

## Explaining all that jargon...

**T**he terminology typically used in the audio and AV environments can sometimes be daunting. However, it's important to at least know your watts from your decibels, to distinguish between analogue and digital, and to understand the mysteries of Dolby Atmos and DTS:X. This is by no means a complete glossary, but it does attempt to cover the most important, and widely used, phrases, terms and technologies. Importantly, don't let yourself become confused and bedazzled by the jargon bandied about by salespeople: if you're not sure what they are referring to, ask them to explain it in layman's terms. Of course, you can always Google. Or drop us an email with your query: we'll do our best to explain. Still, this glossary should provide a useful start to understanding the jargon ...

### A

#### 'ACADEMY' FILTER

This is a high-frequency filter used in some AV receivers to compensate for overly bright soundtracks. It operates only in mono mode.

#### ACOUSTIC SUSPENSION (INFINITE BAFFLE)

A speaker design that employs a completely sealed enclosure.

#### ACOUSTICS

The physical science dealing with how sound is produced, propagated, manipulated and perceived.

#### ACTIVE LOUDSPEAKER

This refers to a loudspeaker that has a built-in power amplifier. Mainly found in subwoofers.

#### ADC (ANALOGUE-TO-DIGITAL CONVERTER)

An electronic circuit that converts an analogue signal to a digital one.

#### ALTERNATING CURRENT (AC)

Current changing direction in a periodic fashion. Amplifier signals are AC, the term is also used to refer to AC mains, i.e. the household voltage at 220V 50/60 Hz.

#### AMBIENCE

A term used to describe the authenticity of a recording's physical environment, viz. the perception that one is actually in the same room as the performers.

#### AMP

A unit of electrical current, short for ampere.

#### AMPLITUDE

A measure of the strength or voltage of a signal.

#### AMPLIFIER

A device that increases or decreases the level of an electrical signal.

#### ANALOGUE

A type of component or recording medium that operates with waveforms that are analogous (similar) to the sounds they represent.

#### ANTI-SKATING

A device on a turntable's tonearm to counteract skating. This sometimes consists of an adjustable spring-loaded device near the tonearm's pivot, but is better implemented as a weight on a string.

#### ATTACK

Time taken for a signal to achieve maximum amplitude. Drums have a fast attack; bowed instruments have a slow attack.

#### AUDIO RANGE

The typical acceptable, audible audio frequency range is considered as 20 Hz to 20 000 Hz.

#### AURO-3D

Auro-3D is a next-generation audio format that delivers a full three-dimensional sound spread capable of reproducing natural acoustic space.

#### A/V RECEIVER

An electronic component combining audio and video processing and scaling functions plus an FM/AM tuner.

### B

#### BAFFLE

A board onto which a loudspeaker driver is mounted.

#### BALANCE CONTROL

A control that moves sound between the left and right stereo channels of an amplifier.

#### BALANCED INPUT/OUTPUT

A system where two signal leads are both 'live' with respect to a common (third) lead or screen (coax cable). The signals carried are equal but opposite in phase. Any extraneous signal (noise) induced in such a cable will be equal and in phase with both live leads, and will therefore balance out, which is why balanced connections are generally considered quieter than single-ended versions.

#### BANANA PLUG AND JACK

A largish, pin and socket-type connection system; commonly used to connect loudspeakers to amplifiers.

#### BAND-PASS FILTER

A filter that removes frequencies above and below a predefined frequency, often used in crossovers.

#### BANDWIDTH

The range of frequencies a component can reproduce.

#### BASS (CONTROL)

Low audio frequency control, usually below 200 Hz.

#### BASS MANAGEMENT

Operates in a multi-channel surround processor that combines the low bass frequencies from all of the channels (including the LFE channel) in a recording, and directs it to the appropriate loudspeakers.

#### BASS REFLEX ENCLOSURE

A vented, or ported loudspeaker enclosure, where the vent is tuned such that at low frequencies (in the order of 40 — 70 Hz) sound output from the vent augments that from the driver. Extends the low-frequency response — useful in smaller enclosures.

#### BINDING POST

Terminal found on the rear of speakers and on amplifiers/receivers. Allowing the connection of speaker cables between speakers and amplifiers.

#### BI-AMPING

A system where two or more amplifiers are used to drive multiple drivers in a single speaker.

#### BI-POLE

A speaker design often encountered in a rear surround role in home theatre systems. A bipolar speaker delivers a wider and more diffuse sound pattern.

#### BIT (BIT RATE)

Bit rate is the rate of frequency of signals in a particular digital process.

#### BI-WIRING

The practice of connecting an amplifier to speakers, using separate cables for the woofers and tweeters.

#### BLU-RAY

An optical storage disc medium developed for high-definition video and data storage. It uses a blue/violet-coloured laser.

**BNC**

A bayonet-type coaxial connector.

**BOOST/CUT CONTROL**

A single control, which allows the range of frequencies passing through it to be either amplified or attenuated. Could be the bass or treble controls on an amplifier.

**BRIDGED MODE**

This inverts one channel of a stereo amp and places it in parallel with the other channel, effectively converting the amp into a mono unit. It increases the amp's output voltage.

**BURNING**

The process through which digital information is stored onto a CD or DVD.

**C****CARD**

Electronic storage device on which images, or other data can be stored. Typical card formats include SD and CF cards, and USB flash drives.

**CARTRIDGE**

A cartridge is the pick-up device fitted to the tone-arm of a turntable. Cartridges typically fall into moving magnet or moving coil categories.

**CENTRE CHANNEL SPEAKER**

A loudspeaker positioned midway between the left and right front speakers in an AV system.

**CD-R (COMPACT DISC - RECORDABLE)**

A compact disc format that permits data to be written onto a blank CD but not erased from it.

**CD-RW (COMPACT DISC - REWRITABLE)**

A compact disc format that permits data to be written onto, erased from, and rewritten to a CD.

**CLASS A, B, AB**

The mode in which the push-pull (mostly output) stage of an amplifier works. In class A, both transistors or valves conduct all the time during a signal swing. In class B either element conducts for exactly a half cycle, one cutting off when the other starts to conduct. Most small signal push-pull stages work in class A, and output stages in class AB, where both elements conduct for a short percentage of a cycle around zero (cross-over), in order to facilitate a smoother transition.

**CLASS D (AMPLIFIER)**

A class D amplifier is one in which the output of the amplifier is a high-frequency square wave, with a variable duty cycle. The audio information is the value of the output square wave. To obtain audio signal, the output must be low-pass filtered. The main benefit of a class D amplifier is its high efficiency.

**CLIPPING**

When the supply voltage of an amplifier is (say) 50 V, then that is the theoretical maximum peak-to-peak amplitude of a signal it can handle. When there is too large an input signal or too much amplification, the final signal will tend to be too large, and the peaks will cut off at 50 V – a severe form of distortion, also called overload. (The maximum undistorted signal can sometimes be much smaller because of circuit parameters.)

**COAXIAL CABLE**

A signal transmission line in which a central conductor is located within a cylindrical outer conductor, separated by insulation. This can be designed to have specific characteristic impedances at radio and TV frequencies to minimise losses. Also used for digital transmissions.

**COMPACT DISC (CD)**

A 12 cm optical disc that stores music and other data. Music CDs conform to the so-called Red Book standard, with music files presented at 44.1 kHz/16-bit resolution.

**CONE**

The moving part of a loudspeaker driver.

**CROSSOVER**

An electronic circuit within a speaker that divides sound into different frequency ranges.

**CROSSTALK**

Undesirable interference caused by adjacent track or radio station, results in loss of stereo channel separation.

**D****DAMPING FACTOR**

A measure of how well a loudspeaker is 'braked' after desired motion. Relevant to amplifier output.

**DATA COMPRESSION**

A system for reducing the amount of data stored by a digital system. Compression could be lossy or lossless. MP3 music files are the most common lossy compressed music files, while FLAC is one example of a lossless compressed music format.

**DC**

Direct current. A battery provides direct current when referenced to earth.

**DDD**

Relevant to compact discs. Refers to music being recorded, mastered and saved digitally.

**DECIBEL (DB)**

An exponential unit for the loudness of sound.

**DELTA/SIGMA**

This is a single-bit digital signal format where each sample is described in relative terms only. Relevant to digital-to-analogue conversion.

**DIGITAL**

Denoting the way computers count. They can discriminate only between 'off' and 'on' conditions, i.e. two digits: '0' and '1'. To count higher, they must go to further digits. In the audio field, this finds application in all digital components.

**DIGITAL-TO-ANALOGUE CONVERTER (DAC)**

An electronic device that converts a digital signal to analogue format.

**DIPOLE SPEAKER**

A loudspeaker that radiates equal but out-of-phase sound energy from front and back, and has "dead spots" or "nulls" at the sides. Used for the surrounds in Home THX systems.

**DISTORTION**

An unwanted deviation from the original (input signal) due to imperfections caused by the amplifier or other audio devices.

**DOLBY ATMOS**

Dolby Atmos is one of the latest object-based surround sound formats, adding overhead sound effects to deliver surround sound with greater realism than older formats. Unlike DTS-X, Dolby makes specific speaker recommendations for Atmos to achieve optimum performance. This includes a standard 5.1 or 7.1 surround speaker system, plus at least one pair of "height" speakers. The height speakers can be either in-ceiling, or upward-firing Atmos-enabled speakers.

**DOLBY DIGITAL (AC-3)**

A 5.1 discrete digital surround sound format that delivers five full-range channels plus a low-frequency effects (LFE) channel. Now superseded by Dolby TrueHD 7.1 as the de-facto surround standard.

**DOLBY DIGITAL SURROUND EX**

Development of Dolby Digital (AC-3) that includes a 'matrixed' centre rear signal.

**DOLBY PRO LOGIC**

The logic-steered version of Dolby Surround 5.1. Pro Logic processors include a centre channel output.

**DOLBY PRO LOGIC II**

A development of Dolby Pro Logic in which there is some separation introduced into the two surround audio channels.

**DOLBY SURROUND**

Generic term for all consumer versions of the Dolby surround decoding system, which may or may not use logic steering. Compare Dolby Pro Logic.

**DOLBY TRUEHD**

Dolby TrueHD is a lossless 7.1 surround audio format, meaning that no audio information is lost when the signal is compressed and uncompressed.

**DOWNLOADING**

The digital or electronic delivery of digital information via wire or wireless means that results in a copy of the information being downloaded being made on the receiving computer's hard drive.

**DRIVER**

This is another name for a raw speaker or transducer, such as a woofer, midrange or tweeter.

**DSD**

Direct Stream Digital is a single-bit data stream used for high-density recordings and SACD discs. These signals are made from a high-speed series of individual bits that define amplitude differences as opposed to absolute values.

**DSP (DIGITAL SIGNAL PROCESSING)**

A general label for manipulation of audio signals in the digital domain. DSP can be used for a wide variety of tasks, including ambience enhancement, equalisation, time alignment, and filtering. Also refers to digital signal processor.

**DTS**

Digital Theatre Sound. A discrete six-channel system. Differs from the Dolby version by recording the sound track separately from the video track.

**DTS-HD Master Audio**

An advanced audio codec developed by Digital Theatre Systems. DTS-HD Master Audio is a lossless audio format, meaning that no audio information is lost when the signal is compressed and uncompressed. The alternative surround sound standard to Dolby TrueHD 7.1.

**DTS:X**

DTS:X is in many ways very similar to Dolby Atmos in that both technologies create an immersive three-dimensional sound stage through the addition of overhead speakers; they both treat sounds as objects with metadata describing those sound objects and they both render those sounds along a three-dimensional axis. Where Atmos defines fixed locations for speakers, DTS:X says you can arrange your home theatre system speakers any way you like.

**DUAL MONO**

Amplifiers designed to keep left and right signals separate to minimise interference between them.

**DVD (DIGITAL VERSATILE DISC)**

A CD-sized multimedia laser-optical disc having several times the storage capacity of a music CD. With bit reduction, a DVD can store an entire film and six channels of discrete multi-channel audio. Still relevant in the mass market, but increasingly superseded by Blu-ray discs.

**DVD-R**

Recordable DVD originally developed to record DVD-ROM and DVD-Video master discs. Can be written one time only.

**DVD+R**

Original standard format for recordable DVD. Can be written one time only.

**DYNAMIC RANGE**

A term pertaining to the difference between the lowest and highest level that an audio device can handle.

**DYNAMICS**

A way of describing the relative levels within a piece of music. Affects the realism and impact of the produced sound.

**E****EFFICIENCY**

This is the measure of a device's ability to convert input power to output. In amplifiers this is usually expressed as a percentage. In loudspeakers it is expressed as a dB rating relative to specified input power and distance.

**ELECTROSTATIC LOUDSPEAKER**

A speaker that uses an electrically charged surface or membrane to create sound waves.

**ENCLOSURE**

The cabinet which houses the drive units and crossover of a loudspeaker.

**EQUALISER**

A device for selectively cutting or boosting selected parts of the audio spectrum.

**ERROR CORRECTION**

A system that reconstructs digital data that has been lost or destroyed by accessing redundant but un-corrupted data embedded in the remaining digital information.

**EXCURSION**

This is a measurement of how far a driver's diaphragm can move.

**F****FARAD**

The accepted measure for capacitance. Refers to the ability of a component to store charge.

**FEEDBACK**

In electronics, the return of a small portion of the output signal to the input, in reversed polarity, to reduce distortion, reduce gain, or alter the frequency response.

**FERROFLUID**

A thermally conductive fluid between the voice coil and magnet of especially tweeters.

**FIELD-EFFECT TRANSISTOR (FET)**

A semi-conductor operating through the effect of the electrostatic field of the input electrode (gate), rather than conduction.

**FILE**

A meaningful list of data stored in digital form. MP3 music would be stored in a file.

**FILTER**

In electronic form, frequency-selective active or passive networks provide a desirable frequency characteristic. Low-pass filters cut off above a certain frequency, and high-pass filters below a given frequency. Crossover filters in loudspeakers keep high frequencies out of woofers and low frequencies away from tweeters.

**FLAC**

FLAC stands for Free Lossless Audio Codec, an audio format similar to MP3, but lossless, meaning that audio is compressed in FLAC without any loss in quality.

**FLUTTER**

Refers to a specific kind of distortion associated with variations in speed. Typically relevant to turntables.

**FREQUENCY**

The rate of repetition of any periodic wave in cycles/second or Hertz (in honour of pioneer Heinrich Hertz).

**FREQUENCY RESPONSE**

A measurement of the frequency range that can be handled by a piece of electrical equipment or loudspeaker.

**FRONT PROJECTOR**

A video display device that projects an image onto the front of a reflective screen.

**FULL HD**

Full HD refers to a TV capable of displaying images with a 1920 x 1080 p (progressive scan) resolution. Is being superseded by 4K resolution.

**FUNDAMENTAL**

Any sound comprises a fundamental or basic frequency plus harmonics and partials at higher frequencies.

**G****GAIN**

The gain or amplification factor of an amplifier or single stage is the signal divided by the input. There can be voltage gain as well as current and power gain.

**GRAPHIC EQUALISER**

A device allowing several narrow segments of the audio spectrum to be controlled by individual boost/cut faders.

**GROUND LOOP**

A condition likely to lead to the circulation of current in the ground wiring of an audio system.

**GUI (GRAPHICAL USER INTERFACE)**

Any "point-and-click" control system for an electronic component that uses menus and icons, which are displayed on a TV screen, instead of (or in addition to) physical push-buttons and other controls.

**H****HARMONIC DISTORTION**

The addition of harmonics that were not present in the original signal.

**HARMONICS**

Multiples of the fundamental frequency of any sound or electrical signal (see Frequency).

**HDCD (HIGH DEFINITION COMPATIBLE DIGITAL)**

A coding system for compact discs that aims to achieve better sound. HDCD is not widely used and requires HDCD-compatible hardware. HDCD encoded discs play back normally in standard CD players.

**HDCP**

High-bandwidth Digital Content Protection is a method for protecting copyrighted digital content that uses the DVI (Digital Visual Interface) or HDMI (High-Definition Multimedia Interface).

**HDMI**

High Definition Multimedia Interface is an uncompressed, all-digital audio/video interface that supports audio/video sources such as a set-top box, DVD player, AV receiver, and video monitors such as a digital projector or digital television (DTV). HDMI is backward compatible with DVI 1.0 specification and supports HDCP. HDMI cables are defined by cable type, with these being HDMI Standard with and without Ethernet and HDMI High Speed with and without Ethernet. High Speed cables support all video resolutions up to 4k and 3D. The current latest version of HDMI is 2.0b, with 2.1 defined but not released as of November 2016.

**HDMI REPEATER**

A device that both receives and sends HDMI signals, such as an AV receiver. AV receivers are considered HDMI repeaters.

**HDTV BROADCAST**

HDTV is a TV broadcast with an image resolution of 1280 x 720p or higher and in a wide screen 16:9 aspect ratio. DSTV is currently the only HDTV broadcaster in South Africa.

**HEADROOM**

The safety margin in decibels between the highest peak signal level being passed by a piece of equipment and the absolute maximum level the equipment can handle.

**HERTZ (Hz)**

Cycles per second. The unit of audio frequency. Named after Heinrich Hertz.

**HIGH FREQUENCY**

In audio terms, the high frequency or treble band starts at around 5.5 kHz and extends beyond 20 kHz.

**HIGH-PASS FILTER**

A filter that attenuates frequencies below its cut-off frequency.

**HOME THX**

A rigorous certification process that extends to home audio receivers, speakers, and HDMI cables. Standards include: THX Ultra2 Plus, THX Select2 Plus and THX I/S Plus. THX certified receivers and pre-amplifiers also feature a number of proprietary technologies, all designed to accurately present movie, music and game soundtracks in the home. These include amongst others Re-EQ, Timbre Matching and Boundary Gain Compensation (BGC).

**HORIZONTAL RESOLUTION**

A measure of the amount of detail which can be distinguished in a TV picture. Standard Definition PAL video uses 576 lines of resolution, while HD video uses 1080 lines of resolution.

**HORN LOADING**

A structure within a speaker shaped like a horn to improve the drive unit's efficiency and output.

**HUE**

A term used to describe the quality of a colour, e.g. a red hue, green hue, blue hue, tint.

**I****IMAGING**

The ability of a stereo system to place sounds in a spatially realistic manner.

**IMPEDANCE**

Can be visualised as the 'AC resistance' of a circuit, which contains both resistive and reactive components.

**INDUCTOR**

Coil of wire with or without a laminated iron or ferrite core to increase impedance.

**IN-PHASE**

Two signals having the same waveforms that are in perfect synchronization with each other. There is no phase difference between them at any frequency.

**IN-WALL LOUDSPEAKER**

A loudspeaker designed to function best when it is mounted flush with the surface of a wall or ceiling.

**INFRARED**

Invisible light that is just below red in the visible spectrum of colours. It is used as a signalling medium for remote controls.

**INTEGRATED AMPLIFIER**

An integrated amplifier combines the pre-amplifier and the power amplifier sections in a single chassis.

**INTERCONNECT**

A length of shielded wire with plugs at both ends for feeding signals from one device to another. Cables can be balanced or single-ended.

**INTERPOLATION**

In AV terms, this refers to employing both left and right channel information to create simulated centre and surround channels.



## J

**JITTER**

These are very small variations in the timing of digital signals, and are the result of the digital circuit's inability to accurately lock onto the data stream. This results in a loss of sonic transparency.

## K

**kilohertz or kHz**

1 000 Hz.

## L

**LFE (LOW FREQUENCY EFFECTS)**

The LFE channel is the .1 channel in an A/V system. The LFE channel carries low-frequency information that would typically be directed to a subwoofer.

**LINE CONDITIONER**

A device used to purify the AC current available from the domestic wall sockets to enhance performance of audio and A/V components.

**LINE LEVEL**

A nominal signal level, which is around –10 dBv for semi-pro and +4 dBu for professional equipment.

**LOSSLESS DATA COMPRESSION**

Lossless data compression is a set of compression algorithms that allows the exact original data to be reconstructed from the compressed data.

**LOUDNESS**

Sound level normally used in connection with an audio level.

**LOUDNESS CONTROL**

A volume control with loudness compensation for the loss of low-frequency sensitivity of the ear as sound level decreases (there is also a minute effect on high frequencies).

**LOUDSPEAKER**

Electromechanical device that converts electrical energy into sound energy by moving a rigid surface by the electromagnetic or electrostatic principle.

**LOW-PASS FILTER**

A filter, which attenuates frequencies above its cut-off frequency.

**LP RECORDINGS**

LP = Long Playing—relative to the 78 rpm discs of the previous generation. The familiar 12-inch diameter vinyl discs, containing analogue recordings played back at 33,3 rpm.

## M

**MACROS**

Mini-programs that allow a sequence of functions to be activated from a single button on a remote control.

**MAGNETIC SHIELDING**

This is a design of loudspeaker motor in which the stray magnetic field is suppressed to avoid distortions to magnetically sensitive video displays.

**MATRIX SURROUND SOUND**

A method of encoding more than two channels of audio into a pair of analogue audio channels.

**MEMORY (CHIP)**

An integrated circuit containing thousands of storage elements that can each record a digit. Various self-explanatory names (types) exist, e.g. ROM (read only memory), RAM (random access memory), EPROM (external programmable read only memory).

**MICROPHONE**

A device that converts signal waves into electrical current in a way opposite to that of a loudspeaker. It works mostly on the electrodynamic principle, but can also be capacitive, crystal or electret of nature.

**MIDRANGE (SPEAKER)**

A loudspeaker driver handling the mid-audio frequencies: 500 Hz to 5 kHz.

**MONOBLOCK**

An independent mono power amplifier. Two are required to run a stereo system.

**MOVING-COIL (MC) CARTRIDGE**

A magnetic phono cartridge, typically of very low output, in which the magnet is fixed and the coils are attached to the stylus cantilever.

**MOVING-MAGNET (MM) CARTRIDGE**

A magnetic phono cartridge of relatively high output, in which the coils are fixed and the magnet is attached to the stylus cantilever.

**MP3**

MPEG-1 layer 3, a variation of MPEG data compression technology, used to compress text, graphics, video and more importantly, audio files, into small packets of data. MP3 files are ubiquitous but compressed and therefore sonically compromised music files.

**MULTI-CHANNEL SOUND**

A generic term used to describe audio systems having more than two channels and delivering surround sound.

**MULTIROOM SYSTEMS**

A system that directs music or video programs from one or more sources to secondary listening spaces, or zones.

**MUSIC POWER**

A popular name for the short-term maximum power output of which an amplifier is capable (see Power).

**MUTE, MUTING**

This is a button or control that, in one operation, reduces the sound level by a fixed amount, or mutes it completely.

## N

**NOISE**

Literally any signal in an audio circuit that does not come with the input. Normally a hiss heard as a background.

**NOISE FLOOR**

The level at which no useful signal is produced because the signal level is below the level of noise in a system.

**NOISE REDUCTION**

A system for reducing analogue tape noise or for reducing the level of hiss present in a recording. Also for reducing the level of picture noise in a video recording.

**NOMINAL IMPEDANCE**

The stated impedance rating of a speaker, used by manufacturers to represent the typical load the speaker will present to an amplifier.

## O

**OCTAVE**

A doubling or halving of a frequency, with the bottom octave usually given as 20 Hz.

**OFF AXIS**

A position to the side of a speaker at an angle other than 90 degrees to the front of the speaker baffle.

**OHM**

A unit of resistance or impedance.

**OMNIDIRECTIONAL**

This refers to microphones or loudspeakers, having equal sound sensitivity or output, respectively, in all directions.

**ON AXIS**

In loudspeaker terms it is the imaginary axis that projects perpendicular to the plane of the loudspeaker drivers. Normally it originates at the tweeter axis, or at a point close to the tweeter and midrange drivers.

**OPTICAL LINK**

A cable consisting of many thin glass fibres, treated to transmit light frequencies with very low loss. In the audio field it is used mainly used to interconnect digital equipment.

**OVERSAMPLING**

A raising of the sampling rate of a digital data to provide a smoother signal curve.

**P****PASSIVE**

A circuit with no active elements.

**PCM (PULSE-CODE MODULATION)**

Representation of a digital bit-stream by a sequence of electrical pulses. PCM is the most common digital encoding scheme and is the one used for CDs.

**PEAK**

In time: the instantaneous maximum value of a time-varying quantity. E.g. peak power in power amplifiers.

**PHASE**

The relative timing of two signals, usually expressed in degrees of a cycle (a whole cycle being 360 degrees) e.g. a 90 degree phase shift occurs when the cycle of one signal goes through zero at the moment the other reaches peak value.

**PHONO**

Abbreviation for "phonograph"; refers to the low-level signals produced by a phono cartridge and to the phono input where a turntable is connected to a pre-amplifier, integrated amplifier or receiver. Phono inputs typically use RCA connectors, sometimes called phono jacks.

**PICKUP**

An electromechanical device also referred to as a cartridge, used on record players. It employs a stylus to trace a groove on a record and then converts this to varying electric current (either on an electromagnetic principle, or by means of a crystal or capacitive effect).

**PIEZO TWEETERS**

High-frequency loudspeaker drivers that, rather than using conventional voice coils, rely on the ability of some crystalline materials to physically respond to the application of a signal. They are usually horn loaded. Such tweeters have the advantage of having a very high power handling capability, so they are often seen in professional sound reinforcement installations.

**PITCH**

The frequency heard by the ear. This can be slightly different from the electrical frequency of a signal.

**PIXEL (PICTURE ELEMENT)**

The basic component of an image. Each pixel is made up of separate red, green and blue sub-pixels that combine to produce a pin point of light of various colours.

**PLANAR LOUDSPEAKER**

This is the generic term for very large flat-panel loudspeakers: these can be either electrostatic or electromagnetic and move air in equal quantities from all points, and from both the front and the rear surfaces of the speaker panels.

**PORT**

A vent or tube that forms part of a resonant system in a bass-reflex loudspeaker enclosure.

**POWER**

In amplifiers/receivers, mostly energy that applied to drive a loudspeaker.

**POWER AMPLIFIER**

A component, or part of a component, that strengthens the audio signal from a pre-amplifier so that it can drive speakers.

**PRE-AMPLIFIER**

The stages preceding the power amplifier, comprising initial low noise stages, tone control stages and volume control.

**PUSH-PULL**

When two parallel transistors amplify the signal in opposite phase, the operation is referred to as push-pull (the terms 'balanced', 'paraphrase', 'see-saw' also occur). Each device can amplify every alternate half cycle (called 'class B'). Class B is normally used only in the output stage of an amplifier.

**PVR**

Personal Video Recorder: A digital hard-drive video recorder (DVR) which, when combined with a program guide, can record one's personal favourite television programs.

**Q****Q**

A measure of the resonant properties of a filter. The higher the Q, the more resonant the filter and the narrower the range of frequencies that are allowed to pass.

**QUIESCENT (CURRENT)**

Current drawn by an amplifier stage, whole amplifier or other device when there is no signal (also known as standby current).

**R****RAM**

Abbreviation for Random Access Memory.

**RCA CONNECTOR**

The most common kind of connector, using a small, one-pin plug and coaxial shield. Sometimes called a phono jack.

**RDS (RADIO DATA SYSTEM)**

A system for transmitting text information along with the audio in a radio broadcast, for display on an RDS-equipped tuner or receiver.

**RESISTOR**

Basic element in an electronic circuit. A variable voltage across it causes a variable current through it, and vice versa. Voltage, current and resistance are linked by probably the most fundamental equation in electronics, viz. Ohm's Law: Resistance = Voltage/Current.

**RESOLUTION**

In digital video displays, it is the number of pixels along the width and height of the picture.

**RESONANCE FREQUENCY**

The frequency at which any system vibrates when excited by a stimulus.

**REVERBERATION**

The extended period for which a sound can be heard due to the way it reflects off hard surfaces in a confined area.

**RF (RADIO FREQUENCY)**

The high-frequency electromagnetic signals used to broadcast radio and TV programs.

**RIAA**

This is the official abbreviation of the "Recording Industry Association of America". Also, the name of the standardised equalisation curves used in making and playing back LP recordings.

**RIBBON SPEAKER**

A form of speaker driver using a light, conductive ribbon suspended in a magnetic field that vibrates when a signal current is passed through it to produce sound.

**RIPPING**

The practice of encoding or converting music data on CD into lossy, or lossless audio files. Otherwise known as digital extraction.

**REAL TIME**

An audio process that can be carried out as the signal is being recorded or played back.

**RMS (POWER)**

The maximum output power an amplifier is capable of under continuous signal conditions (e.g. with a sine wave just prior to clipping). See also Power. Note: Even though universally used, it is a technically meaningless term. It stands for the Root of the Mean of the Square (values), which is the way in which signal voltage, and not power, is averaged. The correct term is continuous or sine wave power.

**ROOM ACOUSTICS**

The characteristics of a room that determine how sound waves will behave in it. Reflection off hard surfaces, absorption by curtains and carpets, etc. Dimensions and the shape of walls, floor and ceiling all play a role.

**S****SACD**

A high-quality, high-resolution digital audio format, developed by Philips and Sony. Uses DSD data stream.

**SAMPLE RATE**

The number of times an A/D converter samples the incoming waveform each second.

**SATELLITE SPEAKER**

A small stereo loudspeaker, used in conjunction with a separate sub-woofer.

**SCMS (SERIAL COPY MANAGEMENT SYSTEM)**

A system incorporated in all consumer digital recorders to limit digital-to-digital copying of copyrighted material to a single generation. Any number of first-generation digital copies can be made from an original, but the resulting copies cannot themselves be copied via a direct digital link.

**SD (SECURE DIGITAL)**

A media card which delivers a variety of transfer rates depending on class. Increasingly the data storage medium of choice in professional environments.

**SENSITIVITY**

A measure of the sound output of a loudspeaker for a known input signal. Originally, the input power was 1 watt. Nowadays, the input is standardised to 2.83 volts (1 watt into 8 ohms).

**SEPARATION**

The ability of a component to properly separate left and right audio channels.

**SIBILANCE**

High-frequency whistling or lisping sound that affects vocal recordings, due either to poor recording techniques or exaggerated vocal characteristics of a component.

**SIGNAL-TO-NOISE RATIO**

The ratio of maximum signal level relative to the residual noise of a piece of equipment. Expressed in dB.

**SINGLE-ENDED (STAGE)**

Usually refers to an amplifier output stage with a single transistor, as opposed to push-pull.

**SMPTE**

Acronym for Society of Motion Picture and Television Engineers.

**SOFT-DOME TWEETER**

A tweeter that uses a fabric dome as a radiating diaphragm.

**SOUND PRESSURE LEVEL (SPL)**

The standard measurement of the loudness of a sound, expressed in decibels (dB) relative to the threshold of human hearing.

**SOUNDSTAGE**

An acoustic concept denoting the dimensions of the perceived width and height of the musical image as produced by a loudspeaker system.

**STANDING WAVES**

Associated with room resonances, at low frequencies, these can result in large variations in sound level at different frequencies at different locations in the room. The bass sounds over or under emphasised as the listener moves around a room.

**STEREO (IMAGE)**

The illusion of dimension, relative to the room (hall) in which a programme was originally performed, and recreated in the listening room by recording two channels using microphones spaced at the distance between a person's ears. This sensation is caused more by the resulting reflection pattern than by the spatial positioning of instruments (a solo performance also sounds better in stereo than in mono).

**STYLUS**

The needle-shaped material, usually diamond, at the end of the cantilever of a phono cartridge. Its vibration as it traces the record grooves is translated by the cartridge into an electrical audio signal.

**SUB-BASS**

Frequencies below the range of typical monitor speakers. Often described as those frequencies that are felt rather than heard. Typically frequencies below 60 Hz.

**SUBWOOFER**

A limited bandwidth, low-frequency loudspeaker driver handling mainly signals in the 30-140 Hz range, to augment the often limited response of especially small loudspeakers in this region.

**SURROUND DECODER**

A device that separates out or decodes the surround signals for a multi-channel system.

**SWEET SPOT**

The seating position or positions at which a stereo or surround sound system produces its best effect, particularly with regard to imaging.

**T****THD (TOTAL HARMONIC DISTORTION)**

The percentage of an audio output signal that consists of spurious harmonics, or multiples of the input frequencies. These harmonics are introduced by an amplifier or other component through which the signal passes; lower figures are better.

**THROW (VIDEO PROJECTOR)**

The ratio between the distance from the projector lens to the screen and the size of the image.

**THX**

Proprietary term (Lucasfilm, Ltd.) for a set of technical performance standards that define the minimum level of acceptable movie presentation quality in both professional and consumer theatres. (see Home THX)

**THX SURROUND EX**

Decoding system for Dolby Digital Surround EX and DTS-ES software.

**TIMBRE**

The tonal colour of a sound.

**TINNITUS**

A ringing in the ears that accompanies temporary hearing loss after exposure to loud sounds or that becomes permanent for some individuals unfortunate enough to incur permanent hearing loss.

**TMDS**

Transition Modulated Differential Signalling, a technology for transmitting serial data at very high speeds. TMDS is a core technology used in both DVI and HDMI.

**TONERARM**

The device on a turntable that holds the cartridge in place, and allows accurate alignment and tracking of the grooves on a vinyl record.

**TOROIDAL TRANSFORMER**

A round transformer, normally with a hole in the middle, that delivers a higher efficiency and lower stray magnetic field than a comparative iron-core transformer.

**TOSLINK**

The most common type of fibre-optic connector for digital audio inputs and outputs. Follows the SPDIF standard, but is typically limited to a 96 kHz sampling rate.

**TRANSIENT**

A quick burst of signal energy.

**TRANSPARENCY**

A subjective term used to describe audio quality where the high frequency detail is clear and individual sounds are easy to identify and separate. In loudspeaker terms, transparency relates to the physical speaker becoming invisible as point sources.

**TRANSPORT (TAPE, DISC OR RECORD)**

The mechanical construction that runs a tape or rotates a disc or record in the required way. Speed control for high-quality reproduction should be constant to better than 0,08%, and bushes or bearings must be totally smooth.

**TREBLE (TONE)**

The higher audio frequencies, usually from some 2 kHz upwards. The classic treble tone control adjusts in 3 dB points from about 2 kHz upwards.

**TUBE**

American term for thermionic valve.

**TWEETER**

Popular term for high-frequency loudspeaker driver in a multi-driver system. It normally handles frequencies from 5 kHz up.

**U****ULTRA-HD (4K)**

A UHD or 4K display is one with at least 8 million active pixels. For televisions, that resolution has standardized to 3 840 by 2 160. Digital cinema 4K (the resolution in 4K movie theatres) is slightly higher at 4 096 by 2 160. It's four times the number of pixels on a 1080p display, and over 23 times the resolution of standard definition television.

**UNBALANCED**

A two-wire electrical signal connection where the inner or hot or positive conductor is usually surrounded by the cold or negative conductor which forms a screen against interference. Also referred to as single-ended.

**UNIVERSAL (REMOTE)**

A term used to describe remote controls capable of operating several devices.

**USB (UNIVERSAL SERIAL BUS)**

Type of connector for attaching peripherals such as mice, keyboards, scanners, printers and disc drives to a computer. Offers faster data transfer and easier (plug 'n play) connections than PC parallel port or Mac serial ports. Both Mac OS and Windows compatible. The latest USB 3.1 Gen 2 standard allows data transfer rates of up to 10 Gbps. Asynchronous USB data transfer is increasingly popular as a way of acquiring high-res music files from Mac or Windows computers.

**USB ASYNCHRONOUS MODE**

In this context Asynchronous USB mode refers to audio data

transfer between a PC and a DAC. With true asynchronous transmission the DAC controls the audio transfer from the computer, ignoring the computer's USB bus clock and instead slaving the computer to the buffer in the DAC. The DAC requests the packets of audio data from the computer and stores this data in the buffer. This ensures virtually jitter-free transmission between PC and DAC.

**USB SYNCHRONOUS MODE**

In Synchronous mode audio data transferred between PC and DAC is referenced to the 12 MHz audio clock on the computer's USB bus. The computer controls the audio data transfer. As computers are always multi-tasking this can result in inconsistent timing for the audio data transmission and this can lead to jitter.

**V****VALVE**

A thermionic device amplifying signals by controlling electron emission from a hot cathode. Also referred to as a tube.

**VENT**

A loudspeaker port, typically employed in bass reflex enclosures.

**VIRTUAL SURROUND**

A technique that uses filters and delays to create a surround sound effect from just two speakers.

**VOICE COIL**

A coil on a round form, operating in a magnetic field so as to convert audio current to mechanical movement. The form is rigidly connected to a cone or diaphragm used to cause air motion.

**VOLUME CONTROL**

The control adjusting the gain of an amplifier, thereby changing the sound intensity (see also Loudness).

**W****WARMTH**

A subjective term used to describe sound where the bass and low/mid frequencies have depth and where the high frequencies are smooth-sounding, rather than being aggressive or fatiguing.

**WATT**

A unit of electrical power.

**WAV**

Waveform Audio File Format (WAVE, or more commonly known as WAV due to its filename extension) is a bit-perfect, lossless audio file format standard for storing an audio bitstream on computers.

**WOOFER**

Popular name for a low-frequency loudspeaker driver. It usually handles frequencies up to about 500 Hz. The response of the loudspeaker is also governed by the baffle or cabinet in which it is mounted, not only by the characteristics of the driver.

**X****XGA**

A computer-oriented display resolution with 1024 pixels horizontally and 768 pixels vertically. Frequently appears in projectors. XGA displays work well with anamorphic widescreen PAL DVDs because in widescreen mode the vertical resolution reduces to 576 pixels, perfectly matching PAL's resolution.

**XLR**

A three-conductor balanced-line connector used on professional and some consumer electronics components. Balanced interlinks are XLR-terminated.