

ISO 27327-2:2014-02 (E)

Fans - Air curtain units - Part 2: Laboratory methods of testing for sound power

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms, definitions, symbols and units	2
3.1	Terms and definitions	2
3.2	Air curtain unit sound power levels	3
3.3	Other symbols	3
4	Limitations on use	4
4.1	General	4
4.2	Noise source	5
4.3	Character of noise	5
4.4	Uncertainty	5
4.5	Quantities to be measured	5
5	Measurement uncertainty	5
6	Instrumentation	7
6.1	General	7
6.2	Frequency analyser	7
6.3	Turbulence screens and windshields	7
6.4	Reference sound source (RSS)	8
7	Test procedure	8
7.1	Comparison method	8
7.2	Direct method	8
8	Acoustic environment	8
8.1	Test environment	8
8.2	Reverberant room	8
9	Air curtain unit installation conditions	9
10	Air curtain unit operating conditions	9
10.1	General	9
10.2	Measurement of ambient conditions	9
10.3	Air curtain unit rotational speed	9
10.4	Determination of air curtain unit aerodynamic operating point	9
10.5	Control of air curtain unit operating condition	9
11	Test setup	9
11.1	Setup categories	9
11.2	Sound pressure levels	14
11.3	Aerodynamic performance	15
11.4	Test conditions	15
11.5	Mounting methods	15
11.6	Microphone travel or positions	15

12	Information to be recorded	16
12.1	General	16
12.2	Air curtain unit under test	17
12.3	Acoustic environment	17
12.4	Acoustical data appropriate to the method of test	18
13	Calculations and evaluations	19
13.1	Calculation of one-third octave band levels	19
13.2	Calculation of overall sound power levels	19
13.3	Calculation of A-weighted sound power level	19
13.4	Background corrections	20
13.5	Sound power level, LW	20
13.6	Evaluation	21
14	Test report	21
14.1	General	21
14.2	Description of test site, arrangement of fan, location of measuring points	21
14.3	Instrumentation used	22
14.4	Subjective assessment of the noise character	22
14.5	Measured values of the noise character	22
	Annex A (normative) Effect of rotational speed changes	23
	Annex B (normative) Uncertainty analysis	24
	Annex C (normative) Calibration of reference sound source	28
	Annex D (informative) Filter weighted measurements	30
	Annex E (normative) Room qualification for sound sources with broadband sound	31
	Annex F (informative) Room qualification for sound sources with pure tones/narrow-band sound	33
	Bibliography	37