

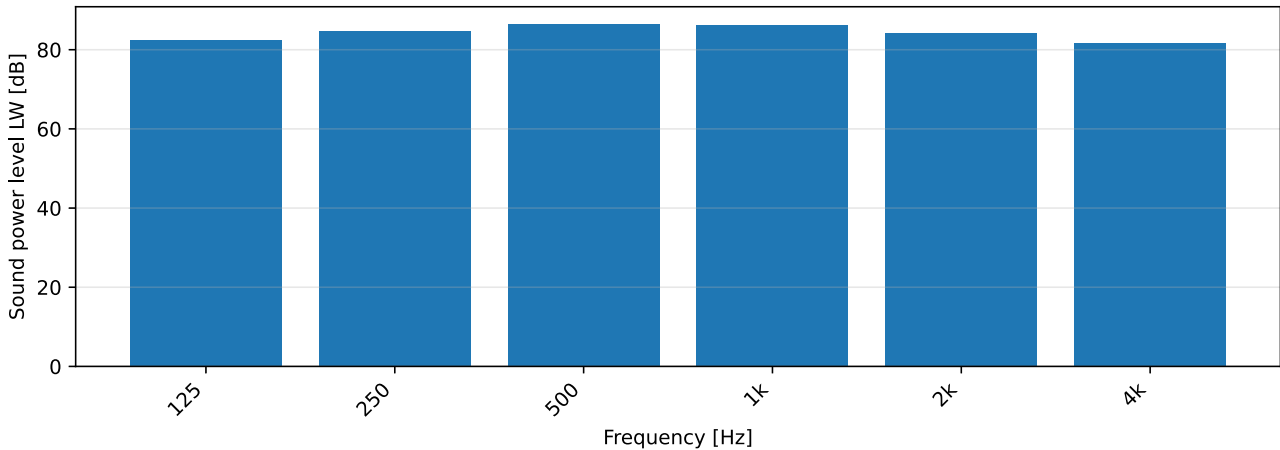
Sound power determination

Determination of the sound power level from the normal sound intensity scanned over a surface enclosing the source (ISO 9614-2:1996, engineering grade (accuracy grade 2)).

Client:	Example manufacturing plant	Noise source:	Hydraulic power pack (floor-standing)
Test environment:	Machine hall with steady background noise	Instrumentation:	Class 1 p-p intensity probe (IEC 61043), s/n 0042
Temperature [°C]:	21	Relative humidity [%]:	45
Ambient pressure [kPa]:	101.1	Date of test:	2026-07-21

Octave-band sound power levels

f [Hz]	L _W [dB]
125	82.6
250	84.8
500	86.5
1000	86.2
2000	84.3
4000	81.8



Sound power level $L_{WA} = 90.9 \text{ dB(A) re } 1 \text{ pW}$

Total $L_W = 92.5 \text{ dB re } 1 \text{ pW}$
Measurement surface $S = 3.00 \text{ m}^2$
Determination grade: engineering grade (accuracy grade 2)

Result vs requirement: $L_{WA} = 90.9 \text{ dB(A)}$, declared limit $\leq 93.0 \text{ dB(A)}$ → **PASS**

$L_W = 10 \lg(P/P_0)$, with the total power P the sum of the segment partial powers $P_i = I_{n,i} S_i$, $P_0 = 1 \text{ pW}$ (ISO 9614-2:1996 Eq. 6/12/13). Surface pressure-intensity indicator $F_{pi} = -1.8$ to 3.0 dB , negative-partial-power indicator $F_{+/-} = 0.0 \text{ dB}$, dynamic capability $L_d = 5.0 \text{ dB}$ (bias factor $K = 10 \text{ dB}$).

A band reaches engineering grade when $L_d > F_{pi}$, $F_{+/-} \leq 3 \text{ dB}$ and the two sweeps repeat within the ISO 9614-2:1996 Table 2 limit s per segment; survey grade drops the $F_{+/-}$ criterion (Annex B). The A-weighted L_{WA} sums the determinable bands only: a band with net power $P \leq 0$ is not determinable (clause 9.2), and a band failing criterion 1 and/or 2 is omitted (clause 10.6 b). Levels are referenced to the reference sound power 1 pW .

Laboratory: Phonometry reference example

Report no.: EXAMPLE-9614

Date: 2026-07-21

Notes: Intensity-scanning method over a box surface (ISO 9614-2:1996, engineering grade 2).

Operator: phonometry Signature: _____

■ The results relate only to the tested specimen.

Generated by phonometry.