

ISO 16283-3:2016-02 (E)

Acoustics - Field measurement of sound insulation in buildings and of building elements - Part 3: Façade sound insulation

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	2
3	Terms and definitions	3
4	Instrumentation	8
4.1	General	8
4.2	Calibration	8
4.3	Verification	8
5	Frequency range	9
6	General	9
7	Indoor sound pressure level measurements	11
7.1	General	11
7.2	Default procedure	11
7.2.1	Fixed microphone positions	11
7.2.2	Mechanized continuously-moving microphone	11
7.2.3	Manually scanned microphone	11
7.2.4	Minimum distances for microphone positions	13
7.2.5	Averaging times	13
7.2.6	Calculation of energy-average sound pressure levels	14
7.3	Low-frequency procedure (element or global loudspeaker methods)	15
7.3.1	General	15
7.3.2	Microphone positions	15
7.3.3	Averaging time	15
7.3.4	Calculation of low-frequency energy-average sound pressure levels	16
7.4	Background noise (default and low-frequency procedure)	16
7.4.1	General	16
7.4.2	Correction to the signal level for background noise	17
8	Reverberation time measurements in the receiving room (default and low- frequency procedure)	17
8.1	General	17
8.2	Generation of sound field	17
8.3	Default procedure	18
8.4	Low-frequency procedure	18
8.5	Interrupted noise method	18
8.6	Integrated impulse response method	18
9	Outdoor measurements using a loudspeaker as a sound source (default and low- frequency procedure)	19
9.1	General	19
9.2	Generation of the sound field	19
9.3	Loudspeaker requirements	19

9.4	Loudspeaker positions	20
9.5	Element loudspeaker method	20
9.5.1	Outdoor sound pressure level measurements on the test surface	20
9.6	Global loudspeaker method	21
9.6.1	Outdoor sound pressure level measurements near the façade	21
9.6.2	Large rooms or façades comprising more than one outside wall	21
9.6.3	Calculation of measurement results	21
10	Outdoor measurements using road traffic as a sound source (default procedure)	21
10.1	General	21
10.2	Test requirements	22
10.3	Element road traffic method	22
10.3.1	General	22
10.3.2	Requirements on road traffic and façade geometry	22
10.3.3	Outdoor sound pressure level measurements on the test surface	23
10.4	Global road traffic method	23
10.4.1	Outdoor sound pressure level measurements at a distance of 2 m in front of the façade ..	23
10.4.2	Calculation of measurement results	24
11	Conversion to octave bands	24
12	Expression of results	25
13	Uncertainty	26
14	Test report	26
Annex A (normative)	Determination of area, S	27
Annex B (normative)	Control of sound transmission through the wall surrounding the test specimen	28
Annex C (normative)	Requirements for loudspeakers	29
Annex D (informative)	Examples of verification of test requirements	30
Annex E (informative)	Measurements with aircraft and railway traffic noise (default procedure) 31 Annex	
F (informative)	Forms for recording results	35
Bibliography	37