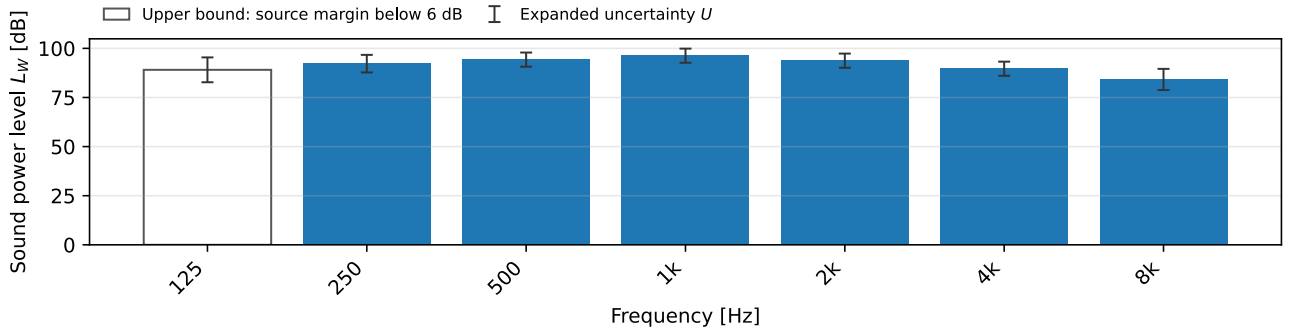
Sound power determination

Determination of the sound power level by comparison with a reference sound source in a hard-walled test room (ISO 3743-1:2010, engineering method, accuracy grade 2).

Client:	Example appliance manufacturer	Noise source:	Bench-top blender on a test table, full speed
Test environment:	Hard-walled test room, V = 60 m3, painted concrete	Instrumentation:	Class 1 sound level meter (IEC 61672-1), s/n 0042
Temperature [°C]:	22	Relative humidity [%]:	48
Ambient pressure [kPa]:	101.2	Date of test:	2026-09-25

Octave-band sound power levels

f [Hz]	L'_p(ST) [dB]	L'_p(RSS) [dB]	L_W(RSS) [dB]	L_W [dB]
125	83.7	87.9	94.0	89.1 *
250	86.0	83.8	89.9	92.2
500	88.2	86.7	92.8	94.3
1000	90.1	87.9	94.1	96.3
2000	87.7	87.2	93.2	93.7
4000	83.6	85.3	91.3	89.6
8000	78.1	81.8	87.9	84.2



Sound power level L_{WA} = **100.1 dB(A)** re 1 pW

Total L_W = 101.1 dB re 1 pW
Determination method: comparison with a reference sound source (Eq. 14)
Expanded uncertainty U = 3.6 dB, coverage factor k = 2

Result vs requirement: L_{WA} = 100.1 dB(A), declared limit ≤ 102.0 dB(A) → **PASS**

The mean levels L'_p(ST), L'_p(RSS) and L_p(B) are energy averages over the microphone positions (Eq. 10 to 12); the background correction is applied to the means (Eq. 13), K1 = 0.0 to 1.3 dB and K1(RSS) = 0.0 to 0.6 dB; $L_W = L_W$(RSS) – L'_p(RSS) + L'_p(ST) + K1(RSS) – K1 (Eq. 14). The levels are at the meteorological conditions of the test; C2 = –0.01 dB (Annex A) carries them to the reference conditions.

* Upper bound: the background noise margin of the source under test is below 6 dB in this band, so the level is an upper bound and the background noise requirements of ISO 3743-1:2010 are not fulfilled in it (4.5, 8.1.3).

U = k σ_{tot}, $\sigma_{tot} = \sqrt{(\sigma_{R0}^2 + \sigma_{omc}^2)}$ with σ_{R0} = 1.5 dB (Table 3, A-weighted) and σ_{omc} = 1.0 dB; k = 2 gives a coverage probability of 95 %. The A-weighted sound power level L_{WA} combines the octave-band levels with the corrections of ISO 3743-1:2010 Annex B (Table B.1, Eq. B.1). Levels are referenced to the reference sound power 1 pW.

Laboratory: Phonometry reference example
Report no.: EXAMPLE-3743-1
Date: 2026-09-25
Notes: One source location (Table 2).
Operator: phonometry Signature: _____

■ The results relate only to the tested specimen.

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