

DIN EN ISO 3743-2:2022-11 (E)

Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small, movable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:2018)

Contents		Page
European foreword		4
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered		5
Foreword		6
Introduction		7
1 Scope		8
2 Normative references		8
3 Terms and definitions		8
4 Principle		9
5 Noise source		9
6 Requirements for special reverberation test room		9
6.1 General		9
6.2 Volume of test room		9
6.3 Reverberation time of test room		10
6.4 Surface treatment		10
6.5 Criterion for background noise		10
6.6 Criteria for temperature and humidity		11
6.7 Evaluation of suitability of test room		11
7 Instrumentation		12
7.1 General		12
7.2 Microphone and its associated cable		12
7.3 Amplifier and weighting network		13
7.4 Octave-band filters		13
7.5 Squaring and averaging circuits and indicating device		13
7.6 Frequency response of the instrumentation system		13
7.7 Calibration		13
8 Installation and operation of source under test		14
8.1 General		14
8.2 Source location		14
8.3 Source mounting		14
8.4 Auxiliary equipment		14
8.5 Operation of source during the test		14
9 Measurements in test room		15
9.1 General		15
9.2 Period of observation		15
9.3 Microphone positions		15
9.4 Number of microphones and source positions		16

9.5	Criteria for the presence of spectral irregularities	17
9.6	Averaging technique with moving microphones	17
9.6.1	General	17
9.6.2	Path length for continuous averaging	18
9.6.3	Location of path within test room	18
9.6.4	Speed of traverse	18
9.7	Array of fixed microphones	18
9.8	Correction for background sound pressure levels	18
10	Calculation of sound power levels	19
10.1	Calculation of mean band pressure levels	19
10.2	Direct method for determining sound power levels	19
10.3	Comparison method for determining band power levels	20
10.4	A-weighted sound power levels determined by the comparison method	21
11	Measurement uncertainty	21
11.1	Methodology	21
11.2	Determination of σ_{mc}	22
11.3	Determination of R_0	22
11.3.1	General	22
11.3.2	Round robin test	22
11.3.3	Modelling approach for R_0	23
11.4	Typical upper bound values of R_0	23
11.5	Total standard deviation σ_{tot} and expanded uncertainty U	24
12	Information to be recorded	24
12.1	General	24
12.2	Sound source under test	24
12.3	Acoustical environment	25
12.4	Instrumentation	25
12.5	Acoustical data	25
13	Information to be reported	25
Annex A (normative) Characteristics and calibration of reference sound source		26
Annex B (informative) Guidelines for the design of special reverberation test rooms		27
Annex C (informative) Examples of suitable instrumentation systems		32
Annex D (informative) Guidance on the development of information on measurement uncertainty ..		34
Annex E (normative) Sound power level under reference meteorological conditions		44
Annex F (normative) Calculation of A-weighted sound power levels from octave band levels		45
Bibliography		46