
**Road vehicles — Ergonomic aspects of
transport information and control
systems — Specifications and test
procedures for in-vehicle visual
presentation**

*Véhicules routiers — Aspects ergonomiques des systèmes
d'information et de commande du transport — Spécifications et
méthodes d'essai pour la présentation visuelle à bord du véhicule*



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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 15008 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 13, *Ergonomics applicable to road vehicles*.

This second edition cancels and replaces the first edition (ISO 15008:2003), which has been technically revised.

Introduction

Driver and vehicle form an integrated system that includes the environment, the primary vehicle controls, the instrumentation and the transport information and control systems (TICS). The task of driving, as well as human capabilities and limitations, are other important factors in the performance of this system.

TICS are intended to support drivers in their primary task, and it is therefore expected that the overall workload of the driver will not be negatively influenced by the use of TICS, while performance and comfort are increased.

The visual characteristics of display systems are only one set of factors influencing this process. They therefore need to be considered, along with human capabilities, in connection with the other elements of the driving environment.

Visual specifications fall within a wide range of environmental conditions and constitute only one necessary condition for adequate performance, comfort and workload. They refer to the relevant range of illumination conditions and to the location of the display with respect to the driver.

The following substantial changes have been made compared with the first edition of this International Standard:

- extension of the scope,
- updating of normative and bibliographic references, and terms and definitions,
- clarification of design viewing positions,
- referencing of contrast measurement methods and angles to SAE J1757/1:2007,
- changing of illumination ranges; addition of twilight condition,
- inclusion of outlined characters,
- exclusion of colour contrast,
- changing of minimum character heights,
- inclusion of Chinese and Japanese characters, and
- clarification of character dimension specifications.

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1 Scope

This International Standard specifies minimum requirements for the image quality and legibility of displays containing dynamic (changeable) visual information presented to the driver of a road vehicle by on-board transport information and control systems (TICS) used while the vehicle is in motion. These requirements are intended to be independent of display technologies, while reference to test methods and measurements for assessing compliance with them have been included where necessary.

This International Standard is applicable to mainly perceptual, and some basic cognitive, components of the visual information, including character legibility and colour recognition. It is not applicable to other factors affecting performance and comfort, such as coding format and dialogue characteristics, or to displays using

- characters presented as a part of a symbol or pictorial information,
- superimposed information on the external field (e.g. head-up displays),
- pictorial images (e.g. rear view camera),
- maps and topographic representations (e.g. those for setting navigation systems), or
- quasi-static information.

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.

ISO 4513, *Road vehicles — Visibility — Method for establishment of eyellipses for driver's eye location*

CIE 17.4:1987, *International lighting vocabulary*

CIE 85:1989, *Solar spectral irradiance*

SAE J1757/1:2007, *Standard Metrology for Vehicular Displays*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CIE 17.4:1987 and the following apply.

3.1

adaptation

adjustment of the eye's sensitivity to the brightness of the observed visual field

NOTE Dark adaptation occurs at a slower rate than does light adaptation.