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

GB/T 33511-2017

**Mechanical vibration -- Evaluation of measurement results from
dynamic tests and investigation on bridges**

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 18649..2004 (E) "mechanical vibration bridge dynamic test and test results of the evaluation estimate".

And the normative reference in this standard international documents are consistent with the relationship between China's documents are as follows.

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

GB/T 29715-2013 Guide for dynamic testing and testing of mechanical vibration and impact bridges and viaducts (ISO 14963..2003,

MOD)

--- GB/T 19875-2005 Vibration of mechanical vibration and impact fixing structure in terms of vibration measurement and evaluation Quality management

(ISO 14964..2000, IDT)

This standard is proposed by the National Committee for the Standardization of Mechanical Vibration, Shock and Condition Monitoring (SAC/TC53).

The drafting of this standard. Jiangsu Donghua Testing Technology Co., Ltd., Zhengzhou Institute of Machinery, Ministry of Transport Highway Science Research Institute,

Shanghai Tongfeng Engineering Consulting Co., Ltd., Tsinghua University, Shanghai Jiaotong University.

1 Scope

This standard specifies the bridge and viaduct dynamic test and test results of the assessment method. From the following aspects to ISO 14963

The test method was supplemented by.

The purpose of dynamic testing;

--- data analysis and system identification technology;

--- bridge modeling;

Measurement of measurement data.

Note 1. This standard can be used to determine all the dynamic characteristics of the measured vibration mode, ie, frequency, stiffness, mode, damping, and their motion amplitude

Variable nonlinearity. The dynamic characteristics of these structures can be compared with the design model or as a basis for condition monitoring and system identification.

The dynamic tests involved in this standard can not replace static tests.

This standard provides guidance on the evaluation of the tests carried out throughout the life cycle of the bridge. The life cycle of the bridge is.

--- pre-construction and acceptance stage;

--- acceptance stage;

- the specific period of the bridge life;

--- is about to retire.

This standard applies to road bridges, railway bridges, pedestrian bridges, viaducts and other applications that can be used during construction and use.

area. This standard should be used for certain special structures (such as suspension bridge or cable-stayed bridge), should be designed for specific characteristics of the project.

Note 2. In this standard, the terms "bridge" and "viaduct" are collectively referred to as "bridges". The term "viaduct" is used only to distinguish between the two.

2 normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article

Pieces. For undated references, the latest edition (including all modifications) applies to this document.

ISO 2041 Mechanical vibration, shock and condition monitoring vocabulary (Mechanical vibration, shockandconditionmonito-

ring-Vocabulary

ISO 14963 Mechanical vibration and impact bridge and viaduct dynamic test and test guide
(Mechanicalvibration-Evalu-

ationofmeasurementresultsfromdynamictestsandinvestigationonbridges)

ISO 14964 Mechanical vibration and shock - Fixed structural vibration - Specific
requirements for quality management in vibration measurement and evaluation

(Mechanical vibrationandshock-vibration ofstationarystructures-Specificrequirementsfor
qualitymanagementinmeasurementandevaluationofvibration

3 terms and definitions

ISO 2041 and the following terms and definitions apply to this document.

3.1

Buildability

Allowing the structure to be constructed in a safe, timely and economical manner.