BS ISO 3888-2:2011

BSI Standards Publication

Passenger cars — Test track for a severe lane-change manoeuvre

Part 2: Obstacle avoidance

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National foreword

This British Standard is the UK implementation of ISO 3888-2:2011. It supersedes BS ISO 3888-2:2002 which is withdrawn.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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INTERNATIONAL STANDARD

ISO 3888-2

Second edition
2011-03-15

Passenger cars — Test track for a severe lane-change manoeuvre —

Part 2: Obstacle avoidance

Voitures particulières — Piste d'essai de déboîtement latéral brusque —

Partie 2: Évitement d'obstacle

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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.

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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.

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.

ISO 3888-2 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 9, *Vehicle dynamics and road-holding ability*.

This second edition cancels and replaces the first edition (ISO 3888-2:2002), of which it constitutes a minor revision.

ISO 3888 consists of the following parts, under the general title *Passenger cars — Test track for a severe lane-change manoeuvre*:

— *Part 1: Double lane-change*

— *Part 2: Obstacle avoidance*

Introduction

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

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

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

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 sufficient and reliable data on the correlation between accident avoidance and vehicle dynamic properties in general and the results of these tests in particular. Consequently, any application of this test method for regulation purposes will require proven correlation between test results and accident statistics.

INTERNATIONAL STANDARD **ISO 3888-2:2011(E)**

Passenger cars — Test track for a severe lane-change manoeuvre —

Part 2: Obstacle avoidance

1 Scope

This part of ISO 3888 defines the dimensions of the test track for a closed-loop, severe lane-change manoeuvre test for subjectively determining the obstacle avoidance performance of a vehicle, one specific part of vehicle dynamics and road-holding ability. It is applicable to passenger cars as defined in ISO 3833 and light commercial vehicles up to a gross vehicle mass of 3,5 t.

2 Normative references

The following referenced documents are indispensable for the application 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 3833:1977, *Road vehicles — Types — Terms and definitions*

3 Terms and definitions

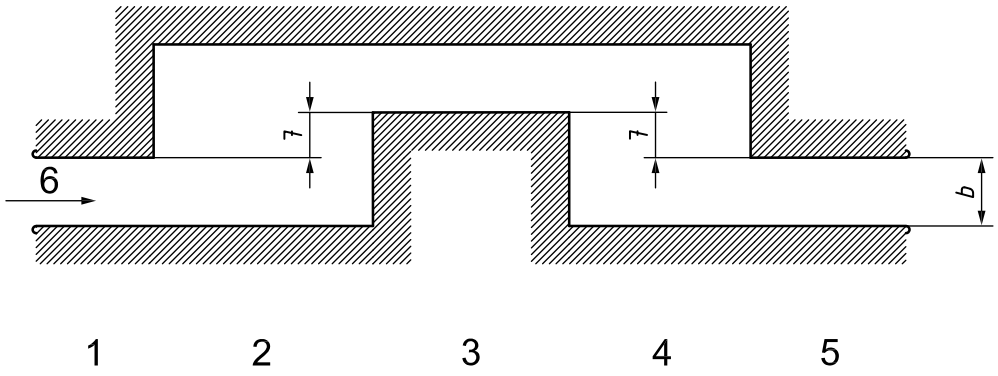
For the purposes of this document, the terms and definitions given in ISO 3833 apply.

4 Specifications

4.1 Dimensions of the obstacle avoidance track

The track for the severe lane-change obstacle avoidance manoeuvre shall be as shown in Figure 1 and the dimensions shall be as given in Table 1. The test vehicle shall be driven through this track.

The lengths of track sections are fixed, while the track width, b, is a function of vehicle width. The total length of the track shall be 61 m.



Key

1 section 1
2 section 2
3 section 3
4 section 4
5 section 5
6 driving direction
7 lane offset

Figure 1 — Obstacle avoidance track with designation of sections

Table 1 — Obstacle avoidance track dimensions

Dimensions in metres

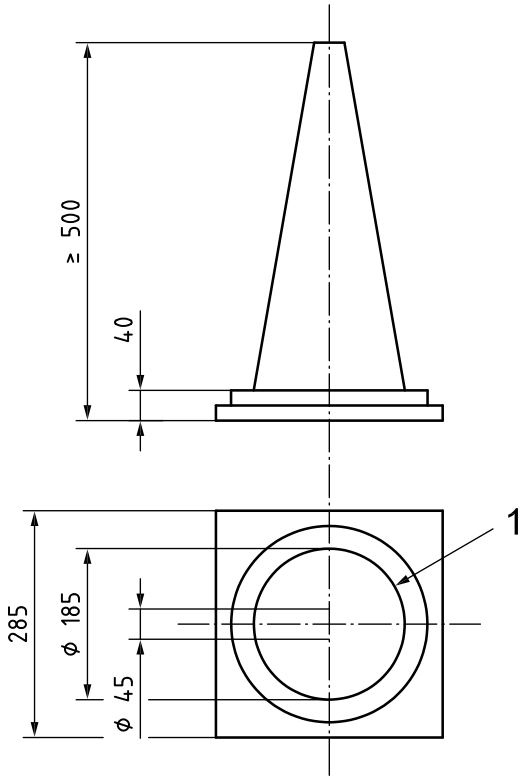
Section	Length	Lane offset	Width *b*
1	12	—	1,1 × vehicle width + 0,25
2	13,5	—	—
3	11	1	vehicle width + 1
4[a]	12,5	—	—
5	12	—	1,3 × vehicle width + 0,25, but not less than 3 m

[a] To ensure high lateral accelerations at the end of the track, section 4 is 1 m shorter than section 2.

4.2 Marking of the obstacle avoidance track

The obstacle avoidance track shall be marked with cones of a minimum height of 500 mm (see Figure 2). The cones shall be placed at the points shown in Figure 3, and the track limits shall be tangential to the base circles of the cones.

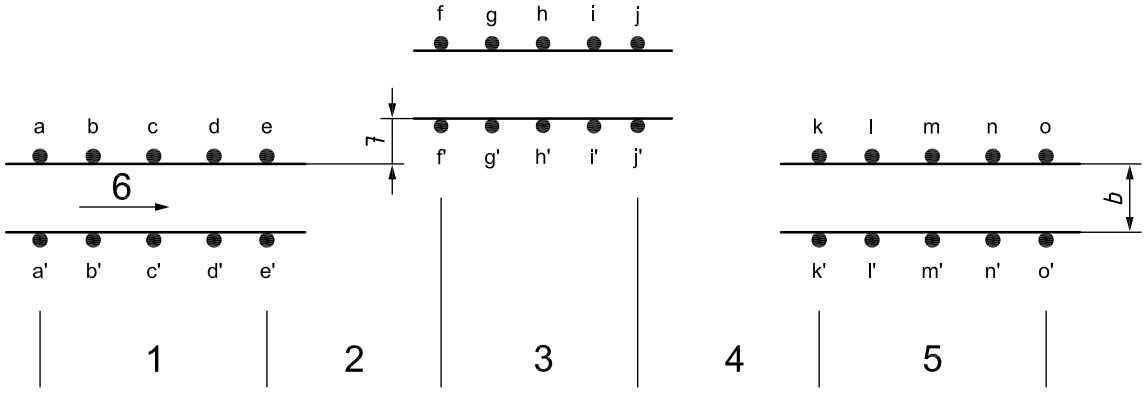
Dimensions in millimetres



Key

1 base circle of cone

Figure 2 — Cone used for obstacle avoidance track delimitation



Key

1	section 1	5	section 5
2	section 2	6	driving direction
3	section 3	7	lane offset
4	section 4		

NOTE Letters indicate placement of individual cones.

Figure 3 — Placing of cones for marking obstacle avoidance track

Annex A
(informative)

Test method

A.1 Principle of the obstacle avoidance manoeuvre

The obstacle avoidance manoeuvre is a dynamic process which involves rapidly driving a vehicle from its initial lane to another lane parallel to the first, and returning to the initial lane, without exceeding lane boundaries. The objective is to have the vehicle reach a certain sequence of alternate high, lateral accelerations such that the vehicle's lateral dynamics can be evaluated.

A.2 Example test procedure

A.2.1 Typical use

The obstacle avoidance track test shall be undertaken by skilled drivers. A passage is considered faultless when none of the cones positioned in accordance with 4.2 has been displaced. A typical use of this test is the subjective evaluation of vehicles.

A.2.2 Procedure

a) Enter section 1 with the highest gear position that guarantees a minimum engine speed of 2 000 r/min (for vehicles with automatic transmission, place selector lever in the drive position, D).

b) At 2 m after entering section 1 (see Figure A.1), release the throttle and drive the remaining distance in the throttle-released position.

In order to keep the test procedure as reproducible as possible, the initial longitudinal velocity of the vehicle is to be measured at the end of section 1 and mentioned in the test report.

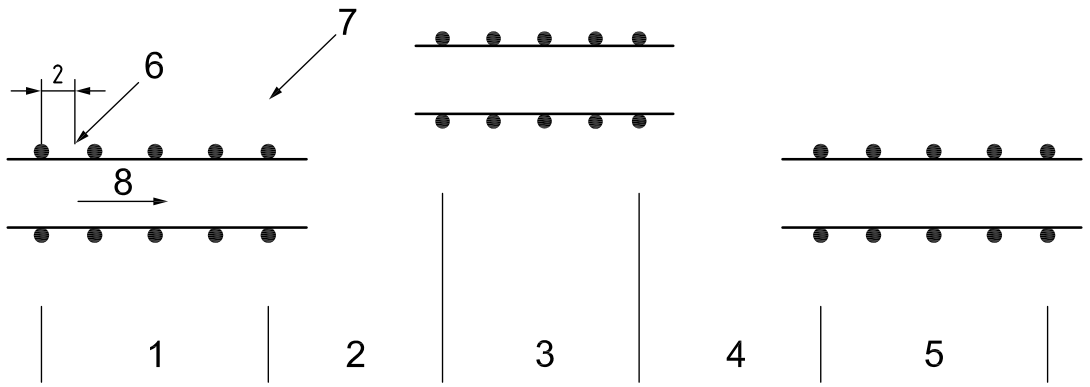
A.2.3 Limitations

Owing to driver influence (driving strategy) in this closed loop test, there is no possibility of an objective measurement of vehicle dynamics data; only subjective evaluation is recommended.

The different paths followed in different tests bring about a considerable scatter in measured velocities. Although longitudinal dynamics are restricted (throttle-off 2 m after entering section 1), this does not lead to the desired minimization of the measured velocities. Therefore, no ranking on the basis of the vehicle velocity and no minimum velocity limit for vehicles is permitted.

NOTE Because of these limitations, this part of ISO 3888 defines only the dimensions of the test track for the subjective evaluation of vehicle dynamics.

Dimensions in metres



Key

1 section 1
2 section 2
3 section 3
4 section 4
5 section 5
6 throttle off
7 measurement of the longitudinal velocity
8 driving direction

Figure A.1 — Throttle-off and measurement of vehicle longitudinal velocity

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Price based on 5 pages

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