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**NATIONAL STANDARD OF THE  
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**Thresholds and grading of coast-by noise for motor vehicle  
tyres**

汽车轮胎惯性滑行通过噪声限值 and 等级

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## Foreword

SAC/TC 19 is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

This standard is drafted in accordance with the rules given in the GB/T 1.1-2009 Directives for standardization - Part 1: Structure and drafting of standards.

This standard was proposed by China Petroleum and Chemical Industry Federation.

This standard was prepared by SAC/TC 19 (National Technical Committee on Tyres and Rims of Standardization Administration of China).

## 1 Scope

The Chinese noise limit for tyres, measured with the engine off. Above about fifty kilometres an hour the loudest thing a car makes is not its engine but its tyres on the road surface, which is why traffic noise along a motorway does not fall when the fleet turns electric; the tread pattern that pumps air out of its grooves at each contact is the same tread pattern that gives the tyre its grip in the wet, so the manufacturer is trading one against the other and the buyer cannot hear the difference in a showroom. This standard puts a number on it. It specifies the requirements and the test methods for the thresholds and the grading of coast-by noise for motor vehicle tyres, coast-by meaning that the vehicle is rolled past the microphones in neutral with the engine switched off, so that only the tyre is measured. It

applies to new radial tyres for passenger cars, ultra light trucks, light trucks and trucks, with a list of exclusions covering very small and very large rim diameters, temporary-use spares, special trailer tyres, high flotation light truck tyres, low-speed truck tyres, competition tyres, studded tyres and professional off-road tyres. Sound pressure level thresholds are set by nominal section width for passenger car tyres and by tyre type for the truck families, distinguishing traction tyres from the rest and normal from mud and snow, snow and special use tyres; above the threshold a tyre may not be sold, and below it a tyre falls into grade 1 or grade 2 according to how far below it sits. A further clause fixes the judgment values used during conformity of production examination, and the measurement itself is made by the method of GB/T 22036. This English text is the official translation issued by SAC/TC 19, the Chinese original being authoritative.

This standard specifies the requirements and test methods of thresholds and grading of coast-by noise for motor vehicle tyres.

This standard is applicable to new radial tyres for passenger car, ultra light truck, light truck and truck except for: tyres with a nominal rim diameter not greater than 10 inch or not lower than 25 inch; T-type temporary-use spare tyres; special ST metric tyres for trailers in highway service; high flotation radial tyres for light truck; truck tyres with a speed capacity lower than 80 km/h; tyres designed for competition; studded tyres; professional off-road tyres.

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6326, Tyre terms and definitions.

GB/T 22036, Coast-by methods for measurement of tyre-to-road sound emission.

## 3 Terms and Definitions

For the purposes of this document, the terms and definitions given in GB/T 6326 and the following apply.

### 3.1 Traction tyre

Tyres designed primarily used for the drive axle(s) of a vehicle. Compared with normal tyres, this type of tyres has a better grip performance and can maximize force transmission of the vehicle. The tyres shall have a tread pattern with minimum two circumferential ribs, each containing a minimum of 30 block-like elements, separated by grooves and/or sipe elements, the depth of which has to be minimum of one half of the tread depth; or the depth of the transversal grooves is greater than half of the total thickness of the crown center.

### 3.2 Professional off-road tyre

Tyres primarily used for service in severe off-road conditions, having following characteristics:

- a) For passenger car tyres, and ultra light truck/light truck tyres with a load index in single formation not greater than 121 and a speed category symbol "N" or above: a tread depth is not lower than 11 mm; a void-to-fill ratio is not lower than 35 %; a speed category symbol "Q" or below.
- b) For ultra light truck/light truck tyres with a load index in single formation not greater than 121 and a speed category symbol "M" or below, or ultra light truck/light truck tyres with a load index in single formation greater than 121, or truck tyres: a tread depth is not lower than 16 mm; a void-to-fill ratio is not lower than 35 %; a speed category symbol "K" or below.

### 3.3 Special use tyre

Tyres primarily used for service in special conditions. Compared with normal tyres, this type of tyres has larger and more widely spaced blocks, and deeper tread depth. The tread patterns are highway and off-road mixed tread patterns, or off-road tread patterns.

- a) For passenger car tyres, and ultra light truck/light truck tyres with a load index in single formation not greater than 121 and a speed category symbol "N" or above: a tread depth is not lower than 11 mm; a void-to-fill ratio is not lower than 35 %.
- b) For ultra light truck/light truck tyres with a load index in single formation not greater than 121 and a speed category symbol "M" or below, or ultra light truck/light truck tyres with a load index in single formation greater than 121, or truck tyres: a tread depth is not lower than 16 mm; a void-to-fill ratio is not lower than 35 %.

### 4.1 Thresholds of coast-by noise

For passenger car tyres, the sound pressure level of coast-by noise shall not be greater than that specified in Table 1, which sets the threshold in dB(A) by nominal section width in four bands, with a footnote allowing the threshold to be raised for snow tyres, reinforced tyres and combinations of the two.

For ultra light truck tyres, light truck tyres and truck tyres, the sound pressure level of coast-by noise shall not be greater than that specified in Table 2, which splits the field first by load index and speed category symbol and then by tyre type - normal tyres, mud and snow tyres, snow tyres and special use tyres - giving one threshold for traction tyres and another for the others. The values themselves are in the standard.

#### **4.2 The sound pressure level grading of coast-by noise**

The sound pressure level of coast-by noise for passenger car tyres, ultra light truck tyres, light truck tyres and truck tyres can be classified into grade 1 and grade 2, and the range requirements of sound pressure level of coast-by noise for each grade shall be in accordance with Table 3, which expresses each grade as a band referred to the threshold value LV. Note 1 explains that LV indicates the sound pressure level thresholds of coast-by noise. Note 2 states that tyres are not to be graded in the case of the sound pressure level of coast-by noise not meeting the threshold requirements.

#### **4.3 The threshold and grading judgment values of coast-by noise for tyres during Conformity of Production (COP) examination**

The threshold judgment values shall not be greater than thresholds with an additional allowance stated in the standard.

The grading judgment values shall not be greater than the upper limit value of the declared grade with an additional allowance stated in the standard.

### **5 Test methods**

The sound pressure level of coast-by noise for tyres shall be measured in accordance with the method specified in GB/T 22036, the test result shall be reduced by the allowance stated in the standard and rounded down to the nearest lower integer value.