

Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 4: Intrinsic characteristics - Intrinsic sound diffraction

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 1793-4:2025 sisaldab Euroopa standardi EN 1793-4:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.12.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 1793-4:2025 consists of the English text of the European standard EN 1793-4:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 24.12.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 17.140.30, 93.080.30

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EUROPEAN STANDARD

EN 1793-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2025

ICS 17.140.30; 93.080.30

Supersedes EN 1793-4:2015

English Version

## Road traffic noise reducing devices - Test method for determining the acoustic performance - Part 4: Intrinsic characteristics - Intrinsic sound diffraction

Dispositifs de réduction du bruit du trafic routier -  
Méthode d'essai pour la détermination de la  
performance acoustique - Partie 4 : Caractéristiques  
intrinsèques - Diffraction sonore intrinsèque

Lärmschutzvorrichtungen an Straßen - Prüfverfahren  
zur Bestimmung der akustischen Eigenschaften - Teil  
4: Produktspezifische Merkmale - Intrinsische  
Schallbeugung

This European Standard was approved by CEN on 17 November 2025.

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.

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

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

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## European foreword

This document (EN 1793-4:2025) 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 2026, and conflicting national standards shall be withdrawn at the latest by June 2026.

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 1793-4:2015.

EN 1793-4:2025 includes the following significant technical changes with respect to EN 1793-4:2015:

- the title has been improved;
- the ‘References’ clause has been updated;
- the ‘Terms, definitions and abbreviations’ clause has been updated;
- the single-number rating  $DL_{ADI}$  is now reported with one decimal digit;
- Annex A “Low-frequency limit and window width” has been added;
- Annex C with a template of the test report has been added;
- previous Annex A has been shifted to Annex D;
- the ‘Bibliography’ clause has been updated.

The EN 1793 series, under the general title *Road traffic noise reducing devices — Test method for determining the acoustic performance*, consists of the following parts:

- *Part 1: Intrinsic characteristics — Sound absorption under diffuse sound field conditions;*
- *Part 2: Intrinsic characteristics — Airborne sound insulation under diffuse sound field conditions;*
- *Part 3: Normalized traffic noise spectrum;*
- *Part 4: Intrinsic characteristics — Intrinsic sound diffraction;*
- *Part 5: Intrinsic characteristics — Sound absorption under direct sound field conditions;*
- *Part 6: Intrinsic characteristics — Airborne sound insulation under direct sound field conditions.*

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

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## Introduction

Part of the market of road traffic noise reducing devices is constituted of products to be added on the top of road traffic noise reducing devices and intended to contribute to sound attenuation acting primarily on the diffracted sound field. These products will be called added devices. This document has been developed to specify a test method for determining the acoustic performance of added devices.

The test method can be applied *in situ*, i.e. where the road traffic noise reducing devices and the added devices are installed. The method can be applied without damaging the road traffic noise reducing devices or the added devices.

The method can be used to qualify products before the installation along roads as well as to verify the compliance of installed added devices to design specifications. Repeated application of the method can be used to verify the long-term performance of added devices.

No other national or international standard exists about the subject of this document.

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.

## 1 Scope

This document specifies a test method for determining the intrinsic characteristics of sound diffraction of added devices installed on the top of road traffic noise reducing devices. The test method prescribes measurements of the sound pressure level at several reference points near the top edge of a road traffic noise reducing device with and without the added device installed on its top. The effectiveness of the added device is calculated as the difference between the measured values with and without the added devices, correcting for any change in height (the method specified gives the acoustic benefit over a simple barrier of the same height; however, in practice the added device can raise the height and this could provide additional screening depending on the source and receiver positions).

This document is applicable to:

- the preliminary qualification, outdoors or indoors, of added devices to be installed on road traffic noise reducing devices;
- the determination of sound diffraction index difference of added devices in actual use;
- the comparison of design specifications with actual performance data after the completion of the construction work;
- the verification of the long-term performance of added devices (with a repeated application of the method);
- the interactive design process of new products, including the formulation of installation manuals.

The test method can be applied both *in situ* and on samples purposely built to be tested using the method described here.

Results are expressed as a function of frequency, in one-third octave bands between 100 Hz and 5 kHz. If it is not possible to get valid measurements results over the whole frequency range indicated, the results are given in the restricted frequency range and the reasons of the restriction(s) are clearly reported. A single-number rating is calculated from frequency data.

For indoor measurements, see Annex D.

## 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 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*

EN 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications (IEC 61672-1)*

EN ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354)*

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