SLOVENSKI STANDARD
SIST EN 16951-2:2018

01-oktober-2018

Železniške naprave - Zgornji ustroj proge - Protihrupne ovire in pripadajoče naprave, ki vplivajo na širjenje zvoka po zraku - Postopki za ocenjevanje dolgoročne učinkovitosti - 2. del: Neakustične karakteristike

Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Procedures for assessing long term performance - Part 2: Non-acoustic characteristics

Bahnanwendungen - Oberbau - Lärmschutzwände und verwandte Vorrichtungen zur Beeinflussung der Luftschallausbreitung - Bewertungsverfahren für das Langzeitverhalten - Teil 2: Nicht akustische Merkmale

Applications ferroviaires - Voie - Dispositifs de réduction du bruit - Méthodes d'évaluation des performances à long terme - Partie 2 : Caractéristiques non acoustiques

Ta slovenski standard je istoveten z: **EN 16951-2:2018**

ICS:

17.140.30	Emisija hrupa transportnih sredstev	Noise emitted by means of transport
93.100	Gradnja železnic	Construction of railways

SIST EN 16951-2:2018 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16951-2

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ICS 93.100

English Version

Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Procedures for assessing long term performance - Part 2: Non-acoustic characteristics

Applications ferroviaires - Voie - Écrans antibruit et dispositifs connexes influant sur la propagation aérienne du son - Méthodes d'évaluation des performances à long terme - Partie 2 : Caractéristiques non acoustiques

Bahnanwendungen - Oberbau - Lärmschutzwände und verwandte Vorrichtungen zur Beeinflussung der Luftschallausbreitung - Bewertungsverfahren für das Langzeitverhalten - Teil 2: Nicht akustische Merkmale

This European Standard was approved by CEN on 2 February 2018.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 16951-2:2018) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, 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 December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

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 European Standard is one of the series EN 16951, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Procedures for assessing long term performance*, as listed below:

— *Part 1: Acoustic characteristics*;

— *Part 2: Non-acoustic characteristics* [this document].

This part of EN 16951 is concerned with long-term durability. It should be read in conjunction with:

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

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

— EN 16272-3-1, *Railway applications - Track - 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 field applications*;

— EN 16272-3-2, *Railway applications - Track - 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 field applications*;

— CEN/TS 16272-5, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Test method for determining the acoustic performance - Part 5: Intrinsic characteristics - In situ values of sound reflection under direct sound field conditions*;

— EN 16272-6, *Railway applications - Track - 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*;

— EN 16727-1, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 1: Mechanical performance under static loadings - Calculation and test method*;

— EN 16727-2-1, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 2-1: Mechanical performance under dynamic loadings due to passing trains - Resistance to fatigue*;

— EN 16727-2-2, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 2-2: Mechanical performance under dynamic loadings caused by passing trains - Calculation method*;

— EN 16727-3, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Non-acoustic performance - Part 3: General safety and environmental requirements*;

— EN 16951-1, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Procedures for assessing long term performance - Part 1: Acoustic characteristics*;

— EN 60721-3-4, *Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weatherprotected locations (IEC 60721-3-4)*.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Noise barriers and related devices acting on sound propagation alongside railways should not only fulfil their acoustic function and structural design requirements in accordance with appropriate documents, but also maintain their performance during the required working life. The structural elements need to retain acceptable minimum safety factors at the end of their working life and the acoustic elements do not only have to remain effective structurally but provide the specified acoustic performance.

All elements in the construction of noise barriers and related devices acting on sound propagation should be resistant to electrolytic or/and chemical corrosion and embrittlement, be dimensionally stable and have generally a high ageing resistance in many differing conditions.

1 Scope

This European Standard specifies requirements for assessing the working life and provides the relevant exposure conditions.

Standards of construction and any material tests conducted should provide evidence of resistance to specified conditions selected from the following:

I.	Chemical Agents	Location dependent
II.	De-icing salt	Location/climate dependent
III.	Dirty water/dust	Location/ Climate dependent
IV.	Dew	Climate dependent
V.	Freeze/thaw	Climate dependent
VI.	Cold	Climate dependent
VII.	Heat	Climate dependent
VIII.	Ultra-Violet (UV) Radiation	Climate dependent
IX.	Traffic Vibration	Location dependent
X.	Biological Process	Climate dependent
XI.	Ozone	Location dependent
XII.	Water	Climate dependent
XIII.	Water spray Wet/dry	Location dependent

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60721-3-4:1995, *Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weatherprotected locations (IEC 60721-3-4:1995)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
noise barrier
noise reducing device, which obstructs the direct transmission of airborne sound emanating from railways, and which will typically span between posts and also may overhang the railway

Note 1 to entry: Noise barriers are generally made of acoustic and structural elements (see 3.3 and 3.4).

3.2
cladding
noise reducing device, which is attached to a wall or other structure and reduces the amount of sound reflected

Note 1 to entry: Claddings are generally made of acoustic and structural elements (see 3.3 and 3.4).

3.3
acoustic element
element whose primary function is to provide the acoustic performance of the device

3.4
structural element
element whose primary function is to support or hold in place acoustic elements

3.5
added device
added component that influences the acoustic performance of the original noise-reducing device (acting primarily on the diffracted energy)

Note 1 to entry: In some noise barriers, the acoustic function and the structural function cannot be clearly separated and attributed to different components.

3.6
rail side exposure
use of the product as a noise barrier or cladding installed alongside railways

3.7
acoustic working life
period of time during which the declared acoustic performance(s) [DL_{α} (from EN 16272-3-1) and/or DL_{R} (from EN 16272-3-1) and/or DL_{RI} (from EN 16272-3-2) and/or DL_{SI} (from EN 16272-3-2)] of the device will be maintained

3.8
non-acoustic working life
period of time during which the performance of the device will be sustained which enables it to fulfil the performance characteristics as identified in EN 16727-1, EN 16727-2-1, EN 16727-2-2 and EN 16727-3