



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

GB/T 40261.2-2021

**Ergonomics of the thermal environment - Evaluation of thermal
environments in vehicles - Part 2: Evaluation of thermal comfort
using human subjects**

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Foreword

GB/T 40261 "Human Efficacy of Thermal Environment" has been published and plans to publish the following parts.

---Part 1.Principles and methods of temperature stress assessment;

---Part 2.Use subjects to evaluate thermal comfort.

This part is Part 2 of GB/T 40261.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this part is equivalent to the ISO 14505-3:2006 "Ergonomics of Thermal Environment".

Assessment Part 3. Using subjects to evaluate thermal comfort.

The Chinese documents that have a consistent correspondence with the international documents cited in this section are as follows.

---GB/T 40288-2021 anthropological terms and symbols of thermal environment (ISO 13731:2001, IDT).

This section has made the following editorial changes.

---In order to be consistent with my country's technical standard system, the name of this part of the standard is changed to "Ergonomics of the thermal environment"

Environmental Assessment Part 2. Using Subjects to Evaluate Thermal Comfort."

This part is proposed and managed by the National Ergonomics Standardization Technical Committee (SAC/TC7).

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Introduction

The direct method to assess the thermal environment of the vehicle (hot, medium, cold) includes the measurement of various human reactions, and there are three forms. subjective method, objective method

Methods and methods of behavior. Subjective methods use subjective scales to quantify people's reactions to the environment. The objective method refers to the use of instruments or output

Measurement (such as performance measurement) to quantify a person's physical, physiological, or psychological conditions. Behavioral methods quantify or express human response to the environment.

Each method is developed based on basic principles, and the most suitable method form and method combination for thermal environment assessment depends on the evaluation concerned.

Content and transportation environment. This section presents the principles and application methods of using the tested to assess the environmental thermal comfort of vehicles. Evaluation

The most suitable method for communicating the thermal comfort of the tool environment is the subjective method. For the compilation principle of the subjective rating scale, see GB/T 18977, and it is used in the system.

Determine the experimental methods specified in this section. ISO 9886 describes the physiological measurement of the human body, which is beyond the scope of this standard.

This section supplements the standards related to the ergonomics of the thermal environment, and can be used in conjunction with the thermal index applicable to the vehicle environment.

Ergonomics of the thermal environment

Thermal environment assessment in vehicles

Part 2. Use subjects to evaluate thermal comfort

1 Scope

This part of GB/T 40261 gives guidelines for using subjects to evaluate thermal comfort in vehicles, and specifies a standard

experimental method. This section establishes the general principles of thermal environment assessment and evaluation, not limited to any specific means of transportation. Provisions in this section

Based on whether it can provide people with thermal comfort, the method determines the performance of the vehicle under the conditions of concern, and is used for the development and

Evaluation.

This Part applies to various types of transportation, including cars, buses, trucks, off-road vehicles, trains, airplanes, ships, submarines, cranes, etc.

The cockpit of a car and similar spaces. It is suitable for situations when people are enclosed in vehicles and exposed to the external environment. For exposure

People under external conditions, such as bicycle and motorcycle riders, convertible drivers, and forklift operators without a cockpit, etc., the vehicle speed

Degree and weather will dominate the body's response. The evaluation principles of this section also apply.

This section applies to vehicle passengers and operators whose application does not affect the safe operation of the vehicle.

This section establishes the principles of thermal comfort assessment and evaluation, including the use of test methods and subject experiments. At the same time, this section also mentions

Provides a subjective method for evaluating the comfort of the thermal environment.

This section belongs to the basic ergonomics standards, which is helpful for the development of standards for specific vehicles and products.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

ISO 12894 Ergonomics of thermal environment Medical monitoring methods for individuals exposed to extremely high temperature or extremely low temperature environments (Ergonomics

of the thermal environment-Medical supervision of individuals exposed to extreme hot or cold environments)

ISO 13731 Ergonomic terms and symbols for thermal environment (Ergonomics of the thermal environment-

Vocabulary and symbols)

3 Terms and definitions

The following terms and definitions defined by ISO 13731 apply to this document.

3.1

Cold stress

Because the human body's heat dissipation is just equal to or greater than the thermal balance, a climate that causes significant and sometimes uncompensable physiological stress

Syndrome.