# TECHNICAL SPECIFICATION



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# Road vehicles — Ergonomic aspects of transport information and control systems (TICS) — Procedures for determining priority of on-board messages presented to drivers

Véhicules routiers — Aspects ergonomiques des systèmes de commande et d'information du transport (TICS) — Modes opératoires pour la détermination de la priorité des messages embarqués présentés aux conducteurs



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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 Maison 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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISOPAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
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An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

ISO/TS 16951 was prepared by Technical Committee ISO/TC 22, *Road phicles*, Subcommittee SC 13, *Ergonomics applicable to road vehicles*.



#### Introduction

When multiple in-vehicle information systems are present, including both transport information and control systems (TICS) and non-TICS, various kinds of messages will be presented to drivers from these systems and displayed at various times. If these messages are not managed properly, drivers could fail to obtain critical information, which may degrade safety. This Technical Specification establishes two prioritization methods for TICS and other system-initiated or driver-requested messages presented to drivers while driving. Other prioritization methods are possible. The primary method given in this Technical Specification takes criticality and urgency ratings of such messages into consideration when calculating a priority index. An alternative method involving paired comparisons of all possible messages to form a priority matrix is presented in Annex A and its relative advantages and disadvantages are discussed.

y is one o, ayed. As TICS, suppliers with a consist, rmation processing capability. ortant messages reach the driver, anagement standard. The Technical Specification is intended Opthose II. that integrate in-vehicle messages. It describes how to c. for message prioritization and, therefore, so as an ev. standard equipment and for after-market TICS devices. Priority is one of the parameters to consider in determining when, where and how system messages are to be displayed. As TICS applications are deployed, the number and frequency of TICS messages presented to drivers can be expected to increase. This Technical Specification will provide road vehicle manufacturers and TICS suppliers with a consistent pasis for the management of messages competing for the driver's limited information processing capability. This, in turn, will reduce the driver's workload and help ensure that the most important messages reach the driver. This Technical Specification complements ISO 15005<sup>[3]</sup>, a dialogue

This Technical Specification is intended withose involved in the design of message management systems that integrate in-vehicle messages. It describes how to establish message priorities. It also specifies criteria for message prioritization and, therefore, serves as an evaluation tool for TICS installed in vehicles as



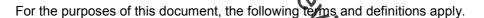
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### Road vehicles — Ergonomic aspects of transport information and control systems (TICS) — Procedures for determining priority of on-board messages presented to drivers

#### 1 Scope

This Technical Specification provides formal procedures and two, alternative, methods (users are advised to choose whichever of the two suits their individual requirements) for determining the priority of on-board messages presented to drivers of road vehicles by transport information and control systems (TICS) and other systems. It is applicable to the whole range of TICS in-vehicle messages, including traveller information, navigation, travel and traffic advisories, "yellow pages" information, warnings, systems status, emergency calling system information, and electronic toll/fee collection, as well as to messages from non-TICS sources such as telephone, warnings and teltales. Although applicable to systems that allow the free generation of messages, it neither provides guidance on how to use the messages deriving from its procedures nor is it applicable to mandatory or legally required messages.

#### 2 Terms and definitions



#### 2.1

#### contents of message

information presented to a user by the TICS or other on-board system

EXAMPLE A message containing system status information warnings or alarms presented using characters, symbols, figures, audible tones, voices or other means.

#### 2.2

#### criticality

severity of the impact of the most likely accident or malfunction the can occur when the message is not received or is ignored by the driver

#### 2.3

#### display

device that allows the presentation of visual, auditory, or haptic dynamic information to a driver

#### 2.4

#### driving

activities undertaken by the driver to navigate, manœuvre and handle the vehicle to achieve lateral and longitudinal control

#### 2.5

#### evaluator

person who judges the contents of a message from the point of view of criticality and urgency to the driver

#### 2.6

#### examiner

person who manages and conducts the use of this Technical Specification for determining priority

