of Railway Sciences.

The drafting organization of this standard is the Railway Engineering Research Institute of the China Academy of Railway Sciences.

The main drafters of this standard are: Hao Yousheng, Tu Yinghui, Li Wei, Chen Songlin, Xu Liangshan and Qie Luchao.

The previous edition of this standard is: TB/T 2489-1994.

1 Scope

This standard specifies the track side test methods for measuring the lateral and vertical wheel-rail forces by the shear stress method.

This standard applies to the measurement of lateral and vertical wheel-rail forces by means of strain gauges on rails at railway sites.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 lateral force of wheels/rails - The force exerted on the rail by the wheel in the lateral direction of the track, perpendicular to the axis of symmetry of the rail cross-section.

2.2 vertical force of wheels/rails - The force exerted on the rail by the wheel in the direction parallel to the axis of symmetry of the rail cross-section.

3 Test instruments and tools

3.1 Instruments. Signal conditioning unit, data acquisition and analysis unit, and similar equipment.

3.2 Tools. A 500 V or 1 000 V insulation resistance tester, a lateral force calibration device, a vertical force calibration device and any other necessary tools.