

GLOSSARY

Anechoic: Neither having nor producing echoes: *an anechoic chamber*.

Anechoic orchestral recording: A recording of orchestral music in an anechoic chamber.

Binaural: a sound recorded onto two separate channels using two microphones.

Binaural Impulse Response: see *Impulse Response*

Calibration refers to the checking of a measuring instrument (i.e. HATS) to test and adjust the accuracy of the instrument. Also referring to a process (**calibrate**) where HATS is measured against a **sound calibrator** to determine accuracy.

Correlation coefficient (r) is an index of relationship between two variables

Co-vary (v) relating to **covariance** (n) refers to a statistical measure of the tendency of two variables to change in conjunction with each other. It is equal to the product of their standard deviations and correlation coefficients.

Cue

Audio cue refers to certain attribute(s) of a sound that signal for certain response(s) from the listener

Visual cue refers to certain attribute(s) of visual environment that signal for certain response(s) from the viewer

Cue weighting or pattern of weight to different acoustic cues. This aspect of auditory perception are predominant in speech perception and auditory distance perception

Diotic refers to an effect of two exact same audio signals produced through the left and right channels of the headphones (as opposite to binaural).

Diffusivity refers to the degree of surface irregularity, which causes the reflected sound wave to break up into smaller waves and scattered.

Diffuse field refers to the area that the scattered sound waves travel.

Direct sound is a sound that travel directly to the receiver

Direct-to-reverberant ratio refers to the ratio between the intensities of the direct sound and reverberation. This quantity measured as C50, or **clarity index**, expresses in dB.

Far field refer to a field of view that is far away

Frequency of Sound or **Frequency** is a measure of how many vibrations occur in one second. This is measured in *Hertz* (Hz) and directly corresponds to the *pitch* of a sound. **Sound** is a vibration in the air, a series of compressions (where air molecules are dense) and rarefactions (where they are sparse). These waves travel outwards in all directions from the source of the sound, until they are captured by our ears and interpreted by the brain. As a wave, sound has two main characteristics: frequency and amplitude. A vibration occurs over a single **wavelength**.

Frequency content or **frequency spectrum** refers to duration, or time-varying characteristics of a sound

Greyscale image is an image composed of (discrete) shades of grey.

Head-related transfer function (HRTF) is a transfer function that, for a certain angle of incidence, describes the sound transmission from a free field to a point in the ear canal of a human subject or a HATS.

Impulse Response refers to a measurement of a sound produce from a point in a room to a receiver (microphone or a person) at another point. The impulse response expressed by a diagram of sound level against time showing the direct sound, the first reflection, and the reverberation of the sound in that room at the receiver position.

Logarithmic sine sweep refers to a technique used in binaural measurement of impulse responses. A sine signal whose **frequency** is swept according to an exponentially increasing frequency as a function of time, thus, making it easy to represent the **sweep** with an apparent constant resolution on a logarithmic frequency axis.

the Level or Sound Pressure Level (SPL) is used for a quantity of sound express in decibels.

Monaural: hearing of sound by one ear

Music soundfields refers to the environments where music is produce to be heard live without electronically assisted (i.e. concert hall).

Olfactory refers to the sense of smell.

Probability refers to the chance of something happening, or the fraction of occurrences over a large number of trials. Probability can range from 0 (no chance) to 1 (full certainty).

The probability value (P-value) of a statistical hypothesis test is the probability of getting a value of the test statistic as extreme as or more extreme than that observed by chance alone, if the null hypothesis is true.

Reverberation refers to the multiple reflections of sound

Reverberation time refers to the duration of time the sound is being reflected, and expressed in seconds, or the time it takes for a sound in a room to be reduced by 60 decibels

Reverberant field refers to the volume of space in a room where the multiple reflection is occurred

Spatial audio refers to the three dimensional quality of sound

Spatial audio reproduction refers to the technique of reproducing the three dimensional quality of sound

Stimulus: something causing or regarded as causing a response.

Audio stimulus is a sound used in a listening experiment that a participant response to.

Visual Stimulus is an image used in a viewing experiment that a participant response to.

Sound energy refers to the energy of the sound wave travelling through a medium. The unit is watt.

Lateral sound energy refers to the energy of the direct or reflected sound waves in the horizontal plane.

Subwoofer is a speaker (in a loudspeaker) that produces low frequency sound.

Variance is the deviation from what was expected or deviation from process mean. Expressed by the sum of the squared deviations of n measurements from their mean divided by (n-1).

Whispering wall refers to vaults of elliptic shape (or **whispering gallery**), the sound arrives from one focus of the ellipse at the other.