

ISO/TS 7849-2:2009-03 (E)

Acoustics - Determination of airborne sound power levels emitted by machinery using vibration measurement - Part 2: Engineering method including determination of the adequate radiation factor

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Principle	4
5	Measuring instrumentation	5
5.1	General	5
5.2	Vibration transducer	5
5.3	Non-contacting transducers	6
5.4	Amplifier and filter	6
5.5	Integrator	6
5.6	Calibration	6
6	Installation and operation of source under test	7
6.1	General	7
6.2	Description of the machine	7
6.3	Installation	7
6.4	Operating conditions	7
7	Determination of the vibratory velocity on the vibrating measurement surface	7
7.1	General	7
7.2	Vibrating measurement surface	8
7.3	Number of measurement positions	8
7.4	Environmental conditions	9
7.5	Measurement procedure	9
7.6	Mounting of the vibration transducer	9
8	Determination of the machinery specific frequency band radiation factor	10
9	Calculations	11
9.1	Correction for extraneous vibratory velocity	11
9.2	Determination of the mean vibratory velocity level on the vibrating measurement surface	12
9.3	Calculation of the airborne sound power level caused by radiation of structure vibration generated sound	13
10	Measurement uncertainty	13
11	Information to be recorded	14
11.1	Machine under test	14
11.2	Measurement conditions	15
11.3	Measuring instrumentation	15
11.4	Acoustical data	15

Annex A (informative) Use of the vibration transducer	16
Annex B (normative) Procedures for calculating A-weighted sound power levels from octave band or one-third-octave band levels	18
Annex C (informative) Recommendations concerning the frequency bands of interest	20
Annex D (informative) Determination of the vibratory velocity level from the vibratory acceleration level	21
Annex E (informative) Guidance on the development of information on measurement uncertainty ..	23
Bibliography	26