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Road vehicles — Test method to evaluate the performance of autonomous emergency braking systems —

Part 1: Car-to-car

Véhicules routiers — Méthode d'essai pour évaluer la performance des systèmes automatiques de freinage d'urgence —

Partie 1: Voiture à voiture

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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 of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 33, *Vehicle dynamics and chassis components*.

This second edition cancels and replaces the first edition (ISO 22733-1:2021), which has been technically revised.

The main changes are as follows:

— normative reference to ISO 19206-3 added in several clauses;

— editorial improvements.

A list of all parts in the ISO 22733 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The capacity to avoid or mitigate a collision during potential accident is an important part of the performance of an autonomous emergency braking system. This document is intended to assess performance of an autonomous emergency braking system under defined test scenario only.

NOTE Moreover, insufficient knowledge is available concerning the relationship between overall vehicle dynamic properties and accident avoidance. (A substantial amount of work is necessary to acquire enough and reliable data on the correlation between accident avoidance and vehicle dynamic properties in general and the results of these tests in particular.)

Road vehicles — Test method to evaluate the performance of autonomous emergency braking systems —

Part 1: Car-to-car

1 Scope

This document specifies a method to evaluate the behaviour of a vehicle equipped with an autonomous emergency braking system (AEBS), or dynamic brake support (DBS) during several accident scenarios. Those accidents occur during a straight-line driving when the vehicle under test (VUT) approaches another vehicle in the same lane. Both vehicles are aligned in longitudinal axis to each other.

The most important part of the vehicle behaviour during these accidents scenarios is the capacity to avoid or mitigate the collision.

Systems requiring driver intervention are not in the scope of this document.

NOTE Depending on accidentology, only a part of the scenarios can be used for an evaluation of performance. AEB system evaluation based upon this document is limited to longitudinal accident scenarios.

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

ISO 15037-1:2019, *Road vehicles — Vehicle dynamics test methods — Part 1: General conditions for passenger cars*

ISO 19206-1, *Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 1: Requirements for passenger vehicle rear-end targets*

ISO 19206-3, *Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions — Part 3: Requirements for passenger vehicle 3D targets*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8855, ISO 15037-1 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
AEB
autonomous emergency braking
braking applied automatically by the vehicle in response to the detection of a likely collision to reduce the vehicle speed and potentially avoid the collision