



SLOVENSKI STANDARD SIST EN ISO 15008:2003

01-oktober-2003

**Cestna vozila – Ergonomski vidiki transportnih informacij in kontrolnih sistemov –
Specifikacije in postopki ugotavljanja ustreznosti za vizualno predstavitev v vozilu
(ISO 15008:2003)**

Road vehicles - Ergonomic aspects of transport information and control systems -
Specifications and compliance procedures for in-vehicle visual presentation (ISO
15008:2003)

Straßenfahrzeuge - Ergonomische Aspekte von Fahrerinformations- und
Assistenzsystemen - Anforderungen und Bewertungsmethoden der visuellen
Informationsdarstellung im Fahrzeug (ISO 15008:2003)

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Véhicules routiers - Aspects ergonomiques des systèmes d'information et de contrôle du
transport - Spécifications et modes opératoires de conformité pour la présentation
visuelle a bord du véhicule (ISO 15008:2003)

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13.180	Ergonomija	Ergonomics
43.040.15	Opredeljena področja računalniških sistemov v avtomobilih	Car informatics. On board computer systems

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Road vehicles - Ergonomic aspects of transport information and control systems - Specifications and compliance procedures for in-vehicle visual presentation (ISO 15008:2003)

Véhicules routiers - Aspects ergonomiques des systèmes d'information et de contrôle du transport - Spécifications et modes opératoires de conformité pour la présentation visuelle à bord du véhicule (ISO 15008:2003)

Straßenfahrzeuge - Ergonomische Aspekte von Fahrerinformations- und Assistenzsystemen - Anforderungen und Bewertungsmethoden der visuellen Informationsdarstellung im Fahrzeug (ISO 15008:2003)

This European Standard was approved by CEN on 11 March 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

EN ISO 15008:2003 (E)

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Foreword

This document (EN ISO 15008:2003) has been prepared by Technical Committee ISO/TC 22 "Road vehicles" in collaboration with Technical Committee CEN/TC 278 "Road transport and traffic telematics", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2003, and conflicting national standards shall be withdrawn at the latest by September 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

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INTERNATIONAL STANDARD

ISO 15008

First edition
2003-03-15

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

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

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ISO 15008:2003(E)**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*.

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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 driving task, as well as human capabilities and limitations, are other important factors in the performance of this system.

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

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

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

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

1 Scope

This International Standard gives minimum specifications 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 specifications are intended to be independent of display technologies, while 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: these include 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

- superimposed information on the external field (e.g. head-up displays),
- pictorial images (e.g. closed-circuit TV for reversing),
- maps and topographic representations (e.g. those for setting navigation systems), or
- static information (e.g. control labels, tell-tales).

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 2575, *Road vehicles — Symbols for controls, indicators and tell-tales*

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

ISO 9241-3:1992, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements*

CIE¹⁾ 15.2, *Colorimetry*

CIE 17.4, *International Lighting Vocabulary*

CIE 85-1989, *Solar spectral irradiance*

1) Commission Internationale de l'Éclairage/International Commission on Illumination.

ISO 15008:2003(E)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. For terms and definitions relations to photometric quantities, including illuminance, luminance, luminance contrast, luminance modulation, saturation, chromatic aberration and CIELUV, see CIE 17.4.

- 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.
- 3.2
blink**
intended periodic variation of the luminance of a light or visual information, normally from "OFF" to a given value, typically used for attracting attention
- 3.3
brightness**
subjective attribute of light sensation by which a stimulus appears to be more or less intense or to emit more or less light
- 3.4
critical specular line
CSL**
line from the centre of the display to the centre of the eyellipse
- 3.5
critical specular light direction
CSLD**
line symmetrical to the CSL in respect of the normal direction to the centre of the display
- 3.6
critical specular light cone**
specular light cone with apex angle $\varepsilon + \beta$ (10°) all around
- 3.7
chromatic**
having hue or being coloured: appearing different in quality from a neutral grey having the same brightness
- NOTE Related to the colour properties of a visual stimulus.
- 3.8
contrast ratio**
 C_R
ratio between the luminance L_{high} of an area in its "bright" state (e.g. the strokes of a character in the case of negative polarity) and the luminance L_{low} of the same area in its "dark" state
- 3.9
fill factor**
(matrix display) ratio between the area occupied by the physical pixel area and the active pixel area
- 3.10
flicker**
unintended perceived temporal variation of the brightness of a visual stimulus, usually generated by refresh displays such as cathode ray tube devices
- 3.11
glare**
(disability) dazzling (disabling) effect produced by a bright light: retinal effect, primarily caused by light scatter in the eye, which produces a luminous veil over the retinal image, and thus reduces contrast