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Calibration Specification for MEMS Linear Accelerometers

微机电(MEMS)线加速度计校准规范

(English Translation)

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9 Recalibration interval (14)

Appendix A MEMS linear accelerometer calibration uncertainty assessment of the gravity field sample (15)

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Introduction

Micro-electromechanical (MEMS) linear accelerometers are widely used in various fields of national economy, based on this consideration, combined with computer Electric (MEMS) accelerometer calibration line of the actual situation, the reference to the International Electrotechnical Commission IEC (INTERNATIONAL ELECTROTECHNICALCOMMISSION) 60747-14-4Ed.1 written/CDVIEC Semiconductor Accelerometer (SEMICONDUCTORDEVICES-Part 14-4. Semiconductoraccelerometers) Preparation of this specification.

Microelectromechanical (MEMS) accelerometer calibration line specification

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1 Scope

This specification defines the micro-electromechanical (MEMS) linear accelerometer (hereinafter referred to as MEMS linear accelerometer or acceleration Meter) calibration program and calibration methods for single sensitive axis MEMS linear accelerometer.

2. References

This specification refers to the following documents.

JJF 1116-2004 linear accelerometer calibration precision centrifuge specifications GJB1037A-2004 single-axis accelerometer tilting servo line test method GB/T 20485.21-2007 vibration and shock sensor calibration method Part 21. Vibration Comparative Law calibration IEC 60747Part 14-4 semiconductor accelerometer (14-4. Semiconductoraccelerometers) for dated references, only the dated edition applies to this specification; undated reference documents Member, the latest edition (including any amendments) applies to this specification.

3 Terms and definitions 3.1 micro-electromechanical MicroElectroMechanicalSystem, MEMS the use of semiconductor technology systems with integrated sensors, actuators, and/or circuits.

3.2 MEMS linear accelerometer MEMSlinearaccelerometers Using the MEMS fabrication processing for converting the input line is proportional to the acceleration converted to an output (usually the quantity of electricity) sensors.

3.3 sensitive quality proofmass Line accelerometers along or around the axis of the acceleration input is converted to torque (or force) the effective mass.

4 Overview

MEMS linear accelerometer sensitive by the general quality, flexible support and switching circuits, and the like; works of Min A certain sense of mass displacement in the inertia force generated by the external acceleration, the displacement associated with the input acceleration, which Physical model by equation (1) can be simplified.

dt2 D

dt Kx C = -Ma

Where.

M --- sensitive quality, kg;

The D --- damping provided by the surrounding gas, N · s/m;

K --- spring rate, N/m;

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