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

GB/T 13441.5-2015

**Mechanical vibration and shock -- Evaluation of human
exposure to whole-body vibration -- Part 5: Method for
evaluation of vibration containing multiple shocks**

机械振动与冲击 人体暴露于全身振动的评价 第5部分：包含多次冲击的振动的评
价方法

(English Translation)

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Foreword

GB/T 13441 "Mechanical vibration and shock of human exposure to whole-body vibration evaluation" is divided into four parts.

--- Part 1. General requirements;

--- Part 2. Vibration in buildings (1Hz ~ 80Hz);

--- Part 4. Evaluation Guide vibration and rotational movement of the fixed guideway transport systems in passenger and crew comfort impacts;

--- Part 5. Evaluation method comprising repeated impact of vibration.

This section GB/T 13441 Part 5.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method identical with ISO 2631-5:2004 "Mechanical vibration and shock of human exposure to whole-body vibration evaluation Part 5. Evaluation Methods "contains the repeated impact of vibration (in English).

Consistency correspondence between this part of international documents and normative references of our files are as follows.

--- GB/T 2298-2010 Mechanical vibration, shock and condition monitoring of vocabulary (ISO 2041:2009, IDT)

--- GB/T 15619-2005 human exposure mechanical vibration and shock Vocabulary (ISO 5805:1997, IDT) this part of the National mechanical vibration, shock and condition monitoring Standardization Technical Committee (SAC/TC53) and focal points.

This section is responsible for drafting unit. Beijing Institute of Technology, China Academy of Railway Sciences, Zhengzhou Machinery Research Institute.

Introduction

The main purpose of this section is to contain provisions related to repeated impact human health and human exposure to whole-body vibration of quantitative methods. package Examples of vibration containing multiple shocks, including through the rough surface of the machine, do not calm the sea sailing boat, bumps in the aircraft, press Machines and mechanical hammer.

Adverse effects on the lumbar spine is a long-term bear major health risks include multiple shocks. Therefore, this section is essentially concerned the lumbar spine response. Appendix A provides information on the adverse health impact assessment guidelines.

This section is to assess the human spine bone plate (hard tissue) in response to estimates made based on the requirements of good health and the spinal cord Pathology, no problem, and requires no support to keep the body upright posture. However, this section describes the assessment methods and models are still relevant Epidemiological without verification.

Appendix A provides several attacks on the health impact assessment guidelines, Appendix B discusses several attacks and posture of the disc (soft tissue)

The impact of Annex C in the vertical direction (z direction) of the spine in response to the calculated background information in Appendix D, including software and calibration checks can Examples of the calculation of the vibration dose calculation program for.

Mechanical vibration and shock human exposure to body Evaluation of vibration - Part 5. Contains several attacks Vibration evaluation method

1 Scope

This section GB/T 13441, introduced when the person sitting on the chair on the floor repeatedly measuring the human body to withstand mechanical shock and vibration rating method.

Continuous exposure to shock vibration environment containing multiple adverse effects and dose measurement of health related. The method specified in this standard are usually Consider applied to the lumbar spine site adverse health effects occasions.

Response of the lumbar spine in this section referred to is the assumption that people who withstand vibration in a vertical posture, and in the process can not be independent from the bear Seat up. Different positions can lead to different responses of the spine.

Limitations of the lumbar spine response model used in this section are given in 5.2. Extreme caution should be used in impact conditions.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 13441.1-2007 Mechanical vibration and shock of human exposure to whole body vibration evaluation - Part 1. General requirements (ISO 2631-1:1997, IDT) ISO 2041 Mechanical vibration, shock and condition monitoring of vocabulary (Mechanicalvibration, shockandconditionmonito-ring-Vocabulary) ISO 5805 Mechanical vibration and shock human exposure vocabulary (Mechanicalvibrationandshock-Humanexpo-sure-Vocabulary)

3.1 Terms and Definitions

Terms and definitions defined in ISO 2041 and ISO 5805 apply to this document.

3.2.1 Symbols

- a. acceleration.
- A. peak acceleration.
- c. constant.
- D. Acceleration dose.
- f. frequency.
- m. dose coefficient.
- R. factor.