

**Road traffic noise reducing devices -
Procedures for assessing long term
performance - Part 1: Acoustical
characteristics**

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assessing long term performance - Part 1:
Acoustical characteristics

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14389-1:2007 sisaldab Euroopa standardi EN 14389-1:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.12.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14389-1:2007 consists of the English text of the European standard EN 14389-1:2007.</p> <p>This document is endorsed on 18.12.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This European Standard defines the means for evaluating the acoustic durability of Road Traffic Noise Reducing Devices. In this European Standard, the sound absorption is characterised by the single-number rating of sound reflection DLRI as defined in CEN/TS 1793-5. The airborne sound insulation is characterised by single-number rating of airborne sound insulation DLSI as defined in CEN/TS 1793-5.</p>	<p>Scope: This European Standard defines the means for evaluating the acoustic durability of Road Traffic Noise Reducing Devices. In this European Standard, the sound absorption is characterised by the single-number rating of sound reflection DLRI as defined in CEN/TS 1793-5. The airborne sound insulation is characterised by single-number rating of airborne sound insulation DLSI as defined in CEN/TS 1793-5.</p>
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English Version

Road traffic noise reducing devices - Procedures for assessing long term performance - Part 1: Acoustical characteristics

Dispositifs de réduction du bruit du trafic routier - Méthodes d'évaluation des performances à long terme - Partie 1 : Caractéristiques acoustiques

Lärmschutzeinrichtungen an Straßen - Verfahren zur Bewertung der Langzeitwirksamkeit - Teil 1: Akustische Eigenschaften

This European Standard was approved by CEN on 21 October 2007.

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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 Management Centre has the same status as the official versions.

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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 14389-1:2007) has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

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 June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

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 should be read in conjunction with:

- EN 14389-2, Road traffic noise reducing devices - Procedures for assessing long term performance - Part 2: Non-acoustical characteristics;
- CEN/TS 1793-5, Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 5: Intrinsic characteristics - In situ values of sound reflection and airborne sound insulation;
- EN 14388, Road traffic noise reducing devices - Specifications;
- 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 60721-3-4:1995).

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

Introduction

Road Traffic Noise Reducing Devices alongside roads are not only required to fulfil their acoustic function and structural design requirements in accordance with appropriate European Standards, but also to maintain their performance for a reasonably economic working life.

The acoustic elements have to resist the actions of agents within the roadside environment that could significantly degrade their performance.

The acoustic characteristics of a Road Traffic Noise Reducing Device can deteriorate significantly over the duration of its working life if it is not installed or maintained in accordance with the manufacturer's recommendations, or if the materials are not appropriate for the roadside environment.

Until now no methods exist that could be used for the evaluation of the durability of acoustic characteristics of noise reducing devices. Therefore new methods were introduced in CEN/TS 1793-5, which are designated in this standard. The use of these methods may produce values for the sound reflection DL_{RI} of noise reducing devices that are different from the values of sound absorption DL_{α} resulting from EN 1793-1, which are the basis for the product characterisation of absorptive noise reducing devices. These differences should be disregarded as far as product characterisation is concerned. The values of sound reflection resulting from the tests according to CEN/TS 1793-5 are only used in this standard as a comparative means for evaluation of the long-term durability.

1 Scope

This European Standard defines the means for evaluating the acoustic durability of Road Traffic Noise Reducing Devices.

In this European Standard, the sound absorption is characterised by the single-number rating of sound reflection DL_{RI} as defined in CEN/TS 1793-5. The airborne sound insulation is characterised by single-number rating of airborne sound insulation DL_{SI} as defined in CEN/TS 1793-5.

2 Normative references

The following referenced documents are indispensable for the application 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.

CEN/TS 1793-5, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 5: Intrinsic characteristics - In situ values of sound reflection and airborne sound insulation*

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 60721-3-4:1995)*

3 Terms and definitions

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

3.1

structural elements

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

3.2

acoustic elements

elements whose primary function is to provide the acoustic performance of the device

4 Requirements

4.1 General

The manufacturer shall declare the estimated reduction in the acoustic performance of the Road Traffic Noise Reducing Device after 5 years, 10 years, 15 years and 20 years service in given exposure classes assuming its maintenance in accordance with the manufacturer's recommendations.

The durability of the acoustic characteristics shall be assessed either by descriptive solutions based upon estimated performance of materials used, by reference to the appropriate European material standards, or comparative performance testing according to CEN/TS 1793-5. The assessment of performance may be carried out either by physical examination, or testing in accordance with CEN/TS 1793-5.

- To be able to evaluate the variations of the acoustic characteristics in accordance with CEN/TS 1793-5, it is necessary, to have an evaluation of the acoustic characteristics corresponding to the installation service to carry out an initial in-situ test in accordance with 4.3.