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Inspection specification for automobile climatic wind tunnel

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some contents of this standard may involve patents. The issuing organization of this standard does not bear the responsibility for identifying patents.

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Introduction

The automotive environmental wind tunnel test room integrates a variety of environmental simulation subsystems. It serves as a major test center for the development and performance testing of complete vehicles and parts.

In recent years, the wind tunnel test equipment has been built and applied on a large scale in China's automobile and auto parts industries.

The laboratory has many measuring instruments and systems for each subsystem, and the inspection of the automotive environmental wind tunnel laboratory is in its infancy in China, so it is necessary to establish and unify In order to standardize and unify the test methods of various parameters in the automobile environmental wind tunnel test room, it is necessary to standardize the test methods of various parameters in the automobile environmental wind tunnel test room.

The test methods of parameters are standardized.

This document provides information on the temperature, humidity, wind speed, road load, solar radiation, rain and snow involved in the automotive environmental wind tunnel test process.

The static and dynamic indicators of the environment simulation system, such as uniformity, stability, stabilization time, conversion rate and other parameters, are specified.

The test methods of the aerodynamic parameters of the simulation system, such as wind tunnel airflow deflection angle, boundary layer thickness, and static pressure gradient, were explained to provide a reference for the standardization.

Provide reference and guidance for testing the performance indicators of automotive environmental wind tunnel laboratories.

Technical Specifications for Automobile Environmental Wind Tunnel Test Laboratory

1 Scope

This document specifies the inspection regulations and inspection cycles for automotive environmental wind tunnel testing laboratories and describes the corresponding inspection methods.

This document is applicable to the inspection of automotive environmental wind tunnel test chambers, and is also applicable to the inspection of other similar test equipment.

The specified test method is used for various environmental simulation systems. the indication of parameters such as temperature, humidity, wind speed, solar radiation, rain and snow, and their uniformity and stability.

The test includes the test of wind tunnel airflow angle, boundary layer thickness and axial static pressure gradient.

2 Normative references

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3 Terms, definitions and symbols

The following terms, definitions and symbols apply to this document.

3.1.1 Steady state

The system's characteristic parameters remain constant in the system state. [GB/T 17212-1998, P1.2.0.05]

3.1.2 Steady time steadytime

When a parameter changes from a certain initial state to a new steady state, the time required from the first reaching of the set value to reaching the new steady state.

3.1.3 Setting time setting time

From the step change of the input signal, until the output variable remains at the input value multiplied by the static gain minus the first-order steady-state deviation of the output variable. The time interval required to remain within the specified tolerance band of the value.

[Source. GB/T 17212-1998, P1.2.1.03, P1.2.1.04, modified]

3.1.4 Conversion rate ramprate

The ratio of the conversion amount to the conversion time when a parameter changes from one steady state to another.