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**Protihrupne ovire za cestni promet - Preskusna metoda za ugotavljanje akustičnih lastnosti - 6. del: Bistvene karakteristike - Terenske vrednosti izolirnosti pred zvokom v zraku pri usmerjenem zvočnem polju**

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

Lärmschutzvorrichtungen an Straßen - Prüfverfahren zur Bestimmung der akustischen Eigenschaften - Teil 6: Produktspezifische Merkmale - In-situ-Werte der Luftschalldämmung in gerichteten Schallfeldern

Dispositifs de réduction du bruit du trafic routier - Méthode d'essai pour la détermination de la performance acoustique - Partie 6 : Caractéristiques intrinsèques - Valeurs in situ d'isolation aux bruits aériens dans des conditions de champ acoustique direct

**Ta slovenski standard je istoveten z: EN 1793-6:2018/prA1**

**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 1793-6:2018/oprA1:2019**      **en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**EN 1793-6:2018**  
**prA1**

October 2019

ICS 17.140.30; 93.080.30

English Version

## 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

Dispositifs de réduction du bruit du trafic routier -  
Méthode d'essai pour la détermination de la  
performance acoustique - Partie 6 : Caractéristiques  
intrinsèques - Valeurs in situ d'isolation aux bruits  
aériens dans des conditions de champ acoustique  
direct

Lärmschutzvorrichtungen an Straßen - Prüfverfahren  
zur Bestimmung der akustischen Eigenschaften - Teil  
6: Produktspezifische Merkmale - In-situ-Werte der  
Luftschalldämmung in gerichteten Schallfeldern

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

This draft amendment A1, if approved, will modify the European Standard EN 1793-6:2018. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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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 1793-6:2018/prA1:2019) 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.

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## EN 1793-6:2018/prA1:2019 (E)

**1 Modification to C.3, Standard deviation of repeatability and reproducibility of the sound insulation index**

Replace the whole Clause C.3 with the following one:

"

**C.3 Standard deviation of repeatability and reproducibility of the sound insulation index**

In the frame of the European project QUIESST an inter-laboratory test has been carried out in order to assess the repeatability and reproducibility of the test method described in this European Standard when applied to real-life samples. The values for the standard deviation of repeatability and reproducibility of sound insulation index, in one-third octave band and for the single number rating of measurements across the acoustic elements and the posts, are given in Tables C.1 and C.2. These values may be used as an estimate of the combined standard uncertainty of determinations of sound insulation index.

**Table C.1 — Standard deviation of repeatability and reproducibility of the sound insulation index, for measurements across the acoustic elements, after the QUIESST project [14]**

1/3 octave band	Std. dev. of repeatability, $s_r$			Std. dev. of reproducibility, $s_R$		
	Median	Low	High	Median	Low	High
100	3,97	3,21	5,11	4,05	3,27	5,21
125	3,35	2,69	4,30	3,41	2,77	4,38
160	2,14	1,73	2,74	2,18	1,77	2,81
200	1,70	1,37	2,19	1,74	1,41	2,24
250	1,03	0,82	1,34	1,10	0,88	1,42
315	1,21	0,97	1,55	1,25	1,01	1,60
400	1,14	0,90	1,50	1,23	0,99	1,61
500	1,20	0,94	1,58	1,32	1,05	1,74
630	1,28	0,99	1,71	1,44	1,16	1,94
800	1,47	1,16	1,90	1,55	1,24	2,02
1 000	1,97	1,59	2,53	2,03	1,64	2,61
1 250	1,83	1,40	2,40	2,03	1,63	2,68
1 600	1,88	1,41	2,74	2,74	2,14	4,01
2 000	0,97	0,74	1,34	2,50	1,83	3,78
2 500	0,93	0,71	1,28	2,27	1,66	3,53
3 150	1,53	1,16	2,10	1,87	1,48	2,59
4 000	2,50	1,98	3,27	2,63	2,08	3,49
5 000	2,22	1,68	2,95	2,46	1,95	3,29
$DL_{SIE}$	1,03	0,79	1,27	1,08	0,83	1,33

**Table C.2 — Standard deviation of repeatability and reproducibility of the sound insulation index, for measurements across the posts, after the QUIESST project [14]**

1/3 octave band	Std. dev. of repeatability, $s_r$			Std. dev. of reproducibility, $s_R$		
	Hz	Median	Low	High	Median	Low
100	0,83	0,65	1,09	4,05	3,27	5,21
125	0,55	0,43	0,72	3,41	2,77	4,38
160	0,43	0,34	0,58	2,18	1,77	2,81
200	0,42	0,33	0,57	1,74	1,41	2,24
250	0,39	0,31	0,53	0,87	0,68	1,18
315	0,31	0,23	0,41	0,57	0,45	0,77
400	0,34	0,26	0,46	0,46	0,36	0,62
500	0,39	0,30	0,54	0,45	0,35	0,62
630	0,53	0,40	0,70	0,44	0,35	0,64
800	0,76	0,59	1,02	0,35	0,28	0,52
1 000	0,93	0,72	1,24	0,40	0,31	0,62
1 250	0,88	0,67	1,20	0,50	0,38	0,80
1 600	1,04	0,82	1,37	0,59	0,46	0,83
2 000	1,05	0,83	1,39	0,82	0,64	1,14
2 500	0,91	0,71	1,22	0,98	0,78	1,33
3 150	0,84	0,64	1,18	0,98	0,76	1,42
4 000	0,79	0,60	1,12	1,07	0,84	1,43
5 000	1,14	0,87	1,60	1,09	0,85	1,45
$DL_{SI,P}$	0,64	0,47	0,82	0,73	0,53	0,93

## 2 Modification to D.5, Uncertainty (example)

Replace the whole Clause D.5 with the following one:

"

### D.5 Uncertainty (example)

The uncertainty of the declared values of sound insulation index, in one-third octave band and for the single number rating, is estimated using the values for the standard deviation of reproducibility given in Tables C.1 and C.2.

A coverage factor of 1,96, corresponding to a confidence level of 95 % for a Gaussian distribution, is assumed.

The main step of the calculation are summarized in Tables D.5, D.6 and D.7.

It can be seen that the estimate of the 95 % confidence interval of the single-number ratings are:

## EN 1793-6:2018/prA1:2019 (E)

- For “elements”,  $DL_{SI,E}$ : [23,0 ; 28,2] dB;
- For “posts”,  $DL_{SI,P}$ : [18,7 ; 22,4] dB;
- For “global”,  $DL_{SI,G}$ : [20,8 ; 23,9] dB.

Table D.5 — Estimation of the uncertainty of the declared values of  $SI$  for “elements”

1/3 octave band, Hz	$SI$	$s_R$ (high)	$U$ (95 %)
200	23,5	2,24	4,4
250	24,4	1,42	2,8
315	26,2	1,60	3,1
400	25,3	1,61	3,2
500	25,0	1,74	3,4
630	27,4	1,94	3,8
800	26,6	2,02	4,0
1 000	27,3	2,61	5,1
1 250	27,2	2,68	5,3
1 600	26,1	4,01	7,9
2 000	23,1	3,78	7,4
2 500	23,3	3,53	6,9
3 150	24,2	2,59	5,1
4 000	23,4	3,49	6,9
5 000	25,6	3,29	6,5
$DL_{SI,E}$ (before rounding)	25,6	1,33	2,6