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

GB/T 3449-2026

Replacing GB/T 3449-2011

Acoustics - Noise measurement inside railbound vehicles

声学 轨道车辆内部噪声测量

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 3449-2011 "Acoustic Measurement of Interior Noise in Rail Vehicles". Compared with GB/T 3449-2011, except for the following.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

a) The terms "unit", "track attenuation rate", "track acoustic characteristics", "test section", "intermittent sound", "motor vehicle", and "trailer" have been added (see 3.1).

3.7, 3.8, 3.9, 3.11, 3.13, 3.14);

b) The terms "sound pressure," "sound pressure level," "A-weighted sound pressure level," "AF-weighted maximum sound pressure level," and "equivalent continuous A-weighted sound pressure level" have been removed.

"Short-time equivalent continuous A-weighted sound pressure level" and "Equivalent continuous A-weighted impulse sound pressure level" (see 3.6, 3.7, and 3.8 of the 2011 edition).

3.9, 3.10, 3.11, 3.12);

c) Some terminology has been changed (see 3.2, 3.3, 3.4, 3.5, 3.6, 3.10, 3.12; and 3.1, 3.2, 3.3, 3.4, 3.5, 3.13 in the 2011 edition).

3.14);

d) The procedure for selecting measurement locations has been changed (see Chapter 5, 6.3 of the 2011 edition);

e) More technical requirements for stationary test measurements have been added (see Chapter 6);

f) A new method for measuring noise in the driver's cab has been added (see Chapter 7);

g) More technical requirements for uniform velocity test measurements have been added (see Chapter 8);

h) More technical requirements for acceleration and deceleration test measurements have been added (see Chapter 9);

i) The test conditions have been changed, and their content has been moved to the chapters on different state test requirements (see Chapters 6-9, 2011 edition).

Chapter 6);

j) The test methodology overview (see 7.1 in the 2011 edition) has been removed;

k) Increased measurement quality requirements (see Chapter 10);

l) More technical requirements for measurement reports have been changed (see Chapter 11, Chapter 8 of the 2011 edition);

m) Additional technical requirements for track acoustic properties have been added in the appendix (see Appendix C).

This document is modified to adopt ISO 3381:2021 "Acoustics for rail applications - Measurement of interior noise in rail vehicles".

The technical differences between this document and ISO 3381:2021, and the reasons therefor, are as follows.

---Replace IEC 61260-1 with the normatively referenced GB/T 3241.1, IEC 61672-1 with

GB/T 3785.1, and GB/T 15173 with GB/T 3241.1.

Replace with IEC 60942 to conform to my country's actual situation (see 4.1);

---The normative reference EN15153-2:2020 has been deleted, and normative references TB/T 2325.3-2020 and... have been added.

TB/T 3051.2-2016, to conform to my country's actual situation (see 7.5);

---EN15610, a normative reference, has been removed, and GB/T 5111-2024, a normative reference, has been added to conform to my country's actual situation.

(See C.2.1 and C.3.2 for details);

---The vehicle conditions (see 5.1.4, 6.4.2, and 9.4.2) and track condition requirements (see 6.3, 7.2, 8.3, and 9.3) have been changed, according to our country's vehicle...

The vehicle type refines the evaluation area for measurement locations and adds provisions requiring the equipment to meet the requirements of the procurement technical conditions or general technical conditions.

The requirement for maintaining normal operation has been amended to include requirements for ballastless track conditions, in order to better suit my country's actual engineering conditions.

---The method based on narrowband spectrum analysis has been changed, replacing "preferentially adopt Annex J of ISO.1996-2.2017 or DIN 45681" with...

"Appendix J of GB/T 3222.2-2022 shall be adopted preferentially" (see 6.7.2, 8.7.2, and 9.8.2);

---The acoustic environment and measurement methods for the driver's cab test during horn blasting have been modified (see 7.1.1 and 7.5). The acoustic environment and measurement methods during horn blasting have been adjusted.

The conditions are in accordance with the requirements of TB/T 3051.2-2016 and TB/T 2325.3-2020 to meet the testing requirements of railway electric whistles and bagpipes in my country.

Quantity requirements;

---The track geometry requirements have been changed (see 8.3.2), adding curve radius requirements at speeds of 300 km/h and above, to comply with...

It conforms to the actual situation of curve radius and vehicle speed of my country's railways and urban rail transit;

---The test speed has been changed (see 8.6.2), and a test speed for "urban (suburban) EMUs" has been added to comply with my country's railway and urban rail transit standards.

Current status of road traffic;

---Added explanations of ATC monitoring signals (see 8.7.1);

---The limits for the acoustic roughness level of rails have been changed (see C.2.1), with the new limits for the acoustic roughness level of rails corresponding to wavelengths above 16 cm.

The requirements have been revised and further tightened to conform to the research findings on the acoustic roughness of railway and urban rail transit rails in my country and noise levels.

Sound frequency characteristics.

The following editorial changes have been made to this document.

---Change the standard name to "Acoustic Measurement of Interior Noise in Rail Vehicles".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Chinese Academy of Sciences.

This document is under the jurisdiction of the National Acoustics Standardization Technical Committee (SAC/TC17).

1 Scope

This document specifies the methods and conditions for measuring the noise level inside railway vehicles or other rail vehicles in order to obtain reproducible measurement results.

Results, but excluding track maintenance vehicles in operation.

This document applies to.

---Type testing;

---Periodic monitoring and inspection;

---Routine noise measurement.

This document is not applicable to the monitoring or assessment of noise exposure for passengers or drivers, nor to rubber-wheeled guided vehicles.

This document provides methods for measuring vehicle interior noise in the following situations (typically, vehicle type testing only selects some test items).

---When the vehicle is moving at a constant speed;

---When the vehicle is stationary;

---When the vehicle accelerates or decelerates;