

# Appendix 9-2

---

## Noise Glossary

**Air overpressure** Intensity of air pressure wave caused by blasting. Expressed as decibels without any A-weighting ie. linear or Z-weighting.

**Ambient** Total noise environment at a location, including all sounds present.

**A-weighting** Weighting or adjustment applied to sound level to approximate non-linear frequency response of human ear. Denoted by suffix A in parameters such as  $L_{Aeq T}$ ,  $L_{AF10 T}$ , etc.

**Background level** A-weighted sound pressure level of residual noise exceeded for 90 % of time interval T. Denoted  $L_{AF90 T}$ .

**Broadband** Noise which contains roughly equal energy across frequency spectrum. Does not contain tones, and is generally less annoying than tonal noise.

**Decibel (dB)** Unit of noise measurement scale. Based on logarithmic scale so cannot be simply added or subtracted. 3 dB difference is smallest change perceptible to human ear. 10 dB difference is perceived as doubling or halving of sound level. Examples of decibel levels are as follows: 20 dB: very quiet room; 30-35 dB: night-time rural environment; 55-65 dB: conversation; 80 dB: busy pub; 100 dB: nightclub. Throughout this report noise levels are presented as decibels relative to 20  $\mu$ Pa.

**Fast response** 0.125 seconds response time of sound level meter to changing noise levels. Denoted by suffix F in parameters such as  $L_{AF10 T}$ ,  $L_{AF90 T}$ , etc.

**Free field** Noise environment away from all surfaces other than ground ie. outside near field.

**Frequency** Number of cycles per second of a sound or vibration wave. Low frequency noise may be perceived as hum, while whine represents higher frequency. Range of human hearing approaches 20-20,000 Hertz.

**Hertz (Hz)** Unit of frequency measurement.

**Impulse** Noise which is of short duration, typically less than one second, sound pressure level of which is significantly higher than background.

**Interval** Time period T over which noise parameters are measured at position. Denoted by T in  $L_{Aeq T}$ ,  $L_{AF90 T}$ , etc.

$L_{Aeq T}$  Equivalent continuous sound pressure level during interval T, effectively representing average A-weighted noise level of ambient noise environment.

$L_{AF10 T}$  Sound pressure level exceeded for 10% of interval T, usually used to quantify traffic noise.

$L_{AF90 T}$  Sound pressure level exceeded for 90% of interval T, usually used to quantify background noise. May also be used to describe noise level from continuous steady or almost-steady source, particularly where local noise environment fluctuates.

**Near field** Noise levels recorded near walls or other surfaces, artificially increased due to reflections. Levels near walls may be increased by up to 3 dB, and up to 6 dB near corners. Free field conditions may be achieved by maintaining separation distance of at least 3.5 m from walls.

**Noise sensitive location** Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires absence of noise at nuisance levels.

**Peak particle velocity (PPV)** Rate of change of displacement of particles in solid medium due to vibration, measured as mm/s. Usually used to assess vibration in relation to activities such as blasting as correlates well with human perception of vibration and property damage.

**Residual level** Noise level remaining when specific source is absent or does not contribute to ambient.

**Specific level**  $L_{Aeq T}$  level produced by specific noise source under consideration during interval T, measured directly or by estimation or calculation.

**Tone** Character of noise caused by dominance of one or more frequencies which may result in increased noise nuisance.