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Test Methods of Energy Consumption and Range for Fuel Cell Electric Vehicles
燃料电池电动汽车能量消耗量及续驶里程试验方法

(English Translation)

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FOREWORD

This document is drafted in accordance with the rules given in GB/T 1.1-2020 "*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The organizations issuing this document shall not be held responsible for identifying any or all such patent rights.

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Chief drafters of this document are Lan Hao, Hou Yongping, Hao Dong, Pan Xiangmin, He Yuntang, Zheng Tianlei, An Shuzhan, Chen Pei, Pei Fenglai, Xu Nuo, Li Puming, Zhang Yanyi, Xi Fuqiang, Hao Weijian, Wang Yupeng, Zhao Honghui, Wang Xiaobing, Yang Chao, Yuan Changrong, Feng Zhanchuang, Wang Yirong, Zhang Xiaodan, Wei Qinglong, Wang Dan, Chen Huaqiang, and Jiang Shangfeng.

Test Methods of Energy Consumption and Range for Fuel Cell Electric Vehicles

1 SCOPE

This document describes the test methods for measuring energy consumption and range of fuel cell electric vehicles on the chassis dynamometer.

This document is applicable to the categories M and N fuel cell electric vehicles (hereinafter referred to as “FCEV” or “vehicle”) using compressed gaseous hydrogen.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB 18352.6-2016 Limits and Measurement Methods for Emissions from Light-Duty Vehicles (CHINA 6)

GB/T 18386.1-2021 Test Methods for Energy Consumption and Range of Electric Vehicles - Part 1: Light-Duty Vehicles

GB/T 18386.2-2022 Test Methods for Energy Consumption and Range of Electric Vehicles - Part 2: Heavy-Duty Commercial Vehicles

GB/T 24548 Fuel Cell Electric Vehicles - Terminology

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

GB/T 37244 Fuel specification for proton exchange membrane fuel cell vehicles- Hydrogen

GB/T 38146.1 China Automotive Test Cycle – Part 1: Light-Duty Vehicles

GB/T 38146.2 China Automotive Test Cycle - Part 2: Heavy-Duty Commercial Vehicles

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 24548 and the following apply.

3.1 state of charge (SOC)

Ratio of the hydrogen density in the onboard hydrogen storage cylinder to that under the nominal working pressure at 15°C

Note: The hydrogen density values under two main pressure classes are: ρ (35 MPa, 15°C) = 24.0 g/L; ρ (70 MPa, 15°C) = 40.2 g/L.

4 MEASUREMENT PARAMETERS, AND THEIR UNITS, ACCURACIES AND RESOLUTIONS

Table 1 specifies the parameters to be measured during test, and their units, accuracies and resolutions.

Table 1 Requirements for measurement parameters, and their units, accuracies and resolutions

Measurement parameter	Unit	Accuracy	Resolution
Distance	km	± 0.1%	0.001
Time	s	± 0.1	0.1
Speed	km/h	± 1%	0.2
Voltage	V	± 0.3% FSD [a] or ± 1% of reading [b]	0.1

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