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# Road vehicles - Ergonomic aspects of transport information and control systems - Specifications for in-vehicle auditory presentation (ISO 15006:2011)

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**ICS** 13.180, 35.240.60, 43.040.15

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 15006

October 2011

ICS 13.180; 43.040.15; 35.240.60

Supersedes EN ISO 15006:2004

English Version

# Road vehicles - Ergonomic aspects of transport information and control systems - Specifications for in-vehicle auditory presentation (ISO 15006:2011)

Véhicules routiers - Aspects ergonomiques des systèmes de commande et d'information du transport - Spécifications concernant la présentation des informations auditives à bord du véhicule (ISO 15006:2011)

Straßenfahrzeuge - Ergonomische Aspekte von Verkehrsinformations- und Assistenzsystemen - Anforderungen und Konformitätsverfahren für die Ausgabe auditiver Informationen im Fahrzeug (ISO 15006:2011)

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# Foreword

This document (EN ISO 15006:2011) 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of an identical text or by endorsement, at the latest by April 2012, and conflicting national standards shall be withdrawn at the latest by April 2012.

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

This document supersedes EN ISO 15006:2004.

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**Endorsement notice**

The text of ISO 15006:2011 has been approved by CEN as a EN ISO 15006:2011 without any modification.

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# Introduction

The driver and the vehicle are an integrated system that includes the environment, the primary vehicle controls, the instrumentation, and the transport information and control systems (TICS). The driving task, and human capabilities and limitations, are other primary factors. TICS are intended to support the driver's primary task, and therefore it is expected that the overall workload of the driver will not be negatively influenced, while performance and comfort should be increased.

The multitude of information to be displayed to the driver through TICS may create the need to minimize visual load and make more and better use of the auditory channel. This International Standard provides ergonomic specifications for the design and installation of auditory displays presenting speech and tonal information while driving. The aim of these specifications is to help designers to provide auditory signals which meet usability, comfort and safety criteria.

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# Road vehicles — Ergonomic aspects of transport information and control systems — Specifications for in-vehicle auditory presentation

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## 1 Scope

This International Standard establishes ergonomic specifications for the presentation of auditory information related to transport information and control systems (TICS) through speech or sounds. It applies primarily to the use of auditory displays to the driver when the vehicle is in motion, but it may also be applied when the vehicle is stationary. It presents a set of requirements and recommendations for in-vehicle auditory signals from TICS, and provides characteristics and functional factors for maximizing auditory signal intelligibility and utility while helping prevent auditory or mental overload.

## 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 532, *Acoustics — Method for calculating loudness level* [1)]

ISO 5128:1980, *Acoustics — Measurement of noise inside motor vehicles*

ISO/TS 16951, *Road vehicles — Ergonomic aspects of transport information and control systems (TICS) — Procedures for determining priority of on-board messages presented to drivers*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

**3.1**
**ambient auditory noise**
auditory sensory stimulus bearing no informational relationship to the presence or completion on the immediate task that surrounds the driver in the vehicle's environment, including sound emanating from inside and outside the vehicle

**3.2**
**audibility**
degree to which an auditory signal can be heard by a person with normal hearing

**3.3**
**auditory icon**
auditory signal that represents an event or action

NOTE This auditory signal can be a synthesized sound that gives the impression of specific event or a recorded sound from everyday life.

**3.4**
**auditory signal**
tone or verbal cues emitted by an in-vehicle device, which provide information to the driver or passengers

1) The German standard DIN 45631 is largely identical to ISO 532. In practice, references for calculating loudness according to ISO 532 usually implement the code given in DIN 45631 [8].

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