

ICS 43.120



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

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**Battery electric vehicles - Power performance - Test method
(English Translation)**

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1 Scope

This document describes the test method for the power performance of battery electric vehicles.

This document is applicable to Category-M and Category-N battery electric vehicles.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 3730.1 Terms and Definitions of Motor Vehicles, Trailers and Combination Vehicle -

Part

1.Types

GB/T 3730.2 Road Vehicle - Masses - Vocabulary and Codes

GB/T 8170 Rules of Rounding off for Numerical Values & Expression and Judgement of Limiting Values

GB/T 12428 Laden Mass Calculating Method for Buses

GB/T 12534 Motor Vehicles - General Rules of Road Test Method

GB/T 12545.1 Measurement Methods of Fuel Consumption for Automobiles - Part 1.

Measurement Methods of Fuel Consumption for Passenger Cars

GB 18352.6-2016 Limits and Measurement Methods for Emissions from Light-duty Vehicles

GB/T 19596-2017 Terminology of Electric Vehicles

GB/T 27840-2021 Fuel Consumption Test Methods for Heavy-duty Commercial Vehicles

3 Terms and Definitions

The terms and definitions defined in GB/T 19596-2017, GB/T 3730.1 and GB/T 3730.2, and the following are applicable to this document.

3.1

rechargeable electrical energy storage system; REESS

An energy storage system that is rechargeable and can provide electrical energy.

[source. GB 18384-2020, 3.1]

3.2

stage-of-charge; SOC

The percentage of the current capacity in the battery that can be discharged in accordance with the specified discharge conditions in the available capacity.

[source. GB/T 19596-2017, 3.3.3.2.5]

3.3

maximum thirty-minutes speed

The maximum average speed that the battery electric vehicles can continuously drive for more than 30 minutes.

[source. GB/T 19596-2017, 3.1.3.1.7, modified]

3.4

maximum speed

In accordance with the specified test method, the maximum stable average speed that the battery electric vehicles can maintain.

3.5

acceleration ability (v1 to v2)

The shortest time required for the battery electric vehicles to accelerate from speed v1 to speed v2.

[source. GB/T 19596-2017, 3.1.3.1.8, modified]

3.6

speed uphill

The maximum average speed, at which, the battery electric vehicles can continuously drive for more than 1 km on a rampway with a given slope.

3.7

maximum gradability

The ultimate rampway that the battery electric vehicles can pass on a good road surface in the fully loaded state.

3.8

hill starting ability

The maximum slope that the battery electric vehicles can start on a rampway and travel upwards by at least 10 m within 1 minute.

4.1.1 The specifications and filling amounts of lubricating oil and coolant for mechanical

moving components shall comply with the vehicle manufacturer's provisions.

4.1.2 The test driver shall follow the operating procedures recommended by the vehicle manufacturer to operate the REESS at normal operating temperatures.

4.1.3 Except for the purpose of driving, all energy storage systems shall be charged to the maximum values specified by the vehicle manufacturer (electrical energy, hydraulic pressure and pneumatic pressure, etc.).

4.1.4 Before the test, the vehicle shall be run-in for a certain mileage with the REESS installed.

It may also be run-in in accordance with the technical requirements of the vehicle

manufacturer.

The mileage needs to be greater than 300 km. Meanwhile, the REESS shall undergo at least one process from the fully charged state to the state of charge alarm, and the power alarm device shall normally work.

4.1.5 The trailer matched to the tractor shall increase the windward area of the tractor as little as possible or adopt a trailer recommended by the vehicle manufacturer for the test.

4.3 Measurement Parameters, Units and Accuracy

The measurement parameters, units and accuracy shall comply with the provisions of Table 1.

4.4.1 Overall requirements

The test shall be carried out on dry straight roads, circular roads and test rampways. The road surface shall be solid, smooth, clean and have good adhesion properties.

4.4.3 Road conditions for acceleration ability test

The measurement zone shall be a flat, dry, clean concrete or asphalt (or similar) straight road.

The longitudinal slope of the measurement zone shall not exceed 0.1%, and the transverse slope shall not exceed 3%.

4.4.4 Requirements for test rampway

4.4.4.1

The climbing road is shown in Figure 1. The length of the rampway in the test section shall be no less than 20 m and can satisfy the length requirements of the test vehicle for the hill starting ability test. There are gradient sections before and after the test section. The straight section before the rampway shall not be less than 8 m. The rampway shall have a flat, solid and dry surface, a uniform slope, and good adhesion properties.

4.4.4.2

The longitudinal slope change rate of the test section shall not be greater than 0.1%, and the transverse slope change rate shall not be greater than 3%.

5.1.1 Regular charging

Regular charging should adopt the AC charging mode. If the vehicle has a DC charging mode, in accordance with the vehicle manufacturer's recommendations, the DC charging mode may be selected.