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

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

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EUROPEAN STANDARD

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English Version

Railway applications - Track - Noise barriers and related
devices acting on airborne sound propagation -
Procedures for assessing long term performance - Part 1:
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 1 : Caractéristiques
acoustiques

Bahnanwendungen - Oberbau - Lärmschutzwände und
verwandte Vorrichtungen zur Beeinflussung der
Luftschallausbreitung - Bewertungsverfahren für das
Langzeitverhalten - Teil 1: 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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EN 16951-1:2018 (E)

| Contents | | Page |
|--|---|-----------|
| European foreword | | 3 |
| Introduction | | 5 |
| 1 | Scope | 6 |
| 2 | Normative references | 6 |
| 3 | Terms and definitions | 6 |
| 4 | Requirements | 7 |
| 5 | Report | 9 |
| Annex A (normative) Line side exposure – Classification of environmental conditions | | 10 |
| A.1 | General | 10 |
| A.2 | Environmental classifications appropriate to railway noise barriers and related devices acting on sound propagation selected from EN 60721-3-4 | 11 |
| Annex B (informative) Material standards | | 13 |
| B.1 | General | 13 |
| B.2 | References | 13 |
| Bibliography | | 16 |

European foreword

This document (EN 16951-1:2018) 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 November 2018, and conflicting national standards shall be withdrawn at the latest by November 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* [this document];
- *Part 2: Non-acoustic characteristics*.

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 16951-1:2018 (E)

- 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 16951-2, *Railway applications - Track - Noise barriers and related devices acting on airborne sound propagation - Procedures for assessing long term performance - Part 2: Non-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 acoustic elements need to resist the actions of agents within the line side environment that could significantly degrade their performance.

The acoustic characteristics of noise barriers and related devices acting on sound propagation can deteriorate significantly over the duration of their working life if they are not installed or maintained in accordance with the manufacturer's recommendations, or if the materials are not appropriate for the line side environment.

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.

EN 16951-1:2018 (E)**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:

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| 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. | 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 |

NOTE Combinations of different materials are worth a special attention, whether inside a single device or in combination with other devices (for example: a combination of different acoustic elements or another combination of acoustic and structural elements).

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, *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)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN