

ISO 3743-2:2018-02 (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

Contents		Page
	Foreword	v
	Introduction	vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Principle	2
5	Noise source	2
6	Requirements for special reverberation test room	2
	6.1 General	2
	6.2 Volume of test room	2
	6.3 Reverberation time of test room	3
	6.4 Surface treatment	3
	6.5 Criterion for background noise	3
	6.6 Criteria for temperature and humidity	4
	6.7 Evaluation of suitability of test room	4
7	Instrumentation	5
	7.1 General	5
	7.2 Microphone and its associated cable	5
	7.3 Amplifier and weighting network	5
	7.4 Octave-band filters	6
	7.5 Squaring and averaging circuits and indicating device	6
	7.6 Frequency response of the instrumentation system	6
	7.7 Calibration	6
8	Installation and operation of source under test	6
	8.1 General	6
	8.2 Source location	6
	8.3 Source mounting	7
	8.4 Auxiliary equipment	7
	8.5 Operation of source during the test	7
9	Measurements in test room	8
	9.1 General	8
	9.2 Period of observation	8
	9.3 Microphone positions	8
	9.4 Number of microphones and source positions	8
	9.5 Criteria for the presence of spectral irregularities	10
	9.6 Averaging technique with moving microphones	10
	9.6.1 General	10
	9.6.2 Path length for continuous averaging	10
	9.6.3 Location of path within test room	10
	9.6.4 Speed of traverse	10
	9.7 Array of fixed microphones	11
	9.8 Correction for background sound pressure levels	11
10	Calculation of sound power levels	11
	10.1 Calculation of mean band pressure levels	11
	10.2 Direct method for determining sound power levels	12
	10.3 Comparison method for determining band power levels	12
	10.4 A-weighted sound power levels determined by the comparison method	13

11	Measurement uncertainty	13
11.1	Methodology.....	13
11.2	Determination of σ_{omc}	14
11.3	Determination of σ_{R0}	14
	11.3.1 General.....	14
	11.3.2 Round robin test.....	14
	11.3.3 Modelling approach for σ_{R0}	15
11.4	Typical upper bound values of σ_{R0}	15
11.5	Total standard deviation σ_{tot} and expanded uncertainty U	16
12	Information to be recorded	16
12.1	General.....	16
12.2	Sound source under test.....	16
12.3	Acoustical environment.....	17
12.4	Instrumentation.....	17
12.5	Acoustical data.....	17
13	Information to be reported	17
Annex A (normative) Characteristics and calibration of reference sound source		18
Annex B (informative) Guidelines for the design of special reverberation test rooms		19
Annex C (informative) Examples of suitable instrumentation systems		24
Annex D (informative) Guidance on the development of information on measurement uncertainty		26
Annex E (normative) Sound power level under reference meteorological conditions		36
Annex F (normative) Calculation of A-weighted sound power levels from octave band levels		37
Bibliography		38