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**Protihrupne ovire za cestni promet – Preskusna metoda za ugotavljanje akustičnih lastnosti - 2. del: Karakteristike, značilne za izolacijo pred zvokom v zraku**

Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 2: Intrinsic characteristics of airborne sound insulation

Lärmschutzeinrichtungen an Straßen - Prüfverfahren zur Bestimmung der akustischen Eigenschaften - Teil 2: Produktspezifische Merkmale der Luftschalldämmung

Dispositifs de réduction du bruit du trafic routier - Méthode d'essai pour la détermination de la performance acoustique - Partie 2: Caractéristiques intrinseques relatives a l'isolation aux bruits aériens

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**Ta slovenski standard je istoveten z: EN 1793-2:1997**

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**ICS:**

17.140.30	Emisija hrupa transportnih sredstev	Noise emitted by means of transport
93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations

**SIST EN 1793-2:1999**

**en**

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EUROPEAN STANDARD

EN 1793-2

NORME EUROPÉENNE

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ICS 17.140.30; 93.080.30

Descriptors: environmental protection, acoustics, noise: sound, roads, traffic lanes, acoustic shields, acoustic tests, laboratory tests, acoustic measurements, noise reduction, acoustic insulation

English version

**Road traffic noise reducing devices - Test method  
for determining the acoustic performance - Part 2:  
Intrinsic characteristics of airborne sound  
insulation**

Dispositifs de réduction du bruit du trafic routier - Méthode d'essai pour la détermination de la performance acoustique - Partie 2: Caractéristiques intrinsèques relatives à l'isolation aux bruits aériens

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

This European Standard consists of the following parts under the general title

Road traffic noise reducing devices - Test method for determining the acoustic performance :

- Part 1 : Intrinsic characteristics of sound absorption ;
- Part 2 : Intrinsic characteristics of airborne sound insulation ;
- Part 3 : Normalized traffic noise spectrum.

The following parts have not yet been prepared but research is being carried out within the European Research Programme "Testing and Measurement":

- Part 4 : Extrinsic characteristics of *in situ* efficiency ;
- Part 5 : Intrinsic characteristics of *in situ* values of sound absorption and airborne sound insulation.

Annex A of this part of EN 1793 is normative and annex B is for information only.

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 March 1998, and conflicting national standards shall be withdrawn at the latest by March 1998.

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

## Introduction

Noise protection barriers along roads have to provide adequate sound insulation so that sound transmitted directly through the device is not significant compared with the sound diffracted over the top. This standard specifies a test method for assessing the airborne sound insulation performance of noise reducing devices designed for roads (a measure of intrinsic performance). It is **not** concerned with determining *in situ* performance (extrinsic performance) which additionally depends on factors which are not related to the product itself ; e.g. the dimensions of the barrier and quality of installation work and site factors such as ground impedance, site geometry etc. The test is designed to allow the intrinsic airborne sound insulation performance of the device to be measured and the resulting rating should aid the selection of devices for particular roadside applications.

## 1 Scope

This standard specifies the laboratory method for measuring the airborne sound insulation performance of roadside noise barriers. It covers assessment of the intrinsic performance of barriers which can reasonably be assembled inside the testing facility described in EN ISO 140-3.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN ISO 140-3	Acoustics - Measurement of sound insulation in buildings and of building elements - Part 3 : Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995)
EN 1793-3	Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 3 : Normalized traffic noise spectrum

## 3 Symbols

For the purposes of this standard, the following symbols apply :

$R_j$  Sound reduction index in the  $j^{\text{th}}$  one-third octave band;

$L_j$  Normalized A-weighted sound pressure level, in decibels, of traffic noise in the  $j^{\text{th}}$  one-third octave band defined in EN 1793-3;

$DLR$  Single-number rating of airborne sound insulation performance expressed as a difference of A-weighted sound pressure levels, in decibels.



## 5 Test procedure and evaluation

### 5.1 Test method

The sound reduction indices  $R_j$  in each one-third octave band in the range 100 Hz to 5 kHz shall be determined using the method described in EN ISO 140-3.

### 5.2 Single-number rating of airborne sound insulation $DL_R$

A single-number rating shall be derived to indicate the performance of the product. The individual sound reduction indices shall be weighted according to the normalized traffic noise spectrum defined in EN 1793-3.

The single-number rating of airborne sound insulation  $DL_R$ , in decibels, is given by :

$$DL_R = -10 \lg \left| \frac{\sum_{i=1}^{18} 10^{0.1 L_i} 10^{-0.1 R_i}}{\sum_{i=1}^{18} 10^{0.1 L_i}} \right|$$

NOTE : Annex B provides guidance on the use of the single-number rating.

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## 6 Test report

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### 6.1 Expression of results

The one-third octave band values of the sound reduction indices  $R_j$  shall be given at all frequencies of measurement in tabular form and in the form of a graph. The indices shall be rounded to the nearest first decimal place.

The single-number rating of airborne sound insulation  $DL_R$  shall be reported after being rounded to the nearest integer.

If the airborne sound insulation performance is to be categorized then this shall be in accordance with annex A.

### 6.2 Further information

The test report shall contain :

- a) Number and year of this European Standard, EN 1793-2 : 199X ;
- b) a description of test conditions, procedures and equipment used, in accordance with EN ISO 140-3 ;



c) a full description of the test specimen including manufacturer's name and product identifier with sectional drawings and photographs of mounting conditions ; masses, densities, dimensions and specifications of panels, posts and seals, including any internal components, shall be given ;

d) the name and address of the organization which performed the measurements.

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