

<b>STN</b>	<b>Zariadenia na zníženie hluku z cestnej dopravy Skúšobná metóda na určovanie akustických vlastností</b> <b>Časť 2: Vlastné charakteristiky vzduchovej nepriezvučnosti v podmienkach rozptýleného zvukového poľa</b>	<b>STN EN 1793-2</b>  73 6041
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Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 2: Intrinsic characteristics of airborne sound insulation under diffuse sound field conditions

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. 12/18

Obsahuje: EN 1793-2:2018

Oznámením tejto normy sa ruší  
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EUROPEAN STANDARD

EN 1793-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 17.140.30; 93.080.30

Supersedes EN 1793-2:2012

English Version

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

Dispositifs de réduction du bruit du trafic routier -  
Méthode d'essai pour la détermination de la  
performance acoustique - Partie 2 : Caractéristiques  
intrinsèques de l'isolation aux bruits aériens dans des  
conditions de champ acoustique diffus

Lärmschutzvorrichtungen an Straßen - Prüfverfahren  
zur Bestimmung der akustischen Eigenschaften - Teil  
2: Produktspezifische Merkmale der  
Luftschalldämmung in diffusen Schallfeldern

This European Standard was approved by CEN on 19 February 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN 1793-2:2018 (E)**

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## European foreword

This document (EN 1793-2:2018) 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 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 document supersedes EN 1793-2:2012.

With respect to the superseded document, the following changes have been made:

- The declaration of measurement uncertainty and the related confidence level is now mandatory.
- The categories of single number rating have been removed from Annex A. The performance of the noise reducing device is, from now on, only to be reported in terms of the numeric values of the single number rating.

EN 1793-2 is part of a series of documents and will be read in conjunction with the following:

- EN 1793-1, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 1: Intrinsic characteristics of sound absorption under diffuse sound field conditions*;
- EN 1793-3, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 3: Normalized traffic noise spectrum*;
- EN 1793-4, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 4: Intrinsic characteristics - In situ values of sound diffraction*;
- EN 1793-5, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 5: Intrinsic characteristics - In situ values of sound reflection under direct sound field conditions*;
- EN 1793-6, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 6: Intrinsic characteristics - In situ values of airborne sound insulation under direct sound field conditions*.

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, 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.

**EN 1793-2:2018 (E)****Introduction**

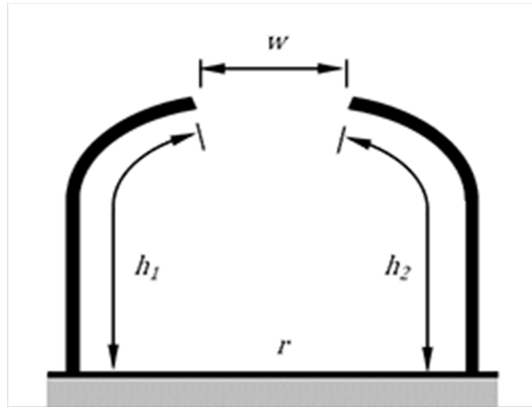
Noise reducing devices alongside roads should provide adequate sound insulation so that sound transmitted through the device is not significant compared with the sound diffracted over the top. This document specifies a test method for qualifying the intrinsic airborne sound insulation performance for noise reducing devices designed for roads in reverberant conditions, e.g. inside tunnels or deep trenches or under covers.

The measurement results of this method for airborne sound insulation are comparable but not identical with the results of the test method EN 1793-6, mainly because the present method uses a diffuse sound field, while the other method assumes a directional sound field. Research studies suggest that good correlation exists between field data, measured according to EN 1793-6 and laboratory data, measured according to the method described in the present document [1], [2], [3], [4].

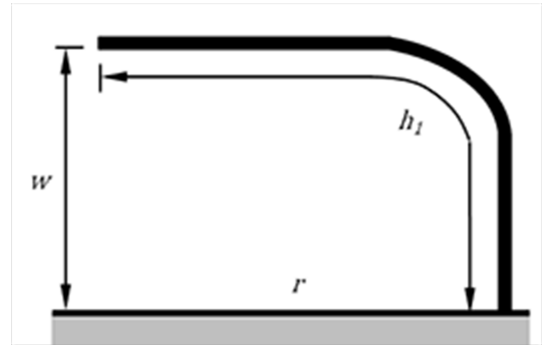
This document is not concerned with determining insertion loss (extrinsic performance) which additionally depends on factors which are not related to the product itself; e.g. the dimensions of the barrier and quality of installation work and site factors such as ground impedance, site geometry, etc. The test is designed to allow the intrinsic airborne sound insulation performance of the device to be measured; the resulting rating should aid the selection of devices for reverberant roadside applications.

For the purpose of this document reverberant conditions are defined based on the geometric envelope,  $e$ , across the road formed by the barriers, trench sides or buildings (the geometric envelope does not include the road surface) as shown by the dashed lines in Figure 1. Conditions are defined as being reverberant when the percentage of open space in the geometric envelope is less than or equal to 25 %, i.e. reverberant conditions occur when  $w/e \leq 0,25$ , where  $e = (w+h_1+h_2)$ .

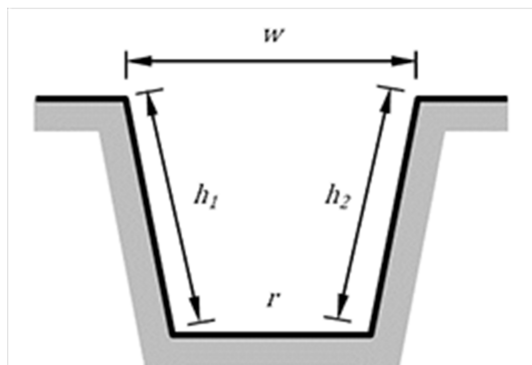
NOTE This method can be used to qualify noise reducing devices for other applications, e.g. to be installed nearby industrial sites. In this case, the single-number ratings can preferably be calculated using an appropriate spectrum.



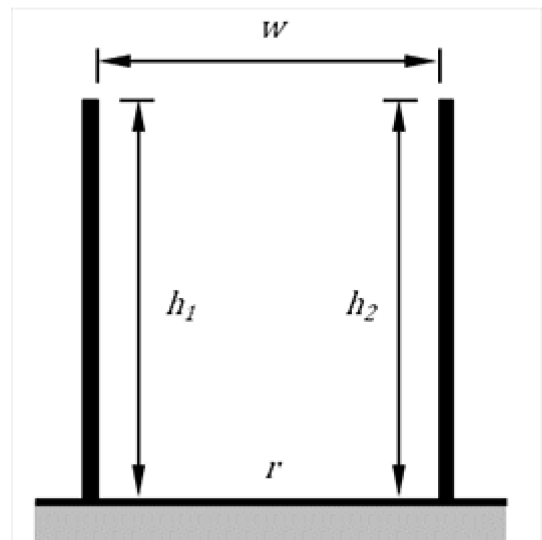
a) Partial cover on both sides of the road;  
geometric envelope,  $e = w + h_1 + h_2$



b) Partial cover on one side of the road;  
geometric envelope,  $e = w + h_1$



c) Deep trench;  
geometric envelope,  $e = w + h_1 + h_2$



d) Tall barriers or buildings;  
geometric envelope,  $e = w + h_1 + h_2$

**Key**

r	road surface
w	width of open space
$h_1$	developed length of element, e.g. cover, trench side, barrier or building
$h_2$	developed length of element, e.g. cover, trench side, barrier or building

NOTE Figure 1 is not to scale.

**Figure 1 — Sketch of the reverberant condition check in four cases**

**EN 1793-2:2018 (E)****1 Scope**

This document specifies the laboratory method for measuring the airborne sound insulation performance of road traffic noise reducing devices in reverberant conditions. It covers the assessment of the intrinsic performance of barriers that can reasonably be assembled inside the testing facility described in EN ISO 10140-2 and EN ISO 10140-4.

This method is not intended for the determination of the intrinsic characteristics of airborne sound insulation of noise reducing devices to be installed on roads in non-reverberant conditions.

**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 1793-3, *Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 3: Normalized traffic noise spectrum*

EN ISO 10140-1, *Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for specific products (ISO 10140-1)*

EN ISO 10140-2, *Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation (ISO 10140-2)*

EN ISO 10140-4, *Acoustics - Laboratory measurement of sound insulation of building elements - Part 4: Measurement procedures and requirements (ISO 10140-4)*

ISO/IEC Guide 98-3, *Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**