
**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 de
commande et d'information des transports — Spécifications et modes
opératoires pour la présentation visuelle à bord du véhicule*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 39, *Ergonomics*.

This third edition cancels and replaces the second edition (ISO 15008:2009), which has been technically revised with the following changes:

- Introduction was modified;
- Scope was modified (heavy vehicles partly excluded);
- test conditions for direct sunlight have been changed;
- character height was modified;
- character proportion was modified;
- character weight criterion was modified;
- intercharacter spacing was modified;
- word spacing was modified;
- a new subclause on text case was added;
- the subclause on character outlines was modified;
- a new subclause on character shadows was added;
- the subclause on Non-Roman text was modified and renamed Non-Latin.

Introduction

Driving is a complex task requiring continuous allocation of attentional resources to both driving and non-driving tasks. Because of this, driving is an interactive balance between cognitive, physical, somatosensory, visual and psychomotor skills.

Driver and vehicle form an integrated system that includes the environment, vehicle controls, and displays collectively defined as the transport information and control systems (TICS). Since driving is an interactive systems activity, vehicle characteristics in combination with human capabilities constitute important factors in the performance of this TIC system.

In order to achieve optimal driver performance, the purpose of TICS is to support drivers in their primary task such that performance, comfort and safety are increased and overall driver workload is not negatively influenced by the use of TICS. One set of factors influencing this process involves the characteristics of visual displays. Specifically, those aspects of displays designed to accommodate human capabilities, the range of illumination conditions and location of the display with respect to the driver. This is especially important since visual specifications must include a wide range of environmental conditions and constitute only one necessary condition for adequate performance, comfort and workload. The purpose of this document is to standardize visual presentation.

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

1 Scope

This document specifies minimum requirements for the image quality and legibility of displays containing dynamic (changeable) visual information presented to the driver of a passenger car by on-board transport information and control systems (TICS) used while the vehicle is in motion. Heavy vehicles are excluded for the requirements of contrast and font size since these chapters reference ISO 4513 which is only applicable for passenger vehicles. These requirements are intended to be independent of display technologies. Reference to test methods and measurements for assessing compliance with them have been included where necessary.

This document is applicable mainly to 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 (e.g. CD symbol);
- 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 (e.g. AM/PM, km/miles, kPa/PSI, On/Off information).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 85:1989, *Solar spectral irradiance*

SAE J1757/1:2015, *Standard Metrology for Vehicular Displays*

CIE S 017/E:2011 ILV, *International lighting vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CIE S 017/E:2011 ILV and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>