STN	**Železnice** **Infraštruktúra** **Protihlukové bariéry a súvisiace zariadenia proti šíreniu zvuku** **Skúšobná metóda určovania akustických vlastností** **Časť 3-2: Normalizované spektrum železničného hluku a jednočíselná hodnotiaca veličina pre aplikácie priameho poľa**	**STN** **EN 16272-3-2** 73 6381

Railway applications - Infrastructure - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 3-2: Normalized railway noise spectrum and single number ratings for direct sound field applications

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/24

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English Version

Railway applications - Infrastructure - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 3-2: Normalized railway noise spectrum and single number ratings for direct sound field applications

Applications ferroviaires - Infrastructure - Dispositifs de réduction du bruit - Méthode d'essai pour la détermination de la performance acoustique - Partie 3-2 : Spectre de bruit ferroviaire normalisé et indices uniques d'évaluation pour des applications en champ sonore direct

Bahnanwendungen - Oberbau - Lärmschutzwände und verwandte Vorrichtungen zur Beeinflussung der Luftschallausbreitung - Prüfverfahren zur Bestimmung der akustischen Eigenschaften - Teil 3-2: Intrinsische Merkmale - Standardisiertes Schienenverkehrslärmspektrum und Einzahl-Angaben für gerichtete Schallfelder

This European Standard was approved by CEN on 4 September 2023.

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European foreword

This document (EN 16272-3-2:2023) has been prepared by Technical Committee CEN/TC 256 "Railway application", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 16272-3-2:2014.

The main changes compared to the previous edition are listed below:

— The 'Terms, definitions, symbols and abbreviations' clause has been updated;

— An annex with the values of the standard deviation of reproducibility and repeatability of single-number ratings has been added; this makes possible the declaration of the measurement uncertainty and the related confidence level, which is now mandatory (Annex C);

— The Bibliography chapter has been added.

EN 16272-3-2 is part of a series and is intended to be read in conjunction with the other parts. All parts are listed in the following:

— EN 16272-1, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 1: Intrinsic characteristics — Sound absorption under diffuse sound field conditions*

— EN 16272-2, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 2: Intrinsic characteristics — Airborne sound insulation under diffuse sound field conditions*

— EN 16272-3-1, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 3-1: Normalized railway noise spectrum and single number ratings for diffuse sound field applications*

— EN 16272-3-2, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 3-2: Normalized railway noise spectrum and single number ratings for direct sound field applications (the present document)*

— EN 16272-4, *Railway applications – Track — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 4: Intrinsic characteristics — In situ values of sound diffraction under direct sound field conditions*

— EN 16272-5, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Part 5: Intrinsic characteristics —Sound absorption under direct sound field conditions*

— EN 16272-6, *Railway applications – Infrastructure — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 6: Intrinsic characteristics — Airborne sound insulation under direct sound field conditions*

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— CEN/TS 16272-7, *Railway applications – Track — Noise barriers and related devices acting on airborne sound propagation — Test method for determining the acoustic performance — Part 7: Extrinsic characteristics — In situ values of insertion loss*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document is to be read in conjunction with EN 16272-5[1] and EN 16272-6[2] and is applied only to situations as described in those documents (direct sound field conditions).

As the two main intrinsic acoustic characteristics of noise barriers and related devices acting on airborne sound propagation in a direct sound field, the sound reflection index and the sound insulation index, are frequency dependent, there is a need to define a reference railway noise spectrum for test purposes.

Also, the diffraction index difference, the main intrinsic acoustic characteristic of added devices, i.e. products to be added on the top of noise barriers and intended to contribute to sound attenuation acting primarily on the diffracted sound field, is frequency dependent and there is an analogous need to define a reference railway noise spectrum for test purposes.

This document defines the basic properties of railway noise measured at the rail track side in terms of a characteristic normalized railway noise spectrum, which is needed to evaluate single-number ratings of noise barriers and related devices acting on airborne sound propagation, except those used in reverberant conditions, e.g. inside tunnels or deep trenches.

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[1] Under preparation. Stage at the time of publication: FprEN 16272-5:2023.
[2] Under preparation. Stage at the time of publication: FprEN 16272-6:2023.

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1 Scope

This document specifies a normalized railway noise spectrum for the evaluation and assessment of the acoustic performance of devices designed to reduce airborne railway noise near railways.

All noise reducing devices different from noise barriers and related devices acting on airborne sound propagation, e.g. devices for attenuation of ground borne vibration and on board devices are outside of the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16272-4:2016, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 4: Intrinsic characteristics - In situ values of sound diffraction under direct sound field*

EN 16272-5[1], *Railway applications - Infrastructure - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 5: Intrinsic characteristics - Sound absorption under direct sound field conditions*

EN 16272-6[2], *Railway applications - Infrastructure - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 6: Intrinsic characteristics - In situ values of airborne sound insulation under direct sound field conditions*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN