

# **Appendix 10-1**

## **Glossary of Noise Related Terminology**

| Terminology                                | Description  |
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| A-weighting                                | a filter that down-weights low frequency and high frequency sound to better represent the frequency response of the human ear when assessing the likely effects of noise on humans   |
| acoustic character                         | one or more distinctive features of a sound (e.g. tones, whines, whistles, impulses) that set it apart from the background noise against which it is being judged, possibly leading to a greater subjective effect than the level of the sound alone might suggest   |
| acoustic screening                         | the presence of a solid barrier (natural landform or manmade) between a source of sound and a receiver that interrupts the direct line of sight between the two, thus reducing the sound level at the receiver compared to that in the absence of the barrier  |
| ambient noise                              | All-encompassing noise associated with a given environment, usually a composite of sounds from many sources both far and near, often with no particular sound being dominant   |
| annoyance                                  | a feeling of displeasure in this case evoked by noise  |
| attenuation                                | the reduction in level of a sound between the source and a receiver due to any combination of effects including: distance, atmospheric absorption, acoustic screening, the presence of a building façade, etc.   |
| audio frequency                            | any frequency of a sound wave that lies within the frequency limits of audibility of a healthy human ear, generally accepted as being from 20 Hz to 20,000 Hz  |
| 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 (for the majority of the population of the UK the lower limiting noise level is usually controlled by noise emanating from distant road, rail or air traffic) |
| dB   | abbreviation for 'decibel'   |
| dB(A)                                      | abbreviation for the decibel level of a sound that has been A-weighted   |
| decibel                                    | the unit normally employed to measure the magnitude of sound   |
| directivity                                | the property of a sound source that causes more sound to be radiated in one direction than another   |
| equivalent continuous sound pressure level | the steady sound level which has the same energy as a time varying sound signal when averaged over the same time interval, T, denoted by $L_{Aeq,T}$   |
| external noise level                       | the noise level, in decibels, measured outside a building  |
| filter                                     | a device for separating components of an acoustic signal on the basis of their frequencies   |
| frequency                                  | the number of acoustic pressure fluctuations per second occurring about the atmospheric mean pressure (also known as the 'pitch' of a sound)   |
| frequency analysis                         | the analysis of a sound into its frequency components  |
| ground effects                             | the modification of sound at a receiver location due to the interaction of the sound wave with the ground along its propagation path from source to receiver   |
| hertz                                      | the unit normally employed to measure the frequency of a sound, equal to cycles per second of acoustic pressure fluctuations about the atmospheric mean pressure   |
| impulsive sound                            | a sound having all its energy concentrated in a very short time period   |
| instantaneous sound pressure               | at a given point in space and at a given instant in time, the difference between the instantaneous pressure and the mean atmospheric pressure  |

| Terminology                     | Description  |
|---------------------------------|--|
| internal noise level            | the noise level, in decibels, measured inside a building   |
| $L_{Aeq}$                       | the abbreviation of the A-weighted equivalent continuous sound pressure level  |
| $L_{A10}$                       | the abbreviation of the 10 percentile noise indicator, often used for the measurement of road traffic noise  |
| $L_{A90}$                       | the abbreviation of the 90 percentile noise indicator, often used for the measurement of background noise  |
| level                           | the general term used to describe a sound once it has been converted into decibels   |
| loudness                        | the attribute of human auditory response in which sound may be ordered on a subjective scale that typically extends from barely audible to painfully loud  |
| noise                           | physically: a regular and ordered oscillation of air molecules that travels away from the source of vibration and creates fluctuating positive and negative acoustic pressure above and below atmospheric pressure.<br><br>Subjectively: sound that evokes a feeling of displeasure in the environment in which it is heard, and is therefore unwelcomed by the receiver |
| noise emission                  | the noise emitted by a source of sound   |
| noise immission                 | the noise to which a receiver is exposed   |
| noise nuisance                  | an unlawful interference with a person's use or enjoyment of land, or of some right over, or in connection with it   |
| octave band frequency analysis  | a frequency analysis using a filter that is an octave wide (the upper limit of the filter's frequency band is exactly twice that of its lower frequency limit)   |
| percentile exceeded sound level | the noise level exceeded for n% of the time over a given time period, T, denoted by $L_{An,T}$   |
| receiver                        | a person or property exposed to the noise being considered   |
| residual noise                  | the ambient noise that remains in the absence of the specific noise whose effects are being assessed   |
| sound                           | physically: a regular and ordered oscillation of air molecules that travels away from the source of vibration and creates fluctuating positive and negative acoustic pressure above and below atmospheric pressure<br><br>subjectively: the sensation of hearing excited by the acoustic oscillations described above (see also 'noise')                                 |
| sound level meter               | an instrument for measuring sound pressure level   |
| sound pressure amplitude        | the root mean square of the amplitude of the acoustic pressure fluctuations in a sound wave around the atmospheric mean pressure, usually measured in Pascals (Pa)   |
| sound pressure level            | a measure of the sound pressure at a point, in decibels  |
| sound power level               | the total sound power radiated by a source, in decibels  |
| spectrum                        | a description of the amplitude of a sound as a function of frequency   |
| Standardised wind speed         | Values of wind speed at hub height corrected to a standardised height of ten metres using the same procedure as used in wind turbine emission testing  |
| threshold of hearing            | the lowest amplitude sound capable of evoking the sensation of hearing in the average healthy human ear (0.00002 Pa)   |
| tone                            | the concentration of acoustic energy into a very narrow frequency range  |

