



**International
Standard**

ISO 14505-1

**Ergonomics of the thermal
environment — Evaluation of
thermal environments in vehicles —**

**Part 1:
Principles and methods for
assessment of thermal stress**

*Ergonomie des ambiances thermiques — Évaluation des
ambiances thermiques dans les véhicules —*

*Partie 1: Principes et méthodes d'évaluation de la contrainte
thermique*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The main change is as follows:

- inclusion of information from ISO 14505-4:2021.

A list of all parts in the ISO 14505 series can be found on the ISO website.

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Introduction

The interaction of convective, radiative and conductive heat exchange in a vehicle compartment is very complex. External thermal loads in combination with the internal heating and ventilation system of the vehicle create a local climate that can vary considerably in space and time. Asymmetric thermal conditions arise and these are often the main cause of complaints of thermal discomfort. In vehicles without or with poor heating, ventilating and air-conditioning system (HVAC-system), thermal stress is determined largely by the impact of the ambient climatic conditions on the vehicle compartment. Subjective evaluation is integrative, as the individual combines into one reaction the combined effect of several thermal stimuli. However, it is not sufficiently detailed or accurate for repeated use. Technical measurements provide detailed and accurate information, but must be integrated in order to predict the thermal effects on humans. Since several climatic factors play a role for the final heat exchange of a person, these factors must be integrated to a measure, representing their relative importance.

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