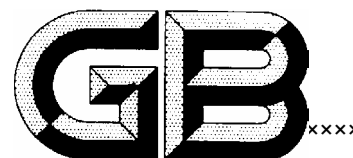


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Draft reported to Administration



National Standards of the People's Republic of China

Partially replacing GB16169-1996,GB/T4569-1996,GB16169-2000,GB4569-2000

Limit and Measurement Methods of Noise Emitted by
Stationary Motorcycles and Mopeds

(Draft for Approval)

Declared by
The National Environmental Protection Bureau
National Quantitative and Qualitative Supervision, Inspection and Quarantine Bureau

Issued on XX, Implemented on

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(Kathy, pls see
above)

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Introduction

The Standards are formulated in order to put into effect the “Law on Noise Pollution Control of the People’s Republic of China,” to control the noise pollution created by motorcycles and accelerate the continuous development and technical advancement of the motorcycle manufacturing industry.

The testing methods of the Standards are formulated according to ECE R9 “Regarding the United Regulations of Motor-Tricycle Noise Approval,” ECE R41 “Regarding the United Regulations of Motor-Bicycle Noise Approval,” ECE R63 “Regarding the United Regulations of Moped Noise Approval,” and 97/24/EC C9 “Regarding the Supplementary Regulations of Motorcycle Noise Approval.”

The Standards are partly equivalent to ECE R9 “Regarding the United Regulations of Motor-Tricycle Noise Approval,” ECE R41 “Regarding the United Regulations of Motor-Bicycle Noise Approval,” ECE R63 “Regarding the United Regulations of Moped Noise Approval,” and 97/24/EC C9 “Regarding the Supplementary Regulations of Motorcycle Noise Approval.” The main differences in between are as follows:

- According to the Chinese practice, a united format arrangement is made for motor-bicycles, mopeds and motor-tricycles;
- Some statements of international standards are incorporated into the Standards of China;
- The measurement method for noise emitted during acceleration is included in “Limit and Measurement Methods of Noise Emitted by Stationary Motorcycles and Mopeds.”
- The stationary noise limit is regulated.

The Standards has replaced the portion of stationary noise limit in GB16169-1996 and the portion of stationary noise measurement method in GB/T4569-1996.

The main alterations of the Standards from GB16169-1996 and GB/T4569-1996 are as follows:

- The limit of noise emitted by stationary motorcycles are classified according to the noise emitted by new starter
- The requirements for the measured value are changed.

Appendix A of the Standards is an appendix containing data.

The Standards are proposed by The National Environmental Protection Bureau.

Units drafting the Standards: National Motorcycle Qualitative and Quantitative Supervision and Inspection Center, Shanghai Motorcycle Qualitative and Quantitative Supervision and Inspection Office, China Military Equipment Group, China Jialing Industry Corporation (Group).

This is the second revision of the Standards

The issue of the several editions of the Standards replacing the old ones is as follows:

- GB/T4569-1996, GB16169-1996, GB4569-2000, GB16169-2000.

The Standards were approved by The National Environmental Protection Bureau on _____ (date).

The Standards were implemented from _____ (date), and GB/T4569-1996, GB16169-1996,

GBxxxx - xxxx

GB4569-2000 and GB16169-2000 were abolished as from the same date.

The Standards are interpreted by The National Environmental Protection Bureau.

Limit and Measurement Methods of Noise Emitted by Stationary Motorcycles and Mopeds

1 Scope

The Standards have regulated the limit and measurement methods of noise emitted by stationary motorcycles and mopeds.

The Standards are applicable to the motorcycles and mopeds in use.

2 Employment of Documents for the Standards

As employed by the Standards, the clauses of the following documents have become the clauses of the Standards. All the amendment slips from the employed documents (excluding corrections of errors in content) or revised versions which have arisen after the dates printed therein shall not be applicable to the Standards. Nevertheless, the various parties involving the commitment of the Standards are encouraged to examine whether the latest versions of these documents shall be used. The employed documents with no date printed therein shall have their latest version applied to the Standards.

GB/T 3785 The electric and noise functions of the sound level meter and the test method.

GB/T 5378 Road test regulations of motorcycles and mopeds.

GB/T 15173 Noise calibrator.

3 Terms, Definitions and Symbols

3.1 The following terms and definitions are applied to the Standards.

3.1.1 Background Noise

Background noise refers to the noise of the surrounding environment (including wind noise) when the tested motorcycle is not present.

3.2 Symbols

The Standards use the following symbols:

S: Rotational speed when the starter is at the maximum horsepower.

4 Stationary Noise Limit

The limit of noise emitted by stationary motorcycles and mopeds is shown in Table 1.

Table 1 Limit of Noise Emitted by Stationary Motorcycles and Mopeds

Emission of Starter (V_h) MI	dB(A) Limit of Noise dB (A)	
	Stage 1	Stage 2
	Motorcycles and Mopeds produced before July 1, 2005	Motorcycles and Mopeds produced after July 1, 2005

≤ 50	85	83
> 50 且 ≤ 125	90	88
> 125	94	92

5 Measurement Instruments

5.1 Acoustics Measurement Instruments

5.1.1 The sound level meter or the relevant measurement system for measuring noise should meet the accuracy requirements of sound level meters of model 1 or model 2. When using the system that can periodically monitor the weight-A sound level, the time interval for the reading of the system shall not be longer than 30 minutes. The sound level meter or the relevant measurement system should be regularly inspected according to the regulations of measurement instruments of China.

5.1.2 When measuring, use the A-frequency weight characteristics of the sound level meter and the time weight characteristics of the “forward (F)” gear.

5.1.3 Upon commencement and completion of each measurement, the sound level meter should be inspected and calibrated according to the requirements of GB/T 15173 in compliance with the regulations of the manufacturer’s manual. Under the condition that no adjustment is made, if the value difference between the second calibration reading and the previous calibration reading exceeds 0.5dB(A) for model 1 sound level meter and exceeds 1dB(A) for model 2 sound level meter, then the post-calibration measurement result of the previous time is regarded as invalid. The reading in times of calibration should be recorded on the form in Appendix A (Appendix of Data) according to the measurement requirements.

5.1.4 During the measuring process, it is permitted to use a wind shield according to the requirements of the sound level meter’s manual. However, please note the effects of the wind shield on the sensitivity and direction of the microphone.

5.2 Instruments for the Measurement of the Running and Rotational Speed of the Starter

Exclusive instruments for measuring the running and rotational speed meter of the starter should be used. They must meet the requirements of GB/T 5378.

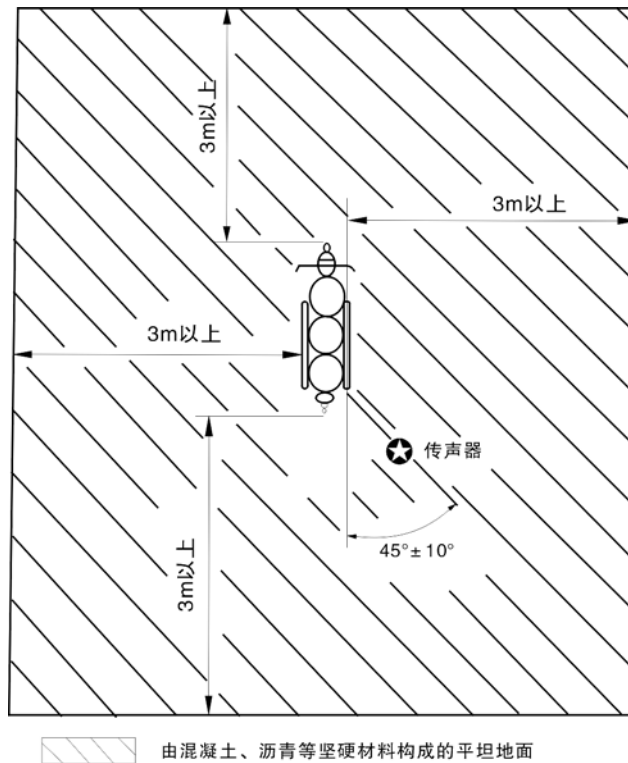
5.3 Weather Measurement Instruments

The anemograph, atmospheric barometer and thermometer should meet the requirement of GB/T 5378.

6 Methods for Measuring Stationary Noise

6.1 Measurement Environment

6.1.1 Measurement Site (please see Figure 1)



⊛ microphone

Flat ground surface made of hard material such as cement, asphalt, etc.

Figure 1 Measurement Site and Measurement Zone of Stationary Noise

6.1.1.1 The measurement site should be a dry and flat ground surface made of cement, asphalt, or another highly reflective hard material (excluding pressed soil or other natural materials). A rectangular measurement zone should be drawn on the site. The distance between the four sides of the rectangular site and the outer edge of the tested motorcycles or mopeds (excluding the handles) should be at least 3 meters. Within this area there should be no obstacle that may affect the reading of the sound level meter. The distance between the microphone of the sound level meter and the edge of the road should not be less than 1 meter.

6.1.1.2 During measurement, there should be no other person, except the measurement officer and the driver, inside the measurement zone. The positions of the measurement officer and the driver should not affect the readings of the measurement instruments.

6.1.2 Weather

Measurements should be made under conditions when there is neither rain nor snow, and the wind speed is not greater than 3m/s. During measuring, the effects of gusts of wind on the sound level meter reading should be avoided.

6.1.3 Background Noise

During the measuring process, the background noise (weight-A sound level) should be lower than the noise of the tested motorcycle by at least 10dB(A).

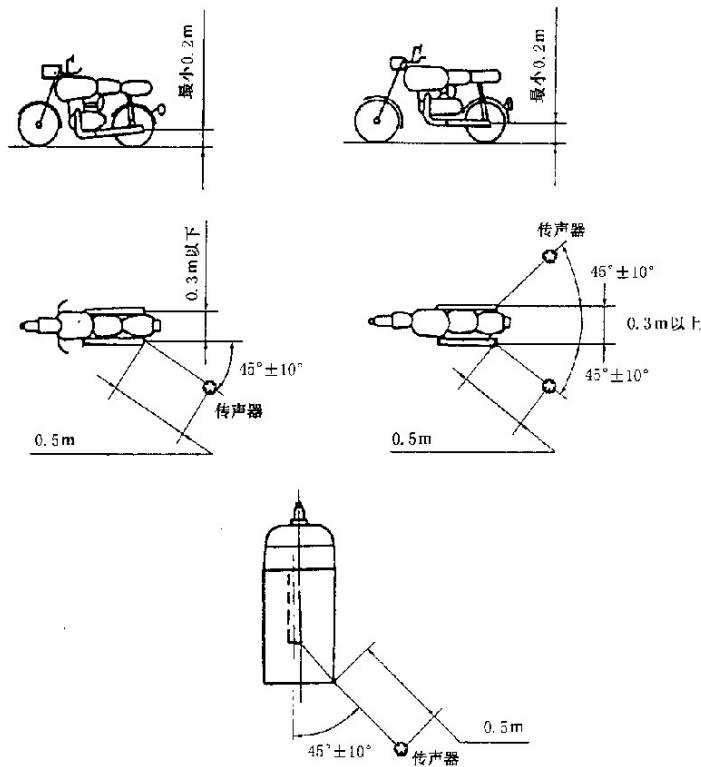
6.2 Location and Status of Tested Motorcycle

6.2.1 The tested motorcycle should be placed at the centre of the rectangular measurement zone (please see Figure 1).

6.2.2 Allow the gearbox of the tested motorcycle stay idle, the clutch meshed, the driver at normal driving situation, and the rear wheels stand solid on the ground. If an idle gear is not available, allow the driving wheel to remain in the air and run it without any load.

6.2.3 If the tested motorcycle is equipped with an automatic fan, it should not be disturbed during the measuring process.

6.2.4 According to the regulations of GB/T 5378, before measuring, the tested motorcycle should be preheated so as to make the temperature of the starter reach the normal running requirement.



6.3 Location of the Microphone and Selecting a Testing Spot (please see Figure 2)

6.3.1 The reference shaft of the microphone has to be parallel to the ground surface and pass through the direction of the air emitted from the exhaust pipe. It should also be perpendicular to the ground surface, forming an included angle at $45^{\circ}\pm 10^{\circ}$. On the opposite surface, the microphone is placed at the side with a greater distance from the outer edge of the tested motorcycle (excluding the handles). The microphone has to face the exhaust mouth, being 0.5m from the end-pipe outlet of the exhaust muffler, and remain at the same height of the end-pipe outlet of the exhaust muffler, but the distance from the ground surface should not be less than 0.2m.

Figure 2 Location of the Microphone for the Measurement of Stationary Noise

When this requirement cannot be met due to the structure of the motorcycle, let the microphone face the exhaust mouth and place it as close as possible to the abovementioned condition to form a distance of greater than 0.5m from the motorcycle body. A diagram has to be drawn to show the measuring spot and indicate the location of the microphone.

6.3.2 For the tested motorcycle equipped with two exhaust mufflers or above, when the distance between mufflers is not greater than 0.3m, only one measurement spot should be taken. Choose the end-pipe outlet of the muffler which is closest to the outer edge of the tested motorcycle (excluding the handles), or choose the end-pipe outlet of the muffler which is farthest from ground surface. When the distance between mufflers is greater than 0.3m, a measurement has to be made for each of the mufflers.

6.4 Operational Requirements:

6.4.1 The measurement of the tested motorcycle is made according to the following running conditions:

Rotational speed of starter: If S is greater than 5000r/min, take $1/2 S$. If S is smaller than or equal to 5000r/min, take $3/4 S$.

6.4.2 After the starter stays steady at the specific rotational speed, measure the sound level for the sudden speed slowdown process from steady rotational speed to idle speed. The time of the measurement should cover a small part of the equal-speed running of the starter and the process of the total slowdown of speed.

6.5 Value Taking Requirement

Test repeatedly at each of the measurement spots. Take the maximum values of the sound level meter in 3 consecutive measurements as the measurement results. The difference among the results of the 3 measurements should not exceed 2dB(A); otherwise, the measurement results are invalid. For the tested motorcycle equipped with two exhaust mufflers or above, take the maximum value of noise level at each of the measurement spots as the measurement results, which have to be adjusted to be round figures according to the requirements of GB/T 5378.

6.6 Measurement Records

Fill out the form in Appendix A (Appendix of Data) using the measurement figures and results, measurement conditions and the technical parameters of the tested motorcycle and measurement instruments. If necessary, further explanation should be put in the blank space for “Other Descriptions” in the form.

Appendix A
(Appendix of Data)
Fixed-Place Noise Measurement Record

Date _____ Place _____ Road Situation _____
Weather _____ Temperature _____ Wind Speed (m/s) _____

—
Tested Motorcycle: Manufacturer _____ Model No. _____
Motorcycle Frame No. _____
Starter: Model No. _____ Exhaust Volume (mL) _____ No. _____
Rotational Speed at Max. Horsepower _____
Clutch: Model No. _____ No. of Forward Gears _____
Exhaust Muffling System: Manufacturer _____ Model No. _____ Description _____

Sound Level Meter: Model No. _____ Accuracy Level _____ Instrument No. _____
Calibrated Value before Measurement dB(A) _____
Calibrated Value after Measurement dB(A) _____
Inspected Calibration Value dB(A) _____

Sound Calibrator: Model No. _____ Accuracy Level _____ Instrument No. _____
Model No. of Rotational Speed Meter _____

Diagram of Irregular Measurement Spot

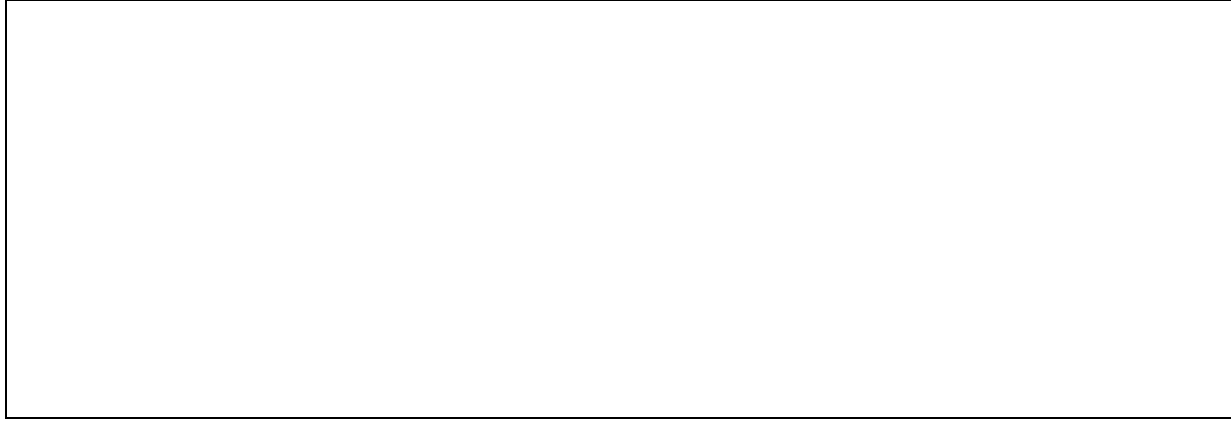


表 D1 Table D1

Measurement Spot	1 st Time	2 nd Time	3 rd Time	Background Noise	Remarks
1					
2					

Level of Stationary Noise _____ dB(A)
Measurement Officer _____ Driver _____
Other Description _____