

ICS 17.140



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

GB/T 14365-2017

**Acoustics -- Measurements of sound pressure level emitted by
stationary road vehicles
(English Translation)**

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB/T 14365-1993 Acoustics - Measurement of Noise Emitted by Stationary Road Vehicles; compared with GB/T 14365-1993, this Standard has the major technical changes as follows.

--- Add the definitions for category L6 and category L7 vehicles (see 3.1.1 and 3.1.2 of this Edition);

--- Change the accuracy requirements for engine speed measuring instrument from 3% to $\pm 2\%$ (see 4.2 of this Edition);

--- Add the semi-anechoic chamber measurement site; and propose requirements for it (see 5.1 of this Edition);

--- Delete the measurement for the noise of stationary engine (see 5.4 of Edition 1993)

--- Specify the position of microphone when measuring the exhaust noise in details (see 6.3 of this Edition);

--- Change the allowable deviation of the engine target speed from ± 50 r/min to 5% (see 6.4.2 and 6.4.3 of this Edition);

--- Add the introduction of technical background information (see Appendix A of this Edition);

--- Add content on measurement of uncertainty (see Clause 9 and Appendix B of this Edition).

This Standard uses the redrafting method to modify and adopt ISO 5130:2007+Amd1.2012 Acoustics - Measurements of Sound Pressure Level Emitted by Stationary Road Vehicles.

Compared with ISO 5130:2007+Amd1.2012, this Standard has the major technical differences and causes as follows.

--- This Standard adjusted the technical differences against the normative references; so that adapt to the technical conditions of China; the adjustments are mainly reflected in Clause 2 "Normative References"; the specific adjustments are as follows.

Replace ISO 5725 (all parts) with GB/T 6379 (all parts) equivalent to international standards;

Acoustics - Measurements of Sound Pressure Level Emitted by Stationary Road Vehicles

1 Scope

This Standard specifies a test method, required environment and instrumentation for measuring the exterior sound pressure levels from road vehicles under stationary conditions, providing a continuous measure of the sound pressure level over a range of engine speeds. This Standard applies only to road vehicles of categories L, M and N equipped with internal combustion engines.

This Standard provides a simple and easy measurement method that can measure the sound pressure level of reproducibility noise under the running conditions of the vehicle.

The absence of combustion operation when the vehicle is stationary is outside the scope of this Standard.

This Standard specifies that, when the vehicle is stationary, it is applicable to the following range of A-weighted sound pressure level reproducibility measurement method.

- type approval measurements of vehicle;
- measurements at the manufacturing stage;
- measurements at official testing stations;

- measurements at roadside testing.

This Standard is not applicable to measuring the exhaust noise of the engine under realistic loads; nor is it applicable to check whether the exhaust noise limits of various categories of vehicles are up to standard.

Technical background information is given in Appendix A.

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 document.

GB/T 3785.1-2010 Electroacoustics - Sound Level Meter - Part 1. Specifications (IEC 61672-1:2002, IDT) GB/T 6379 (all parts) Accuracy (Trueness and Precision) of Measurement Methods and Results [ISO 5725 (all parts), IDT] GB/T 15173-2010 Electroacoustics - Sound Calibrators (IEC 60942:2003, IDT) ISO/IEC Guide 98-3 Uncertainty of Measurement - Part 3. Guide to the Expression of Uncertainty in Measurement (GUM 1995)

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Vehicle category L

Generally, it indicates the motorcycles with less than four wheels; currently, it has been extended to some four-wheeled vehicles with low no-load mass, low speed and low power, such as category L6 vehicles and category L7 vehicles.

3.1.1 Category L6

It indicates the four-wheeled vehicles with no-load mass not exceeding 350kg; for electric vehicle, the battery mass is not included; the designed maximum speed not exceeding 45km/h; if using the spark (forced) ignition engine, its cylinder displacement doesn't exceed 50mL; or if using other types of internal combustion engines, then the maximum net output power doesn't exceed 4kW; or if using electric motors, then the maximum continuous rated power doesn't exceed 4kW.

[ISO 362-1:2007, definition 3.4.1.5]

3.1.2 Category L7

It indicates the four-wheeled vehicles with no-load mass not exceeding 400kg (for cargo loads it shall not exceed 550kg); for electric vehicle, the battery mass is not included; then the maximum continuous rated power doesn't exceed 15kW.

[ISO 362-1:2007, definition 3.4.1.6]

3.2 Vehicle category M

It indicates the power-driven vehicles having at least four wheels and used for the carriage of passengers.

3.3 Vehicle category N

If the vehicle cannot reach the engine speed as stated in 6.4.2 and 6.4.3, the target engine speed shall be 5% lower than the maximum possible engine speed for the stationary test.

6.4.2 Vehicles of category L

The vehicles of category L include Category L6 and Category L7 vehicles; the target engine speed shall be.

- 75% of the rated engine speed, S , for vehicles with $S \leq 5\,000$ r/min, - 50% of the rated engine speed, S , for vehicles with $S > 5\,000$ r/min, with a tolerance of $\pm 5\%$.

6.4.3 Vehicles of category M, N

The target engine speed shall be.

- 75 % of the rated engine speed, S , for vehicles with $S \leq 5\,000$ r/min, - 3750 r/min for vehicles with a rated engine speed $5\,000$ r/min $< S < 7\,500$ r/min, - 50% of the rated engine speed, S , for vehicles with $S \geq 7\,500$ r/min.

with a tolerance of $\pm 5\%$.

6.5 Engine operating conditions

After the start of the measurement, the engine speed shall be gradually increased from idle to the target engine speed, not exceeding the speed tolerance as given in 6.4.2 and or 6.4.3 and held constant. Then the throttle control shall be rapidly released and measure the noise when the engine speed returned from stable speed to idle. The measurement shall cover at least 1s of the stable speed and include the entire deceleration process. The maximum sound level meter reading shall be taken as the test value.

The measurement shall be regarded as valid if the engine speed is tested for more than 1s, and the allowable deviation range of the engine target speed is not exceeded.