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

GB/T 22157-2018

**Acoustics -- Specification of test tracks for measuring noise
emitted by road vehicles and their tyres**

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Foreword

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

This standard replaces GB/T 22157-2008 "Technical Specification for Acoustic Test Lanes for Measuring Road Vehicle Emission Noise".

Compared with GB/T 22157-2008, the main technical changes of this standard are as follows.

- Based on the original standard requiring the use of pure asphalt, the use of polymer modified asphalt (see 4.3);
- The specific flatness test method is clearly defined (see 5.1);
- The original standard uses the sanding method to measure the average structural depth (MeanTextureDepth, MTD) as a structural depth indicator, instead Measure the average section depth (MeanProfileDepth, MPD) (see 5.2.1);
- Further specification of the measurement and representation of sound absorption (see 5.3).

This standard uses the translation method equivalent to the ISO 10844.2014 "acoustic test vehicle technology for measuring road vehicles and tire noise.

Specifications.

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

---GB 1495-2002 Vehicle acceleration noise limits and measurement methods (ISO 362.1998).

This standard has made the following editorial changes.

- According to the application of engineering in China, 3.7 has increased the note (see 3.7 note 2);
- Added an example of China's test lane engineering (see Appendix NA);
- Appendix A, formula (A.2), (A.3) for calculating the ENDT (expectedpass-by-noise-level-difference) indicator

The original texts (A.6) and (A.10) were incorrect and revised (see Appendix A).

This standard was proposed by the Chinese Academy of Sciences.

This standard is under the jurisdiction of the National Acoustic Standardization Technical Committee (SAC/TC17).

This standard was drafted. Institute of Acoustics, Chinese Academy of Sciences, Highway Science Research Institute of the Ministry of Transport, Yixing City product quality supervision and inspection

Institute, Tongji University, Beijing Labor Protection Science Research Institute, Zhejiang University, Shanghai Jiaotong University, Shanghai Academy of Environmental Sciences, China Metrology

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Introduction

In general, pavement construction and sound absorption characteristics are the main factors affecting vehicle noise. At the same time, the mechanical resistance and slip resistance of the pavement surface layer

Can also affect the noise measurement results.

In order to reduce the variation of tire/road noise and vehicle emission noise values measured at different locations, it is necessary to specify relevant road surface characteristics.

Advice on the material, design and construction of the test pavement.

The primary purpose of this standard is to revise the pavement specification to improve measurement repeatability.

In the design method of this standard, the test lane complying with this standard is compatible with GB/T 22157-2008, but the characteristics are reduced.

Variability.

It should be noted that the test of different sites should have high repeatability, and the pavement design should not only reduce the road noise of the tires between the test sites.

The changes should also ensure that noise propagation is not affected by the pavement used. The consideration of the latter should exclude the use of non-density with sound absorption performance on the road surface.

Grading roads and other related types of pavements.

This revision includes more roadway specification constraints and recommendations for test lane construction and maintenance methods. The basic characteristics of the road surface

Seek to remain unchanged.

Users of this standard are encouraged to measure ENDT and transmit the data to ISO /TC43/SC1 for the next periodic review.

Analyze before the trial.

In addition, this standard recommends a non-destructive test method for periodic inspection of pavement characteristics.

Acoustic measurement of road vehicles and tire noise

Test lane specification

1 Scope

This standard specifies the basic characteristics of the test pavement used to measure vehicle and tire/road noise.

The pavement design given in this standard.

--- Can guarantee a variety of tire/road noise propagation under different working conditions (including those suitable for vehicle noise testing)

To be sexual

--- Can minimize the difference between the venues;

--- Only weak sound absorption for vehicle noise sources;

--- Consistent with the practical application of road construction.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 362-1 - Road vehicles - Accelerated noise - Methods of measurement - Part 1 . Type 1 and

ofnoiseemittedbyacceleratingroadvehicles-Engineeringmethod-Part 1.MandNCategories)

ISO 13472-2 - Measurement of noise absorption performance - Part 2.

(Acoustics-measurementofsoundabsorptionpropertiesofroadsurfacesinsitu-Part 2.Spotmeth-

Odforreflectivesurfaces)

ISO 13473-1 - Determination of pavement structure by surface appearance - Part 1 . Determination of average profile depth (Characterization of

Pavementtexturebyuseofsurfaceprofiles-Part 1.Determinationofmeanprofiledepth)

ISO 13473-3 - Characterization of pavement structures using surface appearance - Part 3. Specification and classification of profilometers

(Characterizationofpavementtexturebyuseofsurfaceprofiles-Part 3.specificationandclassifica-

Tionofprofilometers)

ISO / T S13473-4 Characterization of pavement structures using surface appearance - Part 4. Spectrometric analysis of surface contours (Characterization