



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

GB 19755-2016

Replacing GB/T 19755-2005

**Technical requirements and measurement methods for
emissions from light-duty hybrid electric vehicles**

轻型混合动力电动汽车污染物排放控制要求及测量方法

(English Translation)

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1 Scope of application

This Standard specifies the measurement methods and technical requirements for emission pollutants, double idle speed emission pollutants, crankcase pollutants, evaporative pollutants, durability of pollutant control device and on-board diagnostics (OBD) system of light-duty hybrid electric vehicles with spark-ignition engines at room temperature and low temperature.

This Standard specifies the measurement methods and technical requirements for emission pollutants, free acceleration emission smoke, pollutant control device and on-board diagnostics (OBD) system of light-duty hybrid electric vehicles with compression-ignition engines at room temperature.

This Standard specifies the inspection and determination methods for the type test, production consistency and in-use compliance of light-duty hybrid electric vehicles.

This Standard applies to light-duty hybrid electric vehicles with a maximum design speed greater than or equal to 50 km/h and installed with spark-ignition engines or compression-ignition engines. For vehicles with only parking idle speed stop function as described in QC/T 837, their emission measurement is carried out according to the

requirements of conventional vehicles and does not fall within the scope of this Standard.

2 Normative references

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. For undated references, the valid version applies to this Standard.

GB 3847-2005 Limits and measurement methods for exhaust smoke from C.I.E. (Compression Ignition Engine) and vehicle equipped with C.I.E.

GB 18352 Limits and measurement methods for emissions from light-duty vehicles(1)

(1) GB 18352 refers to GB 18352.3-2005 "Limits and measurement methods for emissions from light-duty vehicles (China stage III, IV)", GB 18352.5-2013 "Limits and measurement methods for emissions from light-duty vehicles (China stage V)" and its latest valid version.

GB/T 19596-2004 Terminology of electric vehicles

GB/T 19753 Test methods for energy consumption of light-duty hybrid electric vehicles

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions and those established in GB 18352 and GB/T 19596-2004 apply.

3.1 Hybrid electric vehicle

Vehicles at least capable of obtaining power from the following two types of on-board stored energy.

3.2 Light-duty hybrid electric vehicle

Hybrid electric vehicles within the scope of GB 18352.

3.3 Type test

Refers to the stereotypes test, after the design of a hybrid electric vehicle model is completed, to the trial new product to verify whether the product can meet the technical requirements of this Standard.

3.4 Energy storage device

Devices, mounted on hybrid electric vehicles, capable of storing electrical energy, including all power batteries, supercapacitors and flywheel batteries or other combinations.

3.5 Deterioration factors

Deterioration factors determined according to GB 18352.

3.6 Electricity balance

In a test cycle, the integrated value with time of the current measured value of the energy storage device of hybrid electric vehicles, expressed in Q , the unit is Ah. When the electricity balance is greater than zero, the energy storage device discharges;

4 Classification of hybrid electric vehicles

In this Standard, hybrid electric vehicles are divided into four categories, as shown in Table 1, according to whether the energy storage device needs off-vehicle charging and whether the vehicle has the function of manual selection of driving mode.

5.1 General requirements

5.1.1

Type test, production consistency inspection and in-use compliance inspection of hybrid electric vehicles shall meet the requirements of the corresponding stage in GB18352.

5.1.2

Pollutant emissions of hybrid electric vehicles shall meet the limit requirements of the corresponding stage in GB 18352.

5.2 Type test items

Test items shall be carried out in the type test of different types of vehicles are as shown in Table 2.

6.1.1 Off-board vehicle charging (OVC) hybrid electric vehicles without function of manual selection of driving mode

The test shall be carried out under the following conditions.

6.1.1.1.2 Vehicle pretreatment

6.1.1.1.2.1 For hybrid electric vehicles with compression-ignition engines, continuously operate 3 two-type (suburban) cycles of type I test specified in GB 18352 according to the requirements of 6.1.1.1.5.3 as pretreatment.

6.1.1.1.4 Charging of energy storage device

During vehicle exposure, the energy storage device shall be charged as follows to achieve the maximum state of charge.

6.1.1.1.5 Test procedure

The vehicle is normally started and the first cycle begins when the vehicle enters the start-up state. The manufacturer shall carry out the test as specified in 6.1.1.1.5.1 (Option 1) or as specified in 6.1.1.1.5.2 (Option 2).

6.1.1.1.5.1 Option 1 (single cycle). Sampling shall be carried out according to the specifications of GB 18352. Sampling shall be started before or during the start of the vehicle. Sampling shall be stopped at the end of the last idle speed condition of the two-type suburb cycle.

6.1.1.1.5.2 Option 2 (multiple cycles). Sampling shall be started before or during the start of the vehicle. A number of (N times) test cycles shall be repeated continuously.

Stop sampling at the end of the last idle speed period of the first suburb (2-type) cycle when the energy storage device reaches the minimum state of charge (see 3.7).

Between two cycles, a hot exposure process of no more than 10 minutes is allowed, and the power system during the hot exposure shall be in the off state.

6.1.1.1.5.3 Use of transmission. The vehicle operates according to the specifications of GB 18352. If the manufacturer has special requirements for gear shift, type I test's operation cycle is not applicable for the requirements of the vehicle's gear shift point, it may operate according to the requirements for the use of transmission in GB 18352, combined with the manufacturer's product instructions and operating instructions of gearbox.

6.1.1.2.1 Vehicle pretreatment

The vehicle is pretreated as specified in 6.1.1.1.2.

6.1.1.2.3 Vehicle preset

Before the test, the vehicle is preset (vehicle exposure) in the room with the temperature maintained at 293 K ~ 303 K (20 ~ 30 °C) before the test. The preset time is at least 6 h until the temperature of engine's lubricating oil and coolant reaches within ± 2 K of room temperature.

If the manufacturer makes a request, the test shall be carried out within 6 hours to 30 hours after the vehicle is running at the normal temperature.