ISO 13347-1:2025-07 (E)

Fans - Determination of fan sound power levels under standardized laboratory conditions - Part 1: General overview

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms, definitions and symbols **2**
3.1 Terms and definitions 2
3.2 Symbols — fan sound power levels 4
3.3 Other symbols 5

4 Limitations on use **6**

5 Measurement uncertainty **7**

6 Instrumentation **9**
6.1 Microphone 9
6.1.1 Microphone cable 9
6.1.2 Sound level meter or other microphone amplifier 9
6.2 Frequency analyser 10
6.3 Turbulence screens and windshields 10
6.3.1 Windshields 10
6.3.2 Sampling tube 10
6.3.3 Wind-generated false noise 10
6.4 Reference sound source (RSS) 10

7 Test methods **10**
7.1 General 10
7.2 Special considerations 10

8 Fan installation conditions **11**
8.1 General 11
8.2 Reverberant room test method 12
8.3 Enveloping surface test method 12
8.4 Sound intensity method 12
8.5 In-duct test method 12
8.6 Limitations 12
8.7 Small fans 13

9 Fan operating conditions **13**
9.1 General 13
9.2 Measurement of ambient conditions 13
9.3 Fan rotational speed 13
9.4 Determination of fan aerodynamic operating point 13
9.5 Control of fan operating condition 13

10 Information to be recorded **14**
10.1 General 14
10.2 Fan under test 14
10.2.1 Description of the fan under test 14
10.2.2 Operating conditions 14
10.2.3 Mounting conditions 14
10.3 Acoustic environment 14
10.4 Acoustic data appropriate to the method of test 15

11 Calculations and evaluations **16**
11.1 Calculation of one-third octave band levels 16
11.2 Calculation of overall sound power levels 17
11.3 Calculation of A-weighted sound power level 17
11.4 Evaluation 17

12 Test report **17**
12.1 General 17
12.2 Description of test site, arrangement of fan, location of measuring points 18
12.3 Instrumentation used 18
12.4 Subjective assessment of the noise character 18
12.5 Measured values and test results 18

Annex A (normative) **Effect of rotational speed changes** **20**

Annex B (informative) **Change of gas or air conditions** **21**

Annex C (normative) **Corrections for end reflection** **22**

Annex D (informative) **Simplified anechoic termination** **26**

Annex E (normative) **Uncertainty analysis** **27**

Annex F (normative) **Calibration of reference sound source** **33**

Annex G (informative) **Filter weighted measurements** **35**

Bibliography **36**