DIN EN ISO 16283-3:2016-09 (E)

Acoustics - Field measurement of sound insulation in buildings and of building elements - Part 3: Façade sound insulation (ISO 16283-3:2016)

Contents

Page

European foreword ... **4**

Foreword ... **5**

Introduction ... **6**

1 Scope ... **7**

2 Normative references ... **8**

3 Terms and definitions ... **9**

4 Instrumentation ... **14**
4.1 General ... 14
4.2 Calibration ... 14
4.3 Verification ... 14

5 Frequency range ... **15**

6 General ... **15**

7 Indoor sound pressure level measurements ... **17**
7.1 General ... 17
7.2 Default procedure ... 17
7.2.1 Fixed microphone positions ... 17
7.2.2 Mechanized continuously-moving microphone ... 17
7.2.3 Manually scanned microphone ... 17
7.2.4 Minimum distances for microphone positions ... 19
7.2.5 Averaging times ... 19
7.2.6 Calculation of energy-average sound pressure levels ... 20
7.3 Low-frequency procedure (element or global loudspeaker methods) ... 21
7.3.1 General ... 21
7.3.2 Microphone positions ... 21
7.3.3 Averaging time ... 21
7.3.4 Calculation of low-frequency energy-average sound pressure levels ... 22
7.4 Background noise (default and low-frequency procedure) ... 22
7.4.1 General ... 22
7.4.2 Correction to the signal level for background noise ... 23

8 Reverberation time measurements in the receiving room (default and low-frequency procedure) ... **23**
8.1 General ... 23
8.2 Generation of sound field ... 23
8.3 Default procedure ... 24
8.4 Low-frequency procedure ... 24
8.5 Interrupted noise method ... 24
8.6 Integrated impulse response method ... 24

9 Outdoor measurements using a loudspeaker as a sound source (default and low-frequency procedure) ... **25**
9.1 General ... 25
9.2 Generation of the sound field 25

9.3 Loudspeaker requirements ... 25
9.4 Loudspeaker positions ... 26
9.5 Element loudspeaker method ... 26
9.5.1 Outdoor sound pressure level measurements on the test surface ... 26
9.6 Global loudspeaker method ... 27
9.6.1 Outdoor sound pressure level measurements near the façade ... 27
9.6.2 Large rooms or façades comprising more than one outside wall ... 27
9.6.3 Calculation of measurement results ... 27
10 Outdoor measurements using road traffic as a sound source (default procedure) ... 27
10.1 General ... 27
10.2 Test requirements ... 28
10.3 Element road traffic method ... 28
10.3.1 General ... 28
10.3.2 Requirements on road traffic and façade geometry ... 28
10.3.3 Outdoor sound pressure level measurements on the test surface ... 29
10.4 Global road traffic method ... 29
10.4.1 Outdoor sound pressure level measurements at a distance of 2 m in front of the façade ... 29
10.4.2 Calculation of measurement results ... 30
11 Conversion to octave bands ... 30
12 Expression of results ... 31
13 Uncertainty ... 32
14 Test report ... 32
Annex A (normative) **Determination of area, *S* ... 33**
Annex B (normative) **Control of sound transmission through the wall surrounding the test specimen ... 34**
Annex C (normative) **Requirements for loudspeakers ... 35**
Annex D (informative) **Examples of verification of test requirements ... 36**
Annex E (informative) **Measurements with aircraft and railway traffic noise (default procedure) 37**
Annex F (informative) **Forms for recording results ... 41**
Bibliography ... 43