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Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —

Part 5: Requirements for powered two-wheeler targets

Véhicules routiers — Dispositifs d'essai pour véhicules cibles, usagers de la route vulnérables et autres objets, pour l'évaluation de fonctions de sécurité active —

Partie 5: Exigences pour cibles de deux-roues motorisées

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Foreword

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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 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, chassis components and driving automation systems testing*.

A list of all parts in the ISO 19206 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

ADAS (Advanced Driver Assistance Systems) and active safety systems are designed to support decision-making for the driver, extend the driver's awareness of the traffic situation with advanced warnings, improve the behaviour of the vehicle, and even take over vehicle control in an emergency situation. The goal is to completely avoid an accident or at least reduce the severity of an accident.

The surrogate target is an essential component in the evaluation of ADAS/active safety functions and different levels of automated driving systems, in all situations where a collision with the target can occur.

This document addresses the specification of test targets representing powered two-wheelers (PTW). This includes motorcycles, scooters, mopeds and similar vehicles, referred to as "category L vehicles" in the UNECE vehicle classification system.

In the context of this document, the term PTW target (PTWT) is used to refer to a surrogate powered two-wheeler which includes a rider.

The characteristics of targets should be trustworthy and it is important that a PTWT is recognized as a real vehicle by the various sensing technologies.

It is also important that a PTW test target provides safety for the subject vehicle and test operators in the event that contact is made between the tested vehicle and the PTWT. Crashworthiness and durability requirements for the PTWT puts specific demands on the material and construction of the PTWT to make it fit for its purposes.

Test cases can address both stationary and moving targets and, as such, the physical construction of the target may accommodate a target carrier system capable of mimicking realistic motions. This document includes requirements on the target carrier system as applicable.

Targets described in the ISO 19206 series can be used for system development or applied in conjunction with existing standards, or standards under development, for assessment of ADAS and active safety functions of vehicles.

Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —

Part 5:
Requirements for powered two-wheeler targets

1 Scope

This document specifies performance requirements for surrogate targets used to assess the system detection and activation performance of active safety systems.

This document specifies the properties of an omni-directional multi-purpose powered two-wheeler (PTW) target for assessment of interaction in a variety of traffic scenarios.

This document specifies the properties of a PTW target (PTWT) representing a powered two-wheeler in terms of size, shape, reflection properties, etc. for testing purposes. This document addresses the detection requirements for a PTWT in terms of sensing technologies commonly in use at the time of publication of this document, and where possible, anticipated future sensing technologies. It also addresses methodologies to verify the target response properties to these sensors, as well as performance requirements for the target carrier.

The PTWTs specified in this document reflect two-wheeled vehicles corresponding to UN Category L3[1)] and to UN Category L1[2)], with the restrictions that the vehicle is not intended for human propulsion (for example, pedalling) and its two wheels are inline.

This document also addresses requirements for motion and positioning during test for PTWT including target carrier system.

This document does not address the test procedures in terms of speeds, positions or timing of events. Performance criteria for the active safety system are also not addressed.

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 8608, *Mechanical vibration — Road surface profiles — Reporting of measured data*

3 Terms and definitions

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

1) The vehicle categories are defined in Consolidated Resolution on the Construction of Vehicles (R.E.3): https://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html .

2) See https://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html .