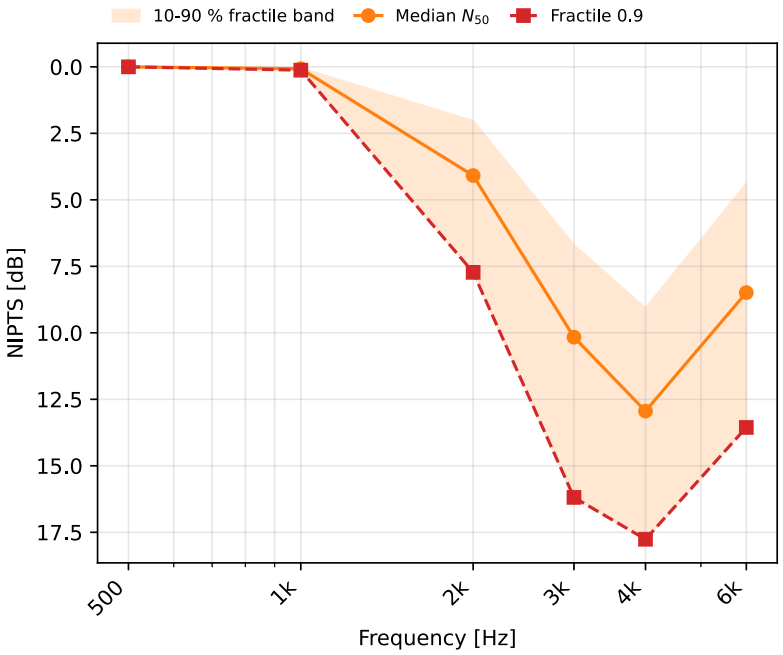
Noise-induced hearing loss prediction

Statistical prediction of the noise-induced permanent threshold shift of a noise-exposed population per ISO 1999:2013 (clause 6.3).

Company:	Example fabrication works	Worker(s) / group:	Welders (homogeneous exposure group, 4 workers)
Workplace:	Steel assembly hall, line 2	Date of assessment:	2026-07-20

Threshold shift by frequency

Frequency [Hz]	N_{50} [dB]	NIPTS [dB]
500	0.0	0.0
1000	0.1	0.1
2000	4.1	7.7
3000	10.2	16.2
4000	12.9	17.8
6000	8.5	13.6



Predicted NIPTS averaged over 2/3/4 kHz = **13.9 dB**

Noise exposure $L_{EX,8h}$ = 90 dB
Exposure duration = 20 years
Population fractile Q = 10 % (fraction with worse hearing)

These values are a statistical prediction for a noise-exposed population (ISO 1999:2013), not a clinical diagnosis or a measured audiogram of any individual.

Q is the percentage of the noise-exposed population predicted to show a larger (worse) value than the one stated, as ISO 1999:2013 defines it (6.3.2, Formulae (4) and (5)); Q = 10 % is the most-susceptible tenth.

ISO 1999:2013 does not specify frequencies or frequency combinations for evaluating hearing disability (Scope, NOTE 1); the 2/3/4 kHz average shown is a commonly used descriptor whose choice is left to the user.

Laboratory: Phonometry reference example
Report no.: EXAMPLE-1999-NIPTS
Date: 2026-07-20
Notes: Reproduces the ISO 1999:2013 Annex D (Table D.2) worked example.
Operator: phonometry Signature: _____

■ The results are a statistical prediction for the stated population and exposure conditions; they do not describe any individual person.