

## Noise Monitoring

### Victoria Line

27th November 2018

### Sampling Information

Location	Vic Line – Brixton – Walthamstow – Brixton. Drivers Cabin
Noise Meter S/N	B/85704 CEL 633B (Class 2)
Calibrator S/N	B/85704
Sampler	


### Noise Measurements

Start Time	Stop Time	L <sub>aeq</sub>	L <sub>ceq</sub>	L <sub>a</sub> Max	L <sub>c</sub> Peak
09:10	09:43	85.5	89.9	-	117.6
09:46	10:33	82	86.9	-	111.3
10:36	11:07	83.8	88.1	-	114.1
11:12	11:45	82.2	84	-	113.6

### HSE Noise Calculator

Assumptions are:

- 8 hour work exposure time
- Noise reading samples from above split equally across 8 hours. So each measurement has been assumed to be for a 2 hour sample on the noise calculator.



You can enter data in the white cells only

**Exposure Calculator**

	Noise Level (L <sub>aeq</sub> dB)	Exposure duration (hours)	Exposure points (job/task)	Exposure points per hour
Job / task 1	86	2	28	14
Job / task 2	82	2	13	6
Job / task 3	84	2	20	10
Job / task 4	82	2	13	6
Job / task 5				
Job / task 6				
Job / task 7				
Job / task 8				
Total duration		8		
<b>Daily noise exposure (L<sub>EP,d</sub>)</b>		<b>84 dB</b>	<b>74 points</b>	

Note: Exposure points can be used to prioritise noise control. The highest exposure points are given by the jobs, tasks, etc. which make the greatest contributions to daily noise exposure. Therefore, tackling these noise exposures will have the greatest effect on daily noise exposure.

## Results

The Noise readings taken on the 27<sup>th</sup> November 2018 if extrapolated out into 8 hours of exposure given an overall workshift  $L_{Aeq}$  of 84 dB(A).

Regulation 4 of the Control of Noise at Work Regulations 2005 states:

The lower exposure action values are—

- (a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and
- (b) a peak sound pressure of 135 dB (C-weighted).

At 84 dB(A) the lower exposure action value of 80 dB(A) is reached in 3 hours. Based on the findings of the noise survey, if track exposure time routinely exceeds 3 hours then suitable hearing protection must be offered to employees.

From a legal perspective, where work shift exposures are below 85 dB(A) but above 80 dB(A) employees are not obliged to wear hearing protection but it must be offered to the employee.


## Appropriate Selection of Hearing Protection

The exposure to noise is marginally above the lower action level. Care should be taken not to over protect and lower noise at the ear to below 70dB(A) . A low attenuation ear plug with an SNR up to 21 dB is recommended. Banded types are ideal for intermittent use and do not require rolling of the plug material which can introduce dirt into the ear canal. Earplugs with an SNR above 21 are likely to result in over protection and increase the risk of operatives not hearing alarms and other forms of communication.

3M Banded Earplugs (21 dB SNR)

[https://www.3m.co.uk/3M/en\\_GB/company-uk/3m-products/~/All-3M-Products/Safety/Worker-Health-Safety/Personal-Protective-Equipment/Hearing-Protection/Banded-Earplugs/?N=5002385+8709322+8711017+8711405+8720539+8720546+8720745+3293991248&rt=r3](https://www.3m.co.uk/3M/en_GB/company-uk/3m-products/~/All-3M-Products/Safety/Worker-Health-Safety/Personal-Protective-Equipment/Hearing-Protection/Banded-Earplugs/?N=5002385+8709322+8711017+8711405+8720539+8720546+8720745+3293991248&rt=r3)

## HSE Hearing Protection Calculator



**SNR Method**

You can use this method if you know the C-weighted noise levels

Enter values in both white cells.

*Data on the hearing protector*

SNR

*Noise levels*

C-weighted noise level,  $L_C$   dB

Calculated level at the ear according to BS EN ISO 4869-2:1995 ( $\alpha=1$ ) 67 dB

HSE recommends allowing 4dB for 'real-world' factors. Assume that this device will give:  dB at the ear

Select a protector so that daily exposure is reduced to at least below 85 dB. Ideally, aim for between 80 and 75 at the ear. Avoid protectors resulting in less than 70 dB at the ear - this is 'over-protection' (see BS EN 458:2004).

**Colour codes:**

dB at the ear

Protector gives adequate protection, and does not 'over-protect'

Protector does not give adequate protection, or it 'over-protects'