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Specifications of range extender for electrical vehicles

电动汽车用增程器技术条件

(English Translation)

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009 "Directives for standardization - Part 1: Structure and drafting of standards".

This standard was proposed by and shall be under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC 114).

Drafting organizations of this standard: China Automotive Engineering Research Institute Co., Ltd., Chongqing Kairui Electrical vehicle Systems Co., Ltd., Anhui Ankai Automobile Co., Ltd., Beijing New Energy Automobile Co., Ltd., BYD Auto Industry Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd. Co., Ltd., Hefei Juyi Power System Co., Ltd., Shanghai Dajun Power Control Technology Co., Ltd., Zhejiang Geely New Energy Commercial Vehicle Co., Ltd., Jingjin Electric Technology (Beijing) Co., Steyr Power (Changzhou) Engine Co., Ltd., Shanghai Electric Drive Co., Ltd., Chongqing Lihua Automation Technology Co., Ltd., Liuzhou Wuling Liuji Power Co., Ltd., Guangzhou Automobile Group Co., Ltd.

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This standard is the first release.

1 Scope

This standard specifies the terms and definitions, requirements, test methods and inspection rules for range extenders for electrical vehicles.

This standard applies to vehicle-mounted range extenders which consist of internal combustion engines and generators and controllers.

Note: The internal combustion engine in this standard refers specifically to compression-ignition and ignition engines.

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 standard.

3 Terms and definitions

The terms and definitions as defined in GB/T 19596 and the following terms and definitions apply to this standard.

The vehicle-mounted power supply device which consists of an internal combustion engine, a generator and a controller, for the purpose of extending the driving range of the electrical vehicle.

The electrical energy that can be produced by consuming a unit of fuel, in kW?h/kg.

The maximum electrical power that the range extender may continuously output.

The maximum electric power that the range extender may output in a short time.

After the range extender is started, the working point where the power output state is maintained for a long time.

When the ranger is operating at the steady working point, the average value of the engine speed Chinastandards.org The minimum controllable output power of all steady working points of the range extender, which may be 0.

4.1 Appearance

The appearance of the range extender shall be clearly marked and free from scratches, have high-voltage harness color identification, clear path. The lowvoltage harness shall be laid in a neat and tidy manner.

4.2.1 Continuous power.

The continuous power of the range extender shall comply with the product's technical documentation.

4.2.2 Peak power.

The peak power of the range extender shall comply with the product's technical documentation.

4.3.1 Startup characteristics.

The start-up time of the range extender shall comply with the product's technical documentation.

4.3.3 Dynamic response characteristics.

The dynamic response characteristics of the shift between steady working points of the range extender shall comply with the product's technical documentation.

4.4 Environmental adaptability

The requirements for environmental adaptability of the generator and controller of the range extender shall comply with the relevant provisions of GB/T 18488.1.

4.6 Energy transformation ratio

The energy transformation ratio of the range extender shall comply with the product's technical documentation.

4.8 Insulation

The insulation performance of the generator and controller of the range extender shall comply with the relevant provisions of GB/T 18384.3;

4.9 Withstanding voltage

The withstanding voltage performance of the generator and controller of the range extender shall comply with the relevant provisions of GB/T 18488.1.

4.10 Temperature-rise and temperature-rise limits

The temperature-rise and temperature-rise limits of the generator and controller of the range extender shall comply with the relevant provisions of GB/T 18488.1.

The temperature-rise and temperature-rise limits of the internal combustion engine of the range extender shall comply with the product's technical documentation.

5.1 Appearance test

The appearance of the range extender is checked by observation or manual testing.

5.2 Output characteristics

The test method is negotiated between the supplier and the purchaser.

5.3 Response characteristics

The test method is negotiated between the supplier and the purchaser.

5.4 Environmental adaptability

The test method of environmental adaptability for the generator and controller of the range extender is carried out in accordance with the provisions of GB/T 18488.2.

The test method of environmental adaptability for the internal combustion engine of the range extender shall comply with the technical documents of the internal combustion engine product.

5.5 Electrical safety

The test method for the insulation and withstanding voltage performance of the range extender as well as the cold DC resistance of the stator winding of the motor is carried out in accordance with the provisions of GB/T 18488.2.

5.6.1 Test preparation.

The test for the generator and controller of the range extender is prepared in accordance with the relevant provisions of GB/T 18488.2, the test of the internal combustion engine of the range extender is in accordance with the relevant provisions of GB 19055-2003. 5.6.

5.6.3 Fuel consumption of range extender.

The measurement and calculation of the fuel consumption of the internal combustion engine ?m of the range extender shall comply with the relevant provisions of GB/T 18297-2001.

5.6.4 Calculation of the power generation of range extender.

The DC voltage and current at the output of the generator's controller are measured in real time during the test of range extender. The power generation of the range extender is calculated according to formula (1):

E - Power generation of range extender, in kilowatt-hours (kW ? h);