Hearing Protection Calculators - Introduction

This spreadsheet provides calculators for three different methods of es

- **The octave-band method**
  Used if you know the noise levels in frequency bands.
- **The HML method**
  Used if you know both the A-weighted and C-weighted noise leve
- **The SNR method**
  Used if you know the C-weighted noise levels

Each calculator is presented on a separate 'tab' within the spreadsheet. Click o
You can also move between the tabbed sheets by pressing: *Ctrl+Page Up* or *Ct*

The table on the right indicates the protection factor likely to be suitable for different levels of noise. It based on the single number rating (SNR) value provided with a hearing protection device.

This table is intended as a guide rather than being a substitute for using one of the three methods given in this spreadsheet. In particular the table will not be appropriate if the noise is mainly low-frequency (examples where this table may <u>not</u> be suitable include: press shops, generators and generator test bays, plant rooms, boiler houses, concrete shaker tables, moulding presses and punch presses).

stimating the performance of hearing protection:

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n the tab to go to one of the calculators.

trl+Page Down or using the control buttons.

Noise level dB(A)	Select a protector with an SNR of …
85-90	20 or less
90-95	20-30
95-100	25-35
100-105	30 or more

Hearing Protection Calculator - Octave-band method

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HSE

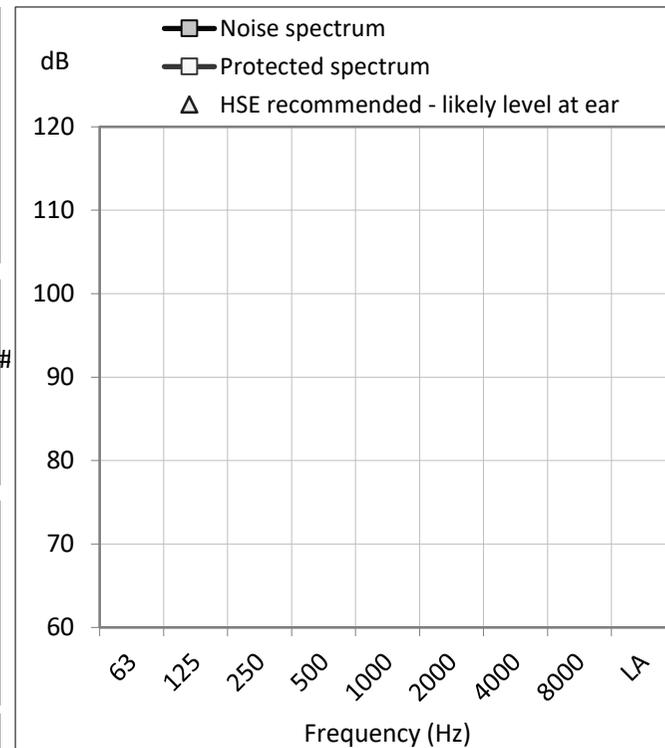**The Octave-band method of hearing protection calculation uses:**
- **Octave-band attenuation and standard deviation data** (available from the hearing protector supplier)
- **Octave-band workplace noise levels** (un-weighted values)

HEARING PROTECTOR	Make/Model:							
Frequency (Hz)	63 *(opt.)*	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)								
Standard deviation (dB)								
Assumed protection (dB)								

WORKPLACE NOISE	Location/Machine:								
Frequency (Hz)	63 *(opt.)*	125	250	500	1000	2000	4000	8000	#
Unprotected Spectrum (dB)									
Protected Spectrum (dB)									

Unprotected noise level at the ear	L_A		dB(A)
Protected noise level at the ear	L'_A		dB(A)
HSE recommended value for the likely noise level at the ear	$L'_A + 4$		dB(A)
Protection rating:			

Chart legend:
- Noise spectrum
- Protected spectrum
- △ HSE recommended - likely level at ear

dB axis: 120, 110, 100, 90, 80, 70, 60

Frequency (Hz) axis: 63, 125, 250, 500, 1000, 2000, 4000, 8000, LA

Print date:

Hearing Protection Calculator - HML method

The HML method of hearing protection calculation uses:

- **H, M and L data**, available from the hearing protector supplier
- **A-weighted (L_A or L_{Aeq}) and C-weighted (L_C or L_{Ceq}) noise levels at the workplace**

NOTE: the L_{Ceq} value should not be confused with the peak noise level L_{Cpeak}, which is also measured in units of dB(C)

HEARING PROTECTOR			WORKPLACE NOISE				
Make/Model:			*Location/Machine:*				
HML values			Weighted level		Protected noise level at the ear	HSE recommended value for the likely noise level at the ear	Protection rating
H	**M**	**L**	L_A	L_C	($L'_A = L_A - PNR$)	($L'_A + 4$)	
dB	dB	dB	dB(A)	dB(C)	dB(A)	dB(A)	

Hearing Protection Calculator - SNR method

The SNR method of hearing protection calculation uses:

- **SNR value**, available from the hearing protector supplier
- **C-weighted (L_C or L_{Ceq}) noise levels at the workplace**

NOTE: the L_{Ceq} value should not be confused with the peak noise level L_{Cpeak}, which is also measured in units of dB(C)

HEARING PROTECTOR	WORKPLACE NOISE			
Make/Model:	*Location/Machine:*			
SNR value SNR dB	C-weighted Level L_C dB(C)	Protected noise level at the ear $(L'_A = L_C - SNR)$ dB	HSE recommended value for the likely noise level at the ear $(L'_A + 4)$ dB(A)	Protection rating