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Protihrupne ovire za cestni promet - Neakustične lastnosti - 2. del: Splošne zahteve za varnost in varovanje okolja

Road traffic noise reducing devices - Non-acoustic performance - Part 2: General safety and environmental requirements

Lärmschutzvorrichtungen an Straßen - Nichtakustische Eigenschaften - Teil 2: Allgemeine Sicherheits- und Umweltanforderungen

Dispositifs de réduction du bruit du trafic routier - Performances non acoustiques - Partie 2 : Exigences générales pour la sécurité et l'environnement

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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

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English Version

Road traffic noise reducing devices - Non-acoustic performance - Part 2: General safety and environmental requirements

Lärmschutzeinrichtungen an Straßen - Nichtakustische Eigenschaften - Teil 2: Allgemeine Sicherheits- und Umweltanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 226.

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

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European foreword

This document (prEN 1794-2:2017) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1794-2: 2011.

This European standard consists of the following parts under the general title “*Road traffic noise reducing devices — Non-acoustic performance*”:

Part 1: Mechanical performance and stability requirements

Part 2: General safety and environmental requirements

Part 3: reaction to fire - Burning behaviour of noise reducing devices and classification

The main change compared to the previous edition is:

— the suppression of the Annex A, resistance to brushwood fire moved into EN 1794-3;

Introduction

While performing their primary function, road traffic noise reducing devices should not pose hazards to road users or other people in the vicinity or to the environment at large. Noise reducing devices should not assist the spread of fire from adjacent verges or nearby land. Fire resistance in accordance with particular standards can in addition be required to minimize risk to adjacent premises, or to road users in confined corridors. Noise reducing devices should not reflect light in such a way as to prejudice road safety. They should be made from materials which do not emit noxious fumes or leachates as the result of natural or industrial processes, or as the result of fire. Noise reducing devices should allow a means of escape by road users and access by operatives in the event of an emergency.

Noise reducing devices are not in general expected to resist the impact of vehicles, but designers can need information about the consequences of such impact load to establish the requirements for protection of road users and passers-by.

1 Scope

This document specifies methods and criteria for assessing the general safety and environmental performance of road traffic noise reducing devices under typical roadside conditions. Appropriate test methods are provided where these are necessary. The treatment of each topic is covered separately in Annexes A to E.

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 1794-1:2018, *Road traffic noise reducing devices - Non-acoustic performance - Part 1: Mechanical performance and stability requirements*

EN ISO 2813, *Paints and varnishes - Determination of gloss value at 20°, 60° and 85° (ISO 2813)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
noise reducing device
NRD
system designed to reduce the propagation of traffic noise away from the road environment

Note 1 to entry: The NRD may comprises acoustic elements only or both structural and acoustic elements.

Note 2 to entry: applications of NRD include noise barriers, claddings, covers and added devices.

3.4
noise barrier
noise reducing device which obstructs the direct transmission of airborne sound emanating from road traffic

3.2
acoustic element
element whose primary function is to provide the acoustic performance of the device

3.3
structural element
element whose primary function is to support or hold in place acoustic elements

3.5
cladding
noise reducing device which is attached to a wall or other structure to reduce the amount of sound reflected

3.6
cover
noise reducing device which either spans or overhangs the highway

3.7
added device
additional component that influences the acoustic performance of the original noise-reducing device (acting primarily on the diffracted energy)

4 Symbols

ϕ_m	angle at which reflections from the surface of the transparent material obscure the view through the material, in degrees;
ϕ_0	angle between the visual axis and the normal to the noise reducing device (see Figure E.2), in degrees;
α_n	angle of transparency (see Figure E.2), in degrees;
β_n	angle of opacity (see Figure E.2), in degrees;
K_A	visual acuity factor (see Figure E.3), in degrees;
L_T	light transmission index (as determined in accordance with EN 410 or EN 2155-5), in percent;
S_O	area of opaque features within transparent elements, in square millimetres;
S_T	total area of transparent elements, including horizontal features, in square millimetres;
T	transparency, in percent;
T_r	transparency looking right, in percent;
T_l	transparency looking left, in percent;
T_D	dynamic transparency, in percent;
T_S	static transparency, in percent.

5 Requirements

5.1 Secondary safety (falling debris)

When secondary safety has to be assessed, this shall be done in accordance with Annex A.

5.2 Environmental protection

The constituent materials and their breakdown products shall be identified in accordance with Annex B.

5.3 Means of escape in emergency

The acoustic and mechanical performances of doors or other means of escape shall be assessed in accordance with Annex C.

5.4 Reflection of light

The results of a standard test of reflectivity shall be assessed in accordance with Annex D.

5.5 Transparency

The results of a standard test of transparency should be assessed in accordance with Annex E.

6 Test report

6.1 Every test report on aspects of performance shall include the following information:

a) number and year of this European Standard, i.e. EN 1794-2:2018;

b) full description of the element or system tested, including manufacturer(s), part numbers, place and date of origin;

c) description of the method of sampling, if parts of manufactured elements are evaluated by testing;

d) place and date of assessment, and the name of the assessor;

e) sufficient description of any tests carried out, any results measured and the conclusions drawn about the product together with any illustrations or photographs, all as specified in the appropriate annex.

6.2 A summary report shall be produced, identifying the aspects of performance for which detailed reports are available and the level of performance assessed, where appropriate.

Annex A
(normative)

Secondary safety: danger of falling debris

A.1 General

Noise reducing devices can be mounted on structures or in such a way that if damaged they could pose a hazard to road users or to others. In particular, even if the noise reducing device is protected by the safety system on an elevated structure, there is a possibility of pieces or whole panels from a noise barrier becoming detached as the result of a violent collision and for the debris to fall, endangering those below.

Noise reducing devices which are to be used in a vulnerable position may be required to be restrained by internal or external linkage between panels and/or elements to prevent them from becoming detached and falling.

The standard provides some general indications of factors which need to be considered and also provides a method of establishing the resistance of a product to a severe blow.

NOTE It is principally the responsibility of specifiers to consider the potential consequences of a barrier becoming damaged and to provide protection accordingly.

Alternatively, a means of catching falling pieces detached from vulnerable barriers may be specified for barrier systems which are not so restrained.

A.2 Requirements

A.2.1 Behaviour under impact

Where it is known that any component of a device is liable to shatter if struck or shocked, this shall be clearly stated.

NOTE Such a statement can be qualified by further evidence of the effectiveness of any restraining mechanism.

A.2.2 Fastening of structural and acoustical elements

A.2.2.1 A noise reducing device shall be assumed to be safety fastened if the elements are secured in such a way that they do not fall when they are deformed or broken. The restraint systems shall be designed to withstand the self-weight of the relevant falling parts, multiplied by a load factor of 4. The wet self-weight shall be used, calculated in accordance with EN 1794-1:2018, Annex B.

A.2.2.2 If structural and acoustical elements of this category of noise reducing device are prevented from falling by a system of restraint linking them together, each link shall take the load of all adjoining elements. It shall be assumed that the load applied by broken pieces of a device is the weight of a single element acting at the most unfavourable position on the restraint system.