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Passenger cars - Free-steer behaviour - Steering release open-loop test method

乘用车 自由转向特性 转向释放开环试验方法

(ISO 17288-1:2011, Passenger cars - Free-steer behaviour - Part 1: Steering release open-loop test method, MOD)

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*".

This document has modified and adopted ISO 17288-1:2011 "*Passenger cars - Free-steer behaviour - Part 1: Steering release open-loop test method*".

The technical differences between this document and ISO 17288-1:2011 and their reasons are as follows:

- REPLACE ISO 3833 and ISO 8855 by normative references GB/T 3730.1 and GB/T 12549 (see Clause 3 of this document), to adapt to the technical conditions of China.

- REPLACE ISO 15037-1:2006 by normative reference GB/T 40501-2021 (see Clause 5, Clause 6, Clause 7, Clause 8, Clause 9 of this document), the consistency between the two documents is "modified", to adapt to the technical conditions of China.

- MODIFY the typical working range of steering-wheel angle in Table 1 (see 6.1 of this document), to be consistent with 5.1.1 in GB/T 40501-2021.

This document has made the following editorial changes:

- In order to coordinate with the existing standards, the name of the standard has been changed to "*Passenger cars - Free-steer behaviour - Steering release open-loop test method*".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by Ministry of Industry and Information Technology of the People's Republic of China.

This document shall be under the jurisdiction of National Technical Committee of Auto Standardization (SAC/TC 114).

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1 Scope

This document specifies the test method for measuring the transient response of passenger cars after steering-wheel release from a steady-state steering state.

This document applies to M_1 category vehicles.

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.

GB/T 3730.1 Terms and definitions of motor vehicles, trailers and combination vehicle - Part 1: Types

GB/T 12549 Terms and definitions for vehicle controllability and stability

GB/T 40501-2021 General condition of vehicle dynamics test for passenger cars (ISO 15037-1:2019, MOD)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in GB/T 3730.1 and GB/T 12549 apply.

4 Basic principle

This test is designed to evaluate the ability of a vehicle to drive in a straight path after steering-wheel release from a steady-state circular driving state.

The initial condition of the test is a steady-state circular motion. During the test, the driver releases the steering wheel, the steering-wheel angle and vehicle response are measured and recorded, and the characteristic values based on the recorded signals are calculated.

5 Measurement variables

5.1 Reference coordinate system

Define the relevant variables according to the coordinate system specified in GB/T 40501-2021.

5.2 Measurement variables

It is recommended to measure the following variables:

- longitudinal velocity (v_x);
- lateral acceleration (a_Y);
- yaw angular velocity ($\dot{\Psi}$);
- steering-wheel angle (δ_H).

6 Measuring equipment

6.1 Requirements for measuring ranges and maximum errors

The test instruments required for the test and their measuring ranges and maximum errors shall meet the requirements of Table 1, and each test instrument shall comply with the provisions of GB/T 40501-2021.

If the error of any measurement variable exceeds the recommended maximum value, the error and the actual maximum error value shall be stated in the test report given in Annex B of GB/T 40501-2021.

6.2 Transducer installation

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