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

GB/T 40711.3-2026

Replacing GB/T 40711.3-2021

**Evaluation methods for the energy saving effects of off-cycle
technologies and devices for passenger cars - Part 3:
Automotive air conditioners**

乘用车循环外技术/装置节能效果评价方法 第3部分：汽车空调

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1 Scope

GB/T 40711.3-2026 is the Chinese national standard covering crediting a car's air conditioning improvements that the official test cycle never sees - the cycle is run with the air conditioning off, so an efficient compressor or a solar-reflective glazing earns nothing unless a method like this quantifies it. Part 3 of the series. It replaces GB/T 40711.3-2021. It was issued on 28 January 2026 and has been in force since 1 August 2026, replacing GB/T 40711.3-2021. The document is under the responsibility of the Ministry of Industry and Information Technology. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes a method for evaluating the energy-saving performance of passenger automotive air conditioner systems. This document applies to M1 category vehicles equipped with automotive air conditioner, including vehicles capable of running on gasoline or diesel fuel and pure electric vehicles. It does not apply to plug-in hybrid electric vehicles.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 3730.1-2022, Terms and definitions of motor vehicles, trailers and combination vehicle -- Part

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB 27999 and QC/T 720 apply.

4 General requirements

4.1 The vehicle manufacturer or its authorized agent shall submit a representative vehicle of the test model to the testing agency. Information explaining the functions and operation of the automotive air conditioner system shall also be provided. For models equipped with both automatic and manual air conditioner, the automatic air conditioner vehicle shall be selected for testing. For other configurations, a representative vehicle shall be selected based on the principle of maximizing air conditioner energy consumption. At least the following factors must be considered.

a) For high-temperature environment testing. - Compressor type and displacement; - Sunroof and its location; - Glass light transmittance; - Body color.

b) For low-temperature environment testing. - Compressor type and displacement; - Heat pump or non-heat pump system; - Sunroof and its location.

4.2 Test vehicles capable of running on gasoline or diesel shall meet the fuel consumption limits specified in GB 19578-2024 and the pollutant emission requirements of GB 18352.6-2016 (or other applicable versions). Pure electric vehicles shall meet the energy consumption limits specified in GB 36980.1-2025.

4.3 For vehicles capable of running on gasoline or diesel, conduct tests according to the requirements of Chapters 5 and 6, and record the vehicle parameters and test data as specified in Annex A. Calculate the target fuel consumption with air conditioner on, as required in 7.1.1. Express the results in liters per 100 km (L/100 km), rounded to three decimal places. Calculate the energy-saving effect, as required in 7.1.2. Express the results in liters per 100 km (L/100 km), rounded to two decimal places.

4.4 For pure electric vehicles, conduct tests according to the requirements of Chapters 5 and 6, and record the vehicle parameters and test data as specified in Annex B. Calculate the target energy consumption for air conditioner operation according to the requirements of 7.2.1. The calculation result is expressed in watt-hours per kilometer (W·h/km), rounded to one decimal place. Calculate the energy-saving effect according to the requirements of 7.2.2. The calculation result is expressed in watt-hours per kilometer (W·h/km), rounded to the nearest integer. When it is necessary to convert the energy-saving effect to kilowatt-hours per 100 kilometers (kW·h/100 km), the same significant figures shall be retained after conversion.

5 Test conditions

5.1 Testing laboratory and testing equipment For vehicles capable of running on gasoline or diesel fuel, the technical characteristics of the testing laboratory and equipment shall comply with the requirements of B.2.1 in GB/T 19233-2020. For non-plug-in hybrid electric vehicles (NOVC-HEV), the technical characteristics of the testing equipment shall also comply with the requirements of

4.2.2 in GB/T 19753-2021. For pure electric vehicles, the technical characteristics of the testing laboratory and equipment shall comply with the requirements for low-temperature environmental testing in GB/T 18386.1-2021.

5.2 Test fuel For vehicles capable of running on gasoline or diesel, the test fuel shall meet the requirements in

5.3 of GB/T 19233-2020.

5.3 Environmental conditions For vehicles that can run on gasoline or diesel, environmental conditions shall be set in accordance with the requirements of B.2.2 in GB/T 19233-2020. For pure electric vehicles, environmental conditions shall be set in accordance with the requirements of low-temperature environmental testing in GB/T 18386.1-2021.

5.4 Vehicle preparation

5.4.1 For vehicles capable of running on gasoline or diesel, vehicle preparation shall be carried out in accordance with the requirements of B.2.3.1 in GB/T 19233-2020. For pure electric vehicles, vehicle preparation shall be carried out in accordance with the requirements of low-temperature environmental testing in GB/T 18386.1-2021.

5.4.2 Arrange passenger compartment temperature measurement points on the front seats according to the method in B.2.3.2 of GB/T 19233-2020.

5.4.3 For vehicles that can run on gasoline or diesel, if they have an idle start-stop system, it shall be turned off or rendered ineffective by appropriate means.

5.4.4 For vehicles equipped with an in-vehicle air quality control system, turn off the air quality control system or disable it by appropriate means.

5.5 Air conditioner settings For vehicles that can run on gasoline or diesel, the air conditioner system shall be installed according to the requirements of B.2.4 in GB/T 19233-2020. For pure electric vehicles, the heating system shall be installed according to the requirements of low-temperature environmental testing in GB/T 18386.1-2021.

6.1 Test preparation

6.1.1 Set the environmental conditions according to the requirements of 5.3.

6.1.2 For vehicles that can run on gasoline or diesel, place the vehicle and connect it to testing equipment such as an exhaust sampling system to confirm that there are no leaks in the fuel lines and that exhaust is fully vented.

6.1.3 For vehicles that can run on gasoline or diesel, the chassis dynamometer shall be set according to the requirements of B.3.1.3 in GB/T 19233-2020. For pure electric vehicles, the chassis dynamometer shall be set according to the requirements of low-temperature environment testing in GB/T 18386.1-2021.

6.2 Test cycle Conduct the test according to Annex A of GB/T 38146.1-2019, which specifies the China Passenger Vehicle Driving Condition (CLTC-P).

6.3 Measurement of air conditioner fuel consumption in high-temperature environments for vehicles capable of running on gasoline or diesel

6.3.1 Measurement of vehicle fuel consumption (FCON) under air conditioner conditions

6.3.1.1 Vehicle pre-setting shall be carried out in accordance with the requirements of B.3.3.1 in GB/T 19233-2020.

6.3.1.2 Vehicle pretreatment shall be performed in accordance with the requirements of B.3.3.2 in GB/T 19233-2020. For NOVC-HEV, pretreatment shall be performed in accordance with C.3.2 in GB/T 19753-2021.

6.3.1.3 Vehicles shall be parked in accordance with the requirements of B.3.3.3 in GB/T 19233-2020.