

ISO 3745:2003-12 (E)

Acoustics - Determination of sound power levels of noise sources using sound pressure - Precision methods for anechoic and hemi-anechoic rooms

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Measurement uncertainty	5
5	Test room requirements	6
5.1	General	6
5.2	Criterion for adequacy of the test room	7
5.3	Criterion for background noise	7
5.4	Criterion for temperature	7
5.5	Humidity correction	7
6	Instrumentation	7
6.1	General	7
6.2	Calibration	8
7	Installation and operation of source under test	8
7.1	General	8
7.2	Source location	8
7.3	Source mounting	8
7.4	Auxiliary equipment	9
7.5	Operation of source under test	9
8	Measurement of sound pressure levels for the determination of sound power level	10
8.1	General	10
8.2	Measurement surface	10
8.3	Microphone positions	11
8.4	Conditions of measurement	12
8.5	Data to be obtained	13
8.6	Correction for background sound pressure levels	13
8.7	Calculation of surface sound pressure level	14
9	Measurement of single-event sound pressure levels for the determination of sound energy level	15
10	Calculation of sound power level and sound energy level	16
10.1	Sound power level	16
10.2	Sound energy level	17
11	Information to be recorded	17
11.1	General	17
11.2	Sound source under test	18
11.3	Acoustic environment	18
11.4	Instrumentation	18

11.5	Acoustic data	18
12	Information to be reported	19
Annex A (normative) General procedures for qualification of anechoic and hemi-anechoic rooms ..		20
Annex B (normative) Alternative qualification procedure for anechoic and hemi-anechoic rooms for the determination of sound power levels of specific noise sources		26
Annex C (normative) Array of microphone positions in a free field		28
Annex D (normative) Array of microphone positions in a free field over a reflecting plane		29
Annex E (normative) Coaxial circular paths of microphones in a hemi-free field		31
Annex F (normative) Meridional paths of microphones in a hemi-free field		32
Annex G (normative) Spiral paths of microphones in a hemi-free field		34
Annex H (normative) Calculation of A-weighting sound power level from one-third-octave-band sound power levels		35
Annex I (normative) Calculation of directivity index and directivity factor		37
Annex J (informative) Measurement uncertainty		38
Annex K (informative) Guidelines for the design of test rooms		41
Bibliography		43