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

GB/T 40711.5-2025

**Off-cycle technology/device energy saving effects evaluation
methods for passenger cars - Part 5: Generator**

乘用车循环外技术/装置节能效果评价方法 第5部分：发电机

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Table of Contents

Preface	III
Introduction	IV
1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 General Requirements	1
5 Test procedures	2
6 Calculation of energy saving effect	3
Appendix A (Normative) Gasoline, diesel, dual fuel and dual fuel vehicle generator test report	4
Appendix B (Normative) Test report on generators for hybrid vehicles that cannot be connected externally	7

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 5 of GB/T 40711 "Evaluation Methods for Energy Saving Effects of Off-cycle Technologies/Equipment for Passenger Vehicles".

The following parts have been published.

- Part 1: Gear shift reminder device;
- Part 2: Idle start-stop system;
- Part 3: Automotive air conditioning;
- Part 4: Braking energy recovery system;
- Part 5: Generators.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

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Introduction

Accelerating the development of energy-saving vehicles is the key to alleviating fuel supply conflicts, improving air quality, and promoting the healthy and sustainable development of China's automobile industry.

In order to implement the average fuel consumption target for passenger vehicles set out in the "Medium- and Long-Term Development Plan for the Automobile Industry", China has GB 27999 "Evaluation Methods and Indicators for Passenger Vehicle Fuel Consumption" was promulgated and implemented.

We should prepare the supporting implementation rules of GB 27999 and carry out the energy conservation of off-cycle technologies/devices for passenger vehicles based on the principle of encouraging advanced and quantifiable evaluation.

The work of formulating the energy effect evaluation method.

In view of the differences in technical principles, energy-saving effects and application levels of different off-cycle technologies/devices, the evaluation methods of energy-saving effects are also different.

There are differences, so GB/T 40711 "Evaluation Method for Energy Saving Effect of Passenger Car Off-cycle Technology/Equipment" is compiled into a partial document.

Based on the industry management needs and technical application characteristics, we have developed a gear shift reminder device, idle start-stop system, car air conditioning, and brake energy recovery system.

At the same time, the possibility of expanding to include other non-circulation

technologies/devices in the future is not ruled out.

GB/T 40711 is proposed to consist of seven parts.

- Part 1: Gear shift reminder device. The purpose is to determine the out-of-cycle energy saving effect evaluation method of the gear shift reminder device of a passenger car.
- Part 2: Idle start-stop system. The purpose is to determine the off-cycle energy-saving effect evaluation method of the idle start-stop system of passenger cars.
- Part 3: Automobile air conditioning. The purpose is to determine the evaluation method of the energy saving effect of the air conditioning of passenger cars outside the cycle.
- Part 4: Braking energy recovery system. The purpose is to determine the energy saving effect of the braking energy recovery system of passenger vehicles outside the cycle Price method.
- Part 5: Generator. The purpose is to determine the evaluation method of the off-cycle energy saving effect of the generator of a passenger car.
- Part 6: Active airflow control system in the vehicle. The purpose is to determine the circulation of active airflow control system in passenger cars.

Energy effect evaluation method.

- Part 7: Predictive energy management system. The purpose is to determine the off-cycle energy saving effect evaluation of the predictive energy management system for passenger vehicles. Price method.

Each technology/device energy saving effect evaluation method is a part of GB/T 40711, and each part complements each other and together constitutes our In the future, the standard system of off-cycle technology/device will be further adjusted and improved according to the development of the industry.

system, and promote the advancement of energy-saving technology in the industry.

Evaluation method for energy-saving effect of off-cycle technologies/devices for passenger cars Part 5: Generators

1 Scope

This document specifies the evaluation method for the energy-saving effect of generators in passenger cars.

This document applies to M1 category vehicles with a generator with a maximum design gross mass not exceeding 3500kg.

This document applies to vehicles that can be fueled by gasoline or diesel fuel, and does not apply to externally rechargeable hybrid electric vehicles.

2 Normative references

GB 18352.6-2016

GB/T 19233-2020

GB 19578

GB/T 19753-2021

GB 27999

3 Terms and definitions

The terms and definitions defined in GB 27999 and GB 18352.6-2016 and the following terms and definitions apply to this document.

3.1

An external electronic device that replaces vehicle electrical appliances during vehicle operation and has multiple working modes such as constant power and constant current.

4 General requirements

4.1 The vehicle manufacturer or its authorized agent shall submit a vehicle representing the model to be tested to the testing agency and provide the following relevant information.

- a) The supplier and model (rated power generation capacity) of the generator;
- b) List of electrical appliances and their power.

4.2 The test vehicle shall comply with the fuel consumption limit requirements specified in GB 19578 and GB 18352.6-2016 (or other applicable versions) Requirements regarding pollutant emissions.

4.3 The test conditions for non-external rechargeable hybrid electric vehicles (NOVC-HEV) shall meet the requirements of GB/T 19753-2021.

The requirements of Chapter 4 of GB/T 19233-2020 shall apply to other vehicles.

4.4 Carry out the test in accordance with the requirements of Chapter 5 and record the test vehicle parameters and test data in accordance with the provisions of Appendix A or Appendix B.

Calculate the test results and target value of fuel consumption of electrical appliances according to the requirements of Chapter 6. The calculation results are expressed in liters per 100 kilometers (L/100km).