



BSI Standards Publication

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

Part 7: Test method for target carrier system behaviour

National foreword

This Published Document is the UK implementation of ISO/TS 19206-7:2025.

The UK participation in its preparation was entrusted to Technical Committee AUE/15, Safety related to vehicles.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication is not to be regarded as a British Standard.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 33257 5

ICS 43.020

Compliance with a Published Document cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 October 2025.

Amendments/corrigenda issued since publication

Date	Text affected



Technical Specification

ISO/TS 19206-7

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

Part 7: Test method for target carrier system behaviour

*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 7: Méthode d'essai du comportement du système porteur
de cible*

**First edition
2025-10**



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	2
5 Description of the target carrier with target associations	2
6 Description of validation tests for target carrier with target	4
6.1 Test conditions	4
6.1.1 General	4
6.1.2 Generic conditions	4
6.1.3 Quality of the ground	4
6.1.4 Wind influence	4
6.2 Validation tests with GVT (3D) or EVT (2D) car targets	4
6.3 Validation tests with pedestrian targets	5
6.4 Validation tests with bicyclist target or standing scooter target	6
6.5 Validation tests with PTWT motorcycle or PTWT scooter	7
7 Test procedure	8
7.1 GVT or EVT targets	8
7.1.1 Straight line	8
7.1.2 Straight-line braking	10
7.1.3 Turning	13
7.1.4 Lane change	15
7.2 VRU targets	17
7.2.1 Straight line	17
7.2.2 Straight line braking	20
7.2.3 Lane change	20
7.2.4 Evaluation with a top based target system	20
7.3 Presentation of results	20
7.3.1 Results	20
7.3.2 Plot representation	21
Annex A (informative) Turning path and lane change path definitions	25
Annex B (informative) Report templates	27
Annex C (informative) Result example	34
Bibliography	36

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of patents which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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, 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.

To make test protocols more realistic, the multiple targets which are used for testing are put on a target carrier system which can move following pre-defined trajectories, speeds, etc.

The motion of this target carrier with the target are designed to accurately fulfil the specifications defined in the test protocols, which can be type approval tests, consumer tests (for example, Euro NCAP or other NCAP) or development tests. The dynamic performance of the target carrier system can be determined using the methods in this document.

The target carrier can be of a large or a smaller type according to the size of the target and other demands of the pre-defined tests.

The description of the tests is based on the current NCAP test protocols and can be adapted for future test protocols.

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

Part 7:

Test method for target carrier system behaviour

IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This document provides test methods to determine the properties and performance of target carriers, in combination with specified targets.

This document specifies how to validate the target carrier with target regarding the dynamic performance versus the requirements and tolerances specified in test protocols. The main characteristics validated in this document are the speed, yaw rate and lateral deviation.

This document does not address the test synchronization between the vehicle under test (VUT) and the target carrier with target.

This document does not address the detection characteristics of the target carrier with target.

NOTE Performance requirements of targets and properties related to detection by sensor systems are covered by other parts of the ISO 19206 series.

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 target carrier

mechanical or electro-mechanical system used to move and/or support the target structure according to a test protocol

Note 1 to entry: The target carrier can be self-contained within, or supporting the target structure or external devices connected with cables, beams, or similar structures. It can also be a self-propelled carrier.

Note 2 to entry: The target structure and target carrier can be integrated.

Note 3 to entry: The target structure fixation can be included in the target carrier.

[SOURCE: ISO 19206-3:2021, 3.2.2]

4 Abbreviated terms

BT	bicyclist target (target reference ISO 19206-4)
EVT	Euro NCAP vehicle target (2D vehicle target, reference ISO 19206-1)
GVT	global vehicle target (3D vehicle target, reference ISO 19206-3)
MFDD	mean fully developed deceleration
NCAP	new car assessment program
PT	pedestrian target (target reference ISO 19206-2)
PTWT	powered two-wheeler target (target reference ISO 19206-5)
SST	standing scooter target
VRU	vulnerable road user
VUT	vehicle under test (ego vehicle, subject vehicle)

5 Description of the target carrier with target associations

The target carrier with target is used to perform tests defined by NCAP or by a regulation organization.

[Table 1](#) shows combinations of target carriers and targets considered in this document. The cells in grey are the most relevant and common combinations.

Table 1 — Combinations of target carrier with target

Target carrier	EVT (2D)	GVT (3D)	Pedestrian adult/child	Bicyclist	Standing scooter target	PTWT MC/scooter
ISO target reference	VT (2D)	VT (3D)	PT	BT	SST	PTWT
		 				 
Leading vehicle with towing system 						
Vehicle target carrier 						
VRU target carrier 						
Dual belt 						
Single belt 						
Multi dimensions top based 						
NOTE 1 Dual belt is mainly used for short displacement tests (i.e. crossing tests) and single belt for longer displacement tests (i.e. longitudinal tests). NOTE 2 Target carriers can have extensions to accommodate VRU targets including offset pedestrian targets (PTs). NOTE 3 PTWT can be tested also on belt systems in low speeds.						

6 Description of validation tests for target carrier with target

6.1 Test conditions

6.1.1 General

The tests of the target carrier with target are sensitive to the following testing conditions which can impact the validity of the tests:

- generic conditions (see [6.1.2](#));
- quality of the ground (see [6.1.3](#));
- wind influence (see [6.1.4](#)).

6.1.2 Generic conditions

The asphalt should be dry.

The angle of the side incline should not exceed 1 %.

The ambient air temperature should be in the range of 0 °C and 30 °C.

6.1.3 Quality of the ground

The tests shall be performed on a uniform, solid-paved surface. The surface shall be paved and shall not contain irregularities (e.g. large dips or cracks, manhole covers or reflective studs) that can create disturbances on the target carrier displacement.

The road surface shall be smooth and not rougher than road class A as defined in ISO 8608.

6.1.4 Wind influence

The wind can significantly disturb the behaviour of the target carrier with target, especially in case of a strong lateral wind.

The measurement of the wind can be done before and after testing. The preferred solution is to measure the wind speed and wind orientation in real time during the test.

Wind speed should be less than 5 m/s.

6.2 Validation tests with GVT (3D) or EVT (2D) car targets

The validation reference tests are specified in [Table 2](#). Each test is run in two directions, run 1 and run 2.

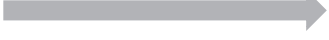
Table 2 — Validation tests with GVT or EVT

Target carrier with target	Test description	Target speed [km/h]	Target deceleration [m/s ²]	Tolerance		
				Speed [km/h]	Lateral deviation [m]	Yaw rate error [°/s]
Vehicle target carrier with GVT or towing system with EVT ^g	Straight line ^a 	20 40 60 80 100	0	±0,5	±0,1 (if speed ≤ 40 km/h) ±0,2 (if speed ≥ 80 km/h) ^e	±1 (if speed ≤ 40 km/h) ±3 (if speed ≥ 80 km/h) ^e
	Straight line braking ^b 	50	2 4 6 8	±0,5	±0,125	±1,5
Vehicle target carrier with GVT	Turning ^c 	20	0	±0,5	±0,1	±4
	Lane change ^d 	70	0	±0,5	±0,175	±12,5 ^f
^a Straight-line test procedure is described in 7.1.1 . ^b Straight-line braking test procedure is described in 7.1.2 . ^c Turning test procedure is described in 7.1.3 . Turning path is described in Annex A . ^d Lane change test procedure is described in 7.1.4 . Lane change path is described in Annex A . ^e Linear interpolation is applied between 40 km/h and 80 km/h. ^f See 7.1.4 for the definition of $\omega_{\max}$. ^g Leading vehicle pulling towing system plus EVT should be equipped with a driving robot.						

6.3 Validation tests with pedestrian targets

The validation reference tests are specified in [Table 3](#). Each test is run in two directions, run 1 and run 2.

Table 3 — Validation tests with pedestrian targets

Target carrier with target	Target trajectory	Target speed [km/h]	Target deceleration [m/s ²]	Tolerance		
				Speed [km/h]	Lateral deviation [m]	Yaw rate error [°/s]
VRU target carrier with pedestrian adult	Straight line ^a 	3 5 8	0	±0,2	±0,05	±1
VRU target carrier with pedestrian child	Straight line ^a 	5	0	±0,2	±0,05	±1
Dual belt with pedestrian adult	Straight line ^{a b} 	3 5 8	0	±0,2	±0,05	±1
Single belt with pedestrian adult		5 8	0	±0,2	±0,15	±1
Dual belt with pedestrian child	Straight line ^{a b} 	5	0	±0,2	±0,05	±1
Single belt with pedestrian child	Straight line ^{a b} 	5	0	±0,2	±0,15	±1
Top based with pedestrian adult	Straight line ^{a c d} 	3 5 8	0	±0,2	±0,05	±1
Top based with pedestrian child	Straight line ^{a c d} 	5	0	±0,2	±0,05	±1
^a Straight-line test procedure is described in 7.2.1 . ^b Evaluation with belt system is described in 7.2.1.2 . ^c Evaluation with top based system is described in 7.2.4 . ^d For multi dimensions top based systems, duration of 10 s is possible except for: Speed = 5 km/h: (duration = 5 s). Speed = 8 km/h: (duration = 4 s).						

6.4 Validation tests with bicyclist target or standing scooter target

The validation reference tests are specified in [Table 4](#). Each test is run in two directions, run 1 and run 2.