

ICS 17.160; 91.120.25
CCS J 04



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 23717.1-2009

**Mechanical vibration and shock -- Vibration and shock in
buildings with sensitive equipment -- Part 1: Measurement and
evaluation**

机械振动与冲击 装有敏感设备建筑物内的振动与冲击 第1部分：测量与评价
(English Translation)

Issued on: April 24, 2009

Implemented on: December 1, 2009

Issued by: Standardization Administration of China

Table of Contents

Preface
Introduction
1 Scope
2 Normative references
3 Shock wave type
4 Measurement and Analysis
5 Test Report
Appendix A (informative) Equivalent peak velocity response spectrum definition
Annex B (informative) filtering algorithms
References

Foreword

GB/T 23717 "Mechanical vibration and shock mounted vibration and shock sensitive equipment in buildings" by the following two parts.

--- Part 1. Measurement and Evaluation;

--- Part 2. Classification.

This section GB/T Part of 123,717.

This part identical with ISO/T S10811-1.2000 "Mechanical vibration and shock vibration sensitive equipment in buildings equipped with punch Part hit 1. Measurement and Evaluation "(in English).

This section is equivalent translation ISO/T S10811-1.2000.

For ease of use, this section was modified following editorial.

--- With "this Part" instead of "ISO/T S10811-1";

--- Remove the ISO/T S10811-1.2000 foreword, preface rewritten this section;

--- With a decimal point as a decimal symbol instead of " , . " , " ;

--- Of ISO/T S10811-1.2000 references other international standards, have been adopted as the equivalent of a standard used in place of the standard Corresponding to international standards, is not tantamount to the adoption of a standard for the direct reference to international standards.

This section of the Appendices A and B are informative appendices.

This part of the National mechanical vibration, shock and condition monitoring Standardization Technical Committee (SAC/TC53) and focal points.

This section drafted by. Dalian University of Technology, Tongji University, Tsinghua University.

Introduction

This section presents a new method for evaluation of the provisions and equipped with vibration and shock sensitive equipment within the building of the building of the state, with the aim this new approach encourages users sensitive equipment and manufacture of commercial practicality collect information in order to facilitate information exchange and evaluation of this approach.

GB/T 23717.1-2009/ISO/TS10811-1:2000 Mechanical vibration and shock Equipped with vibration and shock sensitive equipment in buildings Part 1. Measurement and Evaluation

1 Scope

GB/T 23717 in this section defines the measure contains an internal vibration and shock sensitive equipment in the building, as well as vibration analysis and calculation the method of preparation of information and data movement and impact report, the method is suitable for the building to be built on the evaluation of existing buildings and quantitative research.

When it comes to the evaluation of vibration standards and common vibration standards adopted by the manufacturer to obtain accurate vibration data, analytical methods and the use of the report was prepared unified approach is necessary. Expected vibration level can be found in IEC 60721, the device detection process can be found IEC 60068.

NOTE: Starting established in accordance with this part of the environmental conditions of vibration measurements from the hierarchy, as a designer, vibration and shock sensitive equipment manufacturers Building developers and users and usage guidelines (see GB/T 23717.2).

Vibration and Shock type considered include transfer from the floor, table, wall, ceiling or isolated systems to a piece of equipment effect, no Explicitly consider the components inside a single mechanical or electronic parts shock and vibration response.

Type of precision equipment, including (and not limited to the following types).

- a) a stationary computer system, including peripherals;
- b) stationary communications equipment;
- c) stationary test equipment, such as electron microscopy, scanning probe techniques utilizing equipment, Applied Biosystems instruments, mass spectrometers and the like;

- d) mechanical precision instruments (tools), such as electronics manufacturing equipment;
- e) high-precision optical instruments, and then the imaging system;
- f) rail traffic control center electromechanical systems;
- g) () safety equipment, access control equipment when the fire invasion.

Vibration and Shock type considered in this section by the following factors.

--- External vibration source, such as transport (road, rail or air) or the construction of buildings and construction activities (blasting, piling and vibration close Real), but also the weather causes vibration and sound of the roar and vibration response due to acoustic excitation;

--- Within the household equipment, such as presses, forging hammers, rotating equipment (air compressors, air conditioning systems, etc.) and transported or shipped in the building Line of heavy equipment;

--- Operation and maintenance of equipment and personnel related activities, such as people walking, especially in paving the floor.

This section when measuring and precision instruments in a building on the evaluation of vibration and shock, and did not directly consider the human operator in Outlook Police, operation and maintenance of the instrument of influence. Vibration of the impact of human activity, see GB/T 13441.

The frequency range of interest is typically 2Hz ~ 200Hz. General characteristic frequency less than 100Hz, because it is the performance of the building the response of various elements thereof. When there is a special purpose, you can select a different frequency range, with a corresponding change in the value of the frequency range.

Amplitude and duration depends on the distance and the elements of a building between the local oscillator and precision instruments (including precision instruments) of the ring should. When embodied as vibration speed, considering the range of between 0.001mm/s and 10mm/s.

This section relates only to the concept of maximum vibration amplitude, vibration does not involve other quantitative concepts (such as fatigue life expectancy, etc.).

2 Normative references

The following documents contain provisions which, through reference GB/T 23717 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section GB/T 23717.1-2009/ISO/TS10811-1:2000