

Freight Noise Attenuation Program

Monitoring Noise

Transport for NSW monitors rail noise to identify properties that are eligible for the Freight Noise Attenuation Program.

Where is noise monitoring carried out?

Noise monitoring is usually performed within the rail corridor. Usually a noise logger will be placed in the rail corridor close to the railway tracks to avoid interference from other noises such as roads and shielding from the landscape. When there is potential for interferences, we may adjust the measure to one metre from the dwelling's façade using standard and proven methods.

We may monitor noise at their residential property if we do not have existing noise data for that area. When monitoring noise

at a property, we usually locate the noise monitor on the side of the property facing the rail line. The microphone is placed at a height of about 1.5 metres above local ground level in accordance with AS 1055:1-1997: Acoustics – Description and measurement of environmental noise (Part 1).

The unattended equipment continuously records noise levels for a period of two weeks.

What equipment is used?

Noise loggers used in monitoring activities are industry standard devices consisting of a high-precision Class 1 microphone, a recording device and a battery.

Each noise logger is calibrated regularly by certified National Association of Testing Authorities (NATA) laboratories.

Did you know?

We have measured noise at over 200 locations across the network and more locations are added each year.





How is rail noise calculated?

L_{Aeq} is the international standard metric for assessing rail noise, referenced throughout the world and in all Australian rail noise standards and regulations.

We identify passing trains using their unique noise signature and cross reference the recordings with train pass times. We then calculate the L_{Aeq} energy-average rail noise level at the residential facade.

We then calculate the daytime and night-time L_{Aeq} rail noise levels over each week.

Calculations are made in accordance with NSW Environmental Protection Authority's Rail Infrastructure Noise Guideline (2013).

We use the conservative formula: $L_{Aeq}(\text{Facade}) = L_{Aeq}(\text{Monitor}) - 10 \log_{10} (D1/D2) + C_{\text{Facade}}$.

- L_{Aeq} is the rail noise at the monitor
- D1 is the distance in metres from the facade to the nearest track
- D2 is the distance in metres from the monitor to the nearest track.
- C_{Facade} is a facade correction equal to 2.5 dB for free-field measurements and 0 dB for measurements at a facade.



RAIL NOISE FORMULA

$$L_{Aeq}(\text{Facade}) = L_{Aeq}(\text{Monitor}) - 10 \log_{10} (D1/D2) + C_{\text{Facade}}$$

How is eligibility assessed

To be eligible a dwelling must be exposed to external rail noise levels above L_{Aeq}15hour 70dBA (as an average recording over a 15 hour period) between 7am to 10pm, or L_{Aeq}9hour 65dBA between 10pm to 7am. These levels have been developed in line with the NSW Environmental Protection Authority's Rail Infrastructure Noise Guideline (2013).

We will use the noise monitoring data to confirm if your home is eligible for treatment.

We will also note the number of passing freight trains that exceed 85 decibels during the night. This will help to identify the most noise exposed dwellings, which are given priority under the program.

To find out more about the program's criteria, please visit the program webpage at freight.transport.nsw.gov.au/FNAP.