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Heavy commercial vehicles and buses — Stopping distance in straight-line braking with ABS — Open loop and closed loop test methods

Véhicules utilitaires lourds — Distance d'arrêt de freinage en ligne droite avec ABS — Méthodes d'essai en boucle ouverte et boucle fermée

Reference number
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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).

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 9, *Vehicle dynamics and road-holding ability*.

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Introduction

The main purpose of this International Standard is to provide repeatable and discriminatory test results.

The stopping distance and the dynamic behaviour of a road vehicle is a most important aspect of active vehicle safety. Any given vehicle, together with its driver and the prevailing environment, constitutes a closed-loop system which is unique. The task of evaluating the dynamic behaviour is therefore very difficult, since the significant interaction of these driver-vehicle-road elements are each complex in themselves. A complete and accurate description of the behaviour of the road vehicle shall inevitably involve information obtained from a number of different tests.

Since this test method quantifies only one small part of the complete handling characteristics, the results of this test can only be considered significant for a correspondingly small part of the overall dynamic behaviour.

Moreover, insufficient knowledge is available to correlate overall vehicle dynamic properties with accident prevention. A substantial amount of work is necessary to acquire sufficient and reliable data on the correlation between accident prevention and vehicle dynamic properties in general and the results of this test in particular. Consequently, any application of this test method for regulation purposes will require proven correlation between test results and accident statistics.

Test conditions and tyres have a strong influence on test results. Therefore, only results obtained under comparable test and tyre conditions are comparable.

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Heavy commercial vehicles and buses — Stopping distance in straight-line braking with ABS — Open loop and closed loop test methods

1 Scope

This International Standard describes test methods for determining the stopping distance during a straight-line braking manoeuvre with the braking system fully operational. It applies to heavy vehicles equipped with an anti-lock braking system (ABS), including commercial vehicles, commercial vehicle combinations, buses and articulated buses as defined in ISO 3833 (trucks and trailers with maximum weight above 3,5 tonnes and buses and articulated buses with maximum weight above 5 tonnes, according to ECE and EC vehicle classification, categories M3, N2, N3, O3, and O4).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3833, *Road vehicles — Types — Terms and definitions*

ISO 8349, *Road vehicles — Measurement of road surface friction*

ISO 8855, *Road vehicles — Vehicle dynamics and road-holding ability — Vocabulary*

ISO 15037-2:2002, *Road vehicles — Vehicle dynamics test methods — Part 2: General conditions for heavy commercial vehicles and buses*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8855, ISO 15037-2:2002 and the following apply.

3.1
actuation time
time interval from the first pedal contact until the speed of the vehicle is reduced 20 % from its initial value

3.2
stopping distance
distance travelled by the vehicle from the first pedal contact until it comes to a standstill

3.3
build-up distance
distance travelled by the vehicle during the actuation time

3.4
braking distance
distance travelled by the vehicle during the time between two specified velocities

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