

## Footnote 6

### Noise:

1. Any undesired sound. It is measured on a “decibel scale ranging from the threshold of hearing (0 dB) to the threshold of pain (130dB). Between these limits a whisper registers about 20dB, heavy urban traffic about 90 dB and a heavy hammer on steel plate about 110 dB. A high noise level (industrial or from overamplified music, for example) can cause permanent hearing impairment.
2. Any unwanted disturbance within a useful frequency band in a communication channel.

### Sound:

A vibration in an elastic medium at a frequency and intensity that is capable of being heard by the human ear. The frequency of sounds lie in the range 20-20,000 Hz, but the ability to hear sounds in the upper part of the frequency range declines with age (see also **pitch**). Vibrations that have a lower frequency than sound are called *infrasounds* and those with a higher frequency are called *ultrasounds*.

Sound is propagated through an elastic fluid as a longitudinal *sound wave*, in which a region of high pressure travels through the fluid at the speed of sound in that medium. At a frequency of about 10 kilohertz the maximum excess pressure of a sound wave in air lies between  $10^{-4}$  and  $10^3$  Pa. Sound travels through solids as either longitudinal or transverse waves.

### Source:

*Oxford Concise Science Dictionary, Third Edition, Oxford, New York, Oxford University Press, 1996*