

## Appendix 12-1 - Glossary of Acoustic Terms



A variety of acoustic parameters and terminology are used throughout this chapter. Significant definitions are presented to inform the reader.

A-Weighting	The “A” suffix denotes the fact that the sound levels have been “A-weighted” in order to account for the non-linear nature of human hearing.
Background Noise	The noise level rarely fallen below in any given location over any given time period, often classed according to day time, evening or night time periods. The LA90,10min is the parameter that is used to define the background noise level in this instance. LA90 is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.
dB (decibel)	The unit normally employed to measure the magnitude of sound. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20 $\mu$ Pa).
dB(A)	An ‘A-weighted decibel’ – a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. A – Weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Hub Height Wind Speed	The wind speed at the centre of the turbine rotor.
Noise	Sound that evokes a feeling of displeasure in the environment in which it is heard, and is therefore unwelcomed by the receiver

Noise Sensitive Location (NSL) Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

Pascal (Pa) Pascal is a unit of pressure and so sound pressures are measured in Pascals.

Sound Power Level ( $L_W$ ) The sound power level radiated by a source is defined as:

$$L_W = 10 \times \log_{10}(W/W_o) \text{ dB.}$$

Where  $W$  is the acoustic power of the source in Watts ( $W$ ) and  $W_o$  is a reference sound power chosen in air to be  $10^{-12}W$ .

Sound Pressure Level ( $L_p$ ) The sound pressure level at a point is defined:

$$L_p = 20 \times \log_{10}(P/P_o) \text{ dB.}$$

Where  $P$  is the sound pressure and  $P_o$  is a reference pressure for propagation of sound in air and has a value of  $2 \times 10^{-5} \text{ Pa}$ .

Standardised Wind Speed A wind speed measured at a height different than 10 m (generally measured at the turbine hub height) which is expressed to a reference height of 10 m using a roughness length of 0.05 for standardisation purposes (in accordance with the IEC 61400-11 Standard).

Wind Shear The increase of wind speed with height above ground.

Average Wind Speed (m/s)

The wind speed measured by an anemometer at a specified height above ground level, averaged over a specific period, typically 10-minute period.