

DIN EN 1793-4:2015-05 (E)

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

| Contents | | Page |
|--------------------|-----------------------------------------------------------------------|-------------|
| Foreword | | 4 |
| Introduction | | 5 |
| 1 | Scope | 6 |
| 2 | Normative references | 6 |
| 3 | Terms, definitions and symbols | 7 |
| 3.1 | Terms and definitions | 7 |
| 3.2 | Symbols | 8 |
| 4 | Sound diffraction index difference measurements | 10 |
| 4.1 | General principle | 10 |
| 4.2 | Dimensions and specifications | 10 |
| 4.2.1 | Added devices | 10 |
| 4.2.2 | Reference walls | 10 |
| 4.2.3 | In situ tests | 11 |
| 4.3 | Positions of the sound source | 11 |
| 4.4 | Position of the microphone(s) | 12 |
| 4.5 | Free-field measurements | 13 |
| 4.6 | Measured quantity | 17 |
| 4.7 | Measuring equipment | 18 |
| 4.7.1 | Components of the measuring system | 18 |
| 4.7.2 | Sound source | 19 |
| 4.7.3 | Test signal | 20 |
| 4.8 | Data processing | 20 |
| 4.8.1 | Calibration | 20 |
| 4.8.2 | Sample rate | 20 |
| 4.8.3 | Background noise | 21 |
| 4.8.4 | Measurement points | 21 |
| 4.8.5 | Adrienne temporal window | 21 |
| 4.8.6 | Placement of the Adrienne temporal window | 22 |
| 4.8.7 | Low frequency limit and sample size | 23 |
| 4.9 | Positioning of the measuring equipment | 24 |
| 4.9.1 | Selection of the measurement positions | 24 |
| 4.9.2 | Reflecting objects | 24 |
| 4.9.3 | Safety considerations | 25 |
| 4.10 | Sound diffraction index difference | 25 |
| 4.11 | Single-number rating of sound diffraction index difference DLDI | 25 |
| 4.12 | Sample surface and meteorological conditions | 26 |
| 4.12.1 | Condition of the sample surface | 26 |
| 4.12.2 | Wind | 26 |
| 4.12.3 | Air temperature | 26 |
| 5 | Measurement uncertainty | 26 |
| 6 | Measuring procedure | 26 |
| 6.1 | General | 26 |
| 6.2 | Test report | 27 |

| | |
|----------------------------------------------------------------------------------|-----------|
| Annex A (informative) Indoor measurements for product qualification | 29 |
| A.1 General | 29 |
| A.2 Parasitic reflections | 29 |
| A.3 Reverberation time of the room | 29 |
| Annex B (informative) Measurement uncertainty | 30 |
| B.1 General | 30 |
| B.2 Expression for the calculation of sound diffraction index | 30 |
| B.3 Contributions to measurement uncertainty | 31 |
| B.4 Expanded uncertainty of measurement | 32 |
| B.5 Measurement uncertainty based upon reproducibility data | 32 |
| Bibliography | 33 |