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JJG

NATIONAL METROLOGY VERIFICATION REGULATION OF THE PEOPLE'S REPUBLIC OF CHINA

JJG 1174-2021

Verification Regulations for Impact and Collision Test Bench

冲击、碰撞试验台 检定规程

(English Translation)

Issued on: July 28, 2021 **Implemented on: January 28, 2022**

Issued by: State Administration for Market Regulation

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Introduction

JJF1002 "Rules for the Compilation of National Metrological Verification Regulations", JJF1001 "General Metrology Terms and Definitions" and JJF1059.1 "Assessment and Representation of Measurement Uncertainty" together constitute the basic series supporting the revision of this Regulation specification.

This regulation replaces JJG 497-2000 "Crash Test Bench" and JJG 541-2005 "Drop Impact Test" tower". Compared with JJG 497-2000 and JJG 541-2005, except for editorial changes, the main technical changes are as follows.

--- Added introduction;

---Expanded the scope of verification;

--- Added terms such as mechanical shock amplification device;

--- Increased the requirements for the repeatability of the impact acceleration peak value of the impact and crash test bench;

--- Adjusted the requirements for some measurement performance and verification methods;

---Increased the impact acceleration peak value indication error, pulse the requirements for the indication error of the impulse duration and the indication error of the speed change.

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The previous versions of this regulation have been released as follows.

---JJG 497-2000;

---JJG 541-2005.

Shock and Crash Test Stand Verification Regulations

1 Scope

This regulation applies to shock and impact test rigs/tests capable of generating half-sine waves, rear peak sawtooth waves and trapezoidal waves the first verification, subsequent verification and in-use inspection of the machine (hereinafter referred to as the test bench).

2 Reference documents this procedure cites the following documents.

JJG 973 impact measuring instrument JJF1156 Terms and Definitions of Vibration Shock Speed Measurement GB/T 2423.5 Environmental Testing Part 2: Test Methods Test Ea and Guidelines. Shock GJB150.18-1986 Environmental test method for military equipment impact test GJB150.18A-2009 Laboratory Environmental Test Methods for Military Equipment Part 18: Shock Test for dated citations, only the dated version applies to this Regulation; for undated citations the latest version (including all amendments) applies to this regulation.

3 Terminology

3.1 Loadfortest for verification the mass is not greater than the specified value of the maximum load, and it can be reliably installed on the work surface of the test bench.

load.

During the impact test, an additional device superimposed on the main impact table to amplify the peak value of impact acceleration.

4 Overview

The impact and collision test bench can produce sudden changes in acceleration, which can be used for impact and collision tests of various products.

Determine its reliability in shock and crash environments. The test bench is usually composed of the test bench body (some test benches also have (mechanical shock amplification device), control unit, shock parameter measurement system and waveform generator, etc.

Most of the generators are made of high-strength plastics, rubber, sponge, felt, molded lead bodies, and variable-section pre-inflated air.

Cylinders, honeycomb-shaped triangular prisms and hydraulic braking devices, etc.

The shock pulse waveforms that can be generated by the test bench include half-sine

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shock pulse, rear peak sawtooth shock pulse and trapezoidal shock pulse.

shock pulse. The excitation principle of shock pulse mainly includes gravity excitation, electromagnetic force excitation, elastic energy storage and pressure storage.

Energy, etc.; working methods include free fall, cam, gas-liquid, electric and other forms.

5 Metrology performance requirements

5.1 Basic Shock Pulse Waveform Within the specified working range of the test bench without the mechanical shock amplification device, the pulse waveform actually measured should not be

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