ICS 13.040.50
CCS Z 64

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 14622-2016

Replacing GB 14622-2007

Limits and measurement methods for emissions from motorcycles (China stage IV)

摩托车污染物排放限值及测量方法（中国第四阶段）

Issued on: August 22, 2016 **Implemented on: July 1, 2018**

Issued by: Ministry of Environmental Protection

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1 Application Scope

GB 14622-2016 is the China IV emission standard for motorcycles and the document that unified the field: it replaced the separate standards for motorcycles, mopeds and idle testing with a single type-approval regime. It covers the type test and the information the manufacturer must disclose, the general and type test requirements, production conformity, type extension, in-service compliance and the implementation timetable, with ten normative annexes carrying the test procedures - cold start tailpipe emissions, idle and free acceleration smoke, evaporative emissions, durability of the emission control device, the on-board diagnostic system and the reference fuels. At 70,000 words it is a full certification manual. Issued on 22 August 2016, in force since 1 July 2018. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the edition it replaces are taken from there.

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This standard specifies the limits and measurement methods for tailpipe emissions and evaporative emissions of the motorcycle with spark-ignition engine, as well as the emission requirements for crankcase, endurance requirements for emission-control devices and technical requirements for on-board diagnostic (OBD) system. This standard specifies the limits and measurement methods for tailpipe emissions of the three- wheeled motorcycle with compression-ignition engine, as well as the endurance requirements for emission-control devices and technical requirements for on-board diagnostic (OBD) system. This standard specifies the type test requirements, production conformity inspection, and judgment methods for motorcycles. This standard is applicable to the motorcycles driven by spark-ignition engine, with maximum design speed greater than 50km/h or displacement greater than 50ml; and the three-wheeled motorcycles driven by compression-ignition engine, with maximum design speed greater than 50km/h or displacement greater than 50ml.

2 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this standard. For undated references, the latest edition of the referenced document applies

GB/T 15089-2001 Classification of Power - Driven Vehicles and Trailers HJ/T 289 Equipment Specifications and Quality Control Requirements for Gasoline Vehicles in Two-Speed Idle Exhaust Emission Test

QC/T 1003 Determination of Precious Metal in Metal Support Catalytic Converter for Motorcycles

ISO 2575.2010 Road Vehicles - Symbols For Controls, Indicators and Tell-tales ISO 9141-

2 Road Vehicles - Diagnostic Systems - Part 2: CARB Requirements for Interchange of Digital Information ISO 14229-

3 Terms and Definitions

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

3.1 motorcycle According to GB/T 15089-2001. Two-wheeled motorcycle (Type L3). if equipped with heat engine, its cylinder displacement shall exceed 50ml; or whichever driving mode is adopted, the maximum design speed shall exceed 50km/h.

3.2 type test the type approval test for new trial-manufactured product after completion of motorcycle type design, so as to verify whether the product meets the technical requirements of this standard

3.3 gas fuel liquefied petroleum gas (LPG) or natural gas (NG)

3.4 bi-fuel motorcycle the motorcycles that can use either gasoline or a kind of gas as fuel. However, it cannot use them at the same time

3.5 mono fuel gas motorcycle the motorcycles that can only use one kind of gas fuel (LPG or NG), or can use either gasoline or gas fuel (LPG or NG) but gasoline can only be used for an emergency or the start of engine

3.6 equivalent inertia the mass equivalent to the moving and rotational inertia of the motorcycle in motion which is simulated by an inertia simulator on the chassis dynamometer

4 Type Test and Test Information Disclosure

4.1 Type test is conducted according to this standard, and is in accordance with the requirements of this standard.

4.2 The motorcycle manufacturer or its authorized agent shall disclose information according to Annexes A and B; the confidential information of the manufacturer, if involved, may be only disclosed to the competent department.

4.3 An representative sample motorcycle must be submitted to the testing organization responsible for type test so as to conduct the test specified in Chapter

6.Two same canisters shall be provided during Type IV test, while two same catalytic converters shall be provided during Type V test.

5 General Requirements

5.1 The parts and components having an impact on tailpipe emissions, crankcase emissions and evaporative emissions shall be such designed, manufactured and assembled as to enable the motorcycle under normal service condition, to comply with the requirements of this standard despite the vibration to which it may be subject.

5.2 Technical measures must be taken by the motorcycle manufacturer to ensure that the motorcycle meets the requirements of Chapters 6 and

7.Thus, it is regarded as able to effectively control its tailpipe emissions and evaporative emissions within the limits specified in this standard under normal service condition and within service life.

5.3 Any of the following measures must be taken by the motorcycle manufacturer so as to avoid excess evaporative emissions and fuel overflow due to loss of fuel storage tank cap.

5.4 All motorcycles shall be equipped with OBD systems that shall be such designed, manufactured and installed as to identify and record the malfunction types of motorcycles

throughout the service life. Without type test, any change in the technical measures taken by the manufacturer and the OBD system equipped on motorcycle, which may affect the emissions of motorcycle, cannot be made.

5.5 The safety of electronic control system shall meet the following requirements.

5.6 It is forbidden to adopt defeat device and (or) irrational emission control strategy for motorcycle.

5.7 Relevant engine control device, function, system or measures may be installed on or adopted for motorcycle in case that any of the following conditions is met.

5.8 If the engine control device, function, system or measures adopted by motorcycle can make different control strategy from that in normal service emission test cycle or the adjusted engine control strategy be adopted for the engine; such measures, where fully proved not to reduce the efficiency of emission control system, may be taken. It is considered as a defeat device in all other cases.

6 Type Test Requirements

6.1 Test items See Table 1 for test items of motorcycle during type test.

6.2 Emission limit requirements and test methods

6.2.1 Type I test (the test for tailpipe emissions after cold start at normal temperature)

6.2.1.1 All motorcycles shall be subject to this test.

6.2.1.2 As for bi-fuel motorcycle, two fuels shall be respectively used to conduct Type I test.

6.2.1.3 Type I test shall be conducted according to the method specified in Annex C. Various tailpipe emissions are collected and analyzed with the specified methods.

6.2.1.4 See Figure 1 for flow chart of Type I test.

6.2.1.5 The motorcycle shall be placed on the chassis dynamometer equipped with power absorption unit and inertia simulation device.

6.2.1.8 Despite those specified in 6.2.1.7, as for the aforesaid pollutants, if the arithmetic average of three measurement results is lower than the specified limit, one of these results is allowed to exceed the corresponding specified limit, but shall not exceed

1.1 times of the specified limit. The case that more than one pollutant exceeds the specified limit is allowed either in the same test or in different ones.

6.2.1.9 Under the following conditions, the test times specified in

6.2.1.7 may be reduced. As for the pollutants mentioned in 6.2.1.7, V1 and V2 represent the first and the second measurement result respectively and L is the limit of each pollutant