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## Home Theater Basic Glossary

0 dB - the threshold of hearing, 130 dB is the threshold of pain.

24/96 - Usually refers to audio (music) discs that were created using the 2-channel DVD specification for audio (not the same as DVD-audio). 24 bits and 96,000Hz sampling rate. Provides a noticeable sonic improvement over the older CD audio specification. Most DVD players will play the 24/96 music discs.

5.1 Surround Sound - The digital audio multi-channel format developed by the Moving Picture Experts. IT refers to the five discrete, full bandwidth (20-20kHz) channels - left, right, & center fronts, plus left & right surrounds - and the ".1" usually refers to the limited bandwidth (20-120Hz) subwoofer channel.

A-

A-B Test- A test between two components.

AC-3 (audio coding 3)- Dolby's digital audio data compression algorithm adopted for HDTV transmission and used in DVDs, laserdiscs and CDs for multi-channel home theater use. Also see: Dolby Digital

Acoustic Suspension- A sealed or closed box speaker enclosure. Sometimes referred to as an infinite baffle. Also see sealed enclosure.

Acoustic Treatments- There are only three classic (physical) tools available for the acoustician to treat a room: absorbers, reflectors and diffusers. Absorbers attenuate sound; reflectors redirect sound, and diffusers (hopefully) uniformly distribute sound. However, with today's advanced digital audio tools, all of these elements can be electronically manipulated.

Acoustics- The science or study of sound.

Active Crossover- A loudspeaker crossover requiring power to operate.

Alternating Current- (AC) An electrical current that periodically changes in magnitude and direction.

Ambience- The acoustic characteristics of a space with regard to reverberation. A room with a lot of reverb is said to be "live"; one without much reverb is "dead."



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**Ambient Noise-** The sound that exists in a room that does not come from a loudspeaker, musical instrument or some other intentional sound source. A person speaking to an audience is not ambient noise, etc.

**American Wire Gauge- (AWG) -** A system for measuring the diameter of wire. The lower the AWG number, the larger the diameter.

**Ampere (A or AMP)-** The standard measure of current flow. The amount of current that flows past a point in an electrical circuit. One amp is equal to one Coulomb of charge flowing past a point in one second.

**Amplifier-** A device which increases signal level. Many types of amplifiers are used in audio systems. Amplifiers typically increase voltage, current or both.

**Amplitude-** The peak-to-peak size of a waveform. For audio purposes, the greater the amplitude of the signal, the louder the sound will be.

**Analog-** In sound terms analog signals are electrical signals that are exact replicas of the waveforms of the original sound pressure wave in the air.

**Anamorphic-** A process where a widescreen movie is stored on the DVD disc in anamorphic form, meaning the picture is squeezed horizontally to fit the standard 4:3 rectangle, then unsqueezed during playback. This anamorphic squeezing results in less of the picture being wasted on the black letterbox mattes.

Anamorphic video is best displayed on widescreen equipment, which stretches the video back out to its original width. The setup options of DVD players allow the viewer to indicate whether they have a 16:9 or 4:3 TV.

**Anechoic-** Echo free. An anechoic room has no reflected sound. This is accomplished by treating all of the room's surfaces with sound absorbing material.

**Aspect Ratio-** Ratio of a picture's width to its height. Typical television aspect ratio is 4:3, while wide screen formats provide greater width of the viewing area.

**Asymmetrical-** Uneven or off center; not symmetrical. In speaker cabinet design asymmetry can be beneficial as it reduces the standing waves in the cabinet.

**Attenuate-** To reduce in level.

**Audio frequency-** The acoustic spectrum of human hearing, generally regarded to be between 20 Hz and 20 kHz.



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**Axis-** An imaginary line that is perpendicular to the front face of a microphone or loudspeaker diaphragm.

**B-**

**Baffle-** On a speaker the baffle is the front plate the drivers are mounted on.

**Banana Plug-** Banana shaped speaker termination that consists of an approximately 1/8-inch-wide and 1-inch-long plug that goes into the back of a binding post or inset banana plug terminal on a speaker, amp or receiver.

**Bandwidth-** The range of frequencies reproduced by an amplifier or transducer.

**Basket-** Part of a speaker, typically of cast metal, that holds together the driver, magnetic structure, voice coil, cone and spider.

**Bass-** (low frequencies) - The low end of the audio frequency spectrum between 0Hz to about 200 Hz.

**Bass Reflex-** A type of loudspeaker that uses a port or duct to augment the low-frequency response. Opinions vary widely over the "best" type of bass cabinet, but much has to do with how well a given design, such as a bass reflex is implemented. See also ported enclosure.

**BFA – BFA Banana** is only used on British audio gear (BFA stands for British Federation of Audio). The BFA banana is a female banana plug and will not work with a standard five-way binding post.

**Bi-amping-** Bi-amping refers to the use of two separate amplifier channels connected directly to individual loudspeaker drivers. The benefit is that the amplifier is focusing its energy on a specified range of frequencies, improving the sound quality. Bi-amping requires (usually) an external crossover to separate the frequencies before sending them to the respective amps.

**Binding Post-** Speaker wire terminal on better amplifiers and loudspeakers; can accept multiple cable termination types. Superior to spring or wire-clip connectors. (See banana plug, pin connector, spade lug, spring clip)

**Bipolar-** Type of loudspeaker with drivers mounted on opposite sides of the cabinet, or speaker enclosure. Drivers move in and out together so they remain



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"in-phase." Used as rear-surround speakers; better when placed closer to the listener. (Also see dipolar)

Bi-wiring- The use of two pairs of speaker wire from the same amplifier to separate bass and treble inputs on the speaker.

C-

CATV- (community antenna television or cable television) A broadband transmission medium, most often using 75-ohm coaxial cable carrying many TV channels simultaneously.

CD- (compact disc) Trademark term for the Sony-Philips digital audio optical disc storage system. The system stores 75 minutes (maximum) of digital audio

CD-R- (compact disc-recordable) A compact disc that is recordable once.

CD-RW- (compact disc-rewriteable) A compact disc that can be recorded on more than once.

Center Channel (Speaker)- The center channel speaker is used to produce the voices, dialogue, or any other sound effects the director mixes into it. In a home setting it is preferable to have the center channel speaker either directly on top of, or directly below, your television. It is important that the center channel is voice-matched to the front left and right speakers especially, if not also the rear left and right. This creates a seamless and convincing soundstage for movies.

Chrominance- Abbreviated C. The color portion of the video signal - includes hue and saturation information but not brightness (see luminance).

Coax- Short for Coaxial cable - a type of 75 ohm cable most commonly used for

Cable TV connections and with some antenna systems for FM radio and Television. Also used to connect CD or DVD transports to DACs. May also be found as the basis for many video interconnect cables including composite, s-video, component, and RGB.

Coherence- Listening term. Refers to how well integrated the sound of the system is.



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**Coloration-** Listening term. A "colored" sound characteristic adds something not in the original sound. The coloration may be sonically pleasant, but it is not as accurate as the original signal.

**Compact Disc Transport-** Component which reads the binary information from a compact disc and sends this bit-stream into an external device for analogue conversion. (Commonly used with a digital-to-analogue converter.)

**Compliance-** The relative stiffness of a speaker suspension, specified as Vas.

**Component video-** A video signal transfer method utilizing three cables which separate the three parts of a video signal: Luminance (Y) is the black & white, pR and PB are the separate portions of the Chrominance, or color signal. Component Video, properly implemented, should provide the best possible image quality on TV monitors that support it.

This type of connection takes the native components of display ie: Red, Green & Blue (RGB) and separates them onto individual wires in the form of Y/Pb/Pr. This uses the luminance (Y). The difference between the luminance and the blue channel (Pb) and, likewise, the difference between the luminance and the red channel (Pr) then combined with (Y) you get a very clear mathematically obtained Red and Blue signal. Then the sum of R and B are subtracted from Y to obtain Green.

**Composite Video-** A video signal combining luminance, chrominance, and synchronization data on a single coax cable using RCA connectors. It is typically color-coded yellow.

**Cone-** The conical diaphragm of a speaker attached to the voice coil that produces pulsation's of air that the ear detects as sound.

**Crossover-** An electrical circuit (passive or active) consisting of a combination of high-pass, low-pass and band pass filters used to divide the audio frequency spectrum (20 Hz - 20 kHz). The divisions of the audio spectrum are then sent to individual loudspeakers that are best capable to handle those frequencies. Without a crossover one speaker would be producing all of the frequency range. This would unfortunately sound pretty horrible.

**Crossover Frequency-** Frequency at which a loudspeaker's crossover network divides an audio signal and sends it to different drivers.



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**Crossover Slope-** The slope at which a crossover effectively cuts off a specified frequency. Specified as dB/oct, the higher the number, the steeper the slope. This in turn makes a steeper separation at that frequency.

**Crosstalk-** Unwanted breakthrough of one channel into another.

D-

**DAC-** A Digital to Audio Converter. Converts a digital bit-stream to an analog signal. Can be a separate "box" that connects between a CD Transport or CD Player and a pre-amplifier.

**Damping-** The reduction of movement of a speaker cone, due either to the electromechanical characteristics of the speaker driver and suspension, the effects of frictional losses inside a speaker enclosure, and/or by electrical means.

**Damping Material-** Any material added to the interior of a speaker enclosure to absorb sound and reduce out-of-phase reflection to the driver diaphragm (cone). Usually acoustic fiberglass, polyester batting, or Polyfill is used in speaker enclosures.

**D'Appolito-** Joe D'Appolito is credited with popularizing the MTM (Midrange-Tweeter-Midrange) type of speaker.

**dB-** (decibel) See: decibel

**Decibel-** Essential acoustics measurement; a unit of sound used to measure the relative differences between sounds. Equal to one-tenth of a bel, the amount of energy in the form of sound that is transmitted to one square centimeter of the ear. One dB is considered to be the smallest change in sound that is perceptible to the human ear.

**dB/octave-** See crossover slope

**DBS-** Direct Broadcast Satellite. See also DSS.

**Diaphragm-** the part of a dynamic loudspeaker attached to the voice coil that moves and produces the sound. It usually has the shape of a cone or dome.

**DiAural-** A patented crossover geometry that which allows for proper communication and interaction between transducers (woofer, mids and tweeters).



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This new and innovative process results in fewer parts, less distortion, lower production costs, and renders the high frequency and mid range transducers virtually burn-out proof.

Diffraction- Reflection and spreading of sound waves around sharp edges such as those on cabinets or fabric frames. The treble range is particularly sensitive to this.

Diffuse- Widely spread out or scattered; not concentrated.

Digital Audio- See PCM.

Dipolar, Dipole (Speaker)- Dipolar refers to speakers with drivers that are fired in two different directions and are in reverse phase causing a cancellation of sound waves in front of the speaker. This is usually done in rear surround speakers that are wall mounted.

Direct View TV- A television with a picture tube.

Discrete- In audio, refers to distinct, separate channels.

Dispersion- The spreading of sound waves as it leaves a speaker.

Distortion- Audio distortion: a measure of unwanted signals; the name given to anything that alters a pure input signal in any way other than changing its size. The most common forms of distortion are unwanted components or artifacts added to the original signal, including random and hum-related noise.

DIY- Acronym for do-it-yourself, usually referring to various hobbies, especially audio-related.

Dolby AC-3- Surround sound standard from Dolby Laboratories which incorporates six discrete (one of which is the .1 LFE) channels of information for the playback of video soundtracks.

Dolby Digital- A five-channel system consisting of discrete left, center, right and left rear, right rear channels. The AC3 standard also has a separate subwoofer channel for the lowest frequencies.

Dolby Digital EX- Also referred to as Dolby Digital 6.1, adds a rear, center channel to the existing left, center, right and rear speakers. This format requires a 6.1 processor or receiver and DVDs that are 6.1 encoded.



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**Dolby Pro Logic-** Dolby Pro Logic is Dolby's second generation licensed home surround system. Consists of four channels: front left, front right, center, and rear. A major advantage of Dolby Pro Logic is the use of an active center channel.

**Dolby Surround-** Older than Pro Logic, Dolby Surround synthesized 1 rear channel (into 2 rear speakers) from the stereo left and right soundtracks from early Laserdiscs and VHS tapes. Dolby Surround lacked the more specific steering logic that was added with Pro Logic and eventually Dolby Digital.

**Dome (tweeter)-** A high frequency speaker with a dome-shaped diaphragm.

**Driver-** A name for the parts of the loudspeaker which actually make sound. e.g. midrange driver, bass driver (woofer), treble driver (tweeter).

**DSP-** Digital Signal Processing. Audio effects added to enhance normal stereo source material. DSP processing uses delay, reverb, and rear surround speakers. They usually consist of echo and reverb effects labeled "jazz, theater, hall, etc."

**DSS-** Direct Satellite System.

**DTS-** Digital Theater Systems ([www.dtstech.com/](http://www.dtstech.com/)). DTS is an international, digital technology company specializing in multi-channel audio for entertainment. DTS

Digital Surround is an encode/decode system that delivers six channels (5.1) of master-quality, 20-bit audio

**DTS-ES-** The DTS-ES discrete 6.1 format employs a new, proprietary technology for the playback of discrete, 6.1-channel content from DVDs and CDs.

**DTV-** Digital TV. A new system of digital television broadcasts.

**Dual Link – Dual T.D.M.S** (transition minimized differential signaling) "links". DVI can have up to two TMDS links. Each link has three data channels for RGB information with a maximum bandwidth of 165 MHz, which is equal to 165 million pixels per second. Dual-link connections provide bandwidth for resolutions up to 2048 x 1536p. (See also Single Link)

**DVD-** Originally coined as Digital Video Disc or then changed to Digital Versatile Disc, upon adoption by the computer industry. DVD has the same physical dimensions of a CD, however it can hold much more information.



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DVD-Audio- (music-only) An upgrade to CD audio. The extra memory space of a DVD is used to enhance sound by employing higher sampling and bit rates, up to 24-bits, 192 kHz sampling for two (stereo) channels at 74 minutes.

DVI – Digital Video Interface.

DVI-A – carries analog video on a DVI cable, generally used to send computer video signals to an analog computer monitor.

DVI-D – is the standard for all-digital direct uncompressed format

DVI-I – carries both the digital and the analog signal on the same connector.

Dynamic Loudspeaker- Loudspeaker which uses conventional cone and dome drive elements exclusively.

E-

Efficiency- The loudspeaker parameter that gives the level of sound output when measured at a prescribed distance with a standard level of electrical energy fed into the speaker. Often expressed as decibels/watt/meter (dB/w/m).

Electrostatic Loudspeaker- These are usually very large flat panel loudspeakers. They must contain an on-board power supply to provide a high static voltage to the grid which may be on one or both sides of the panel. The audio signal is applied to metal traces which cover the panel and the interaction of the panel with the strong electrostatic field causes the panel to move thus creating sound.

EQ (Equalizer)- Electronic device that acts as active filters used to boost or attenuate certain frequencies.

Euphonic- Pleasing. As a descriptive audio term, usually refers to a coloration or inaccuracy that none-the-less may be sonically pleasing.

F-

Fb- The tuned frequency of a ported box.

Fc- or Fcb. The system resonance frequency of a driver in a sealed box.



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**Ferrofluid-** Magnetic oil which is used in the moving coil gap of the tweeter. Used partly to allow the moving coil to handle peak effects as the oil transfers the heat to the magnet and partly to damp unwanted resonance.

**Filter-** Any electrical circuit or mechanical device that removes or attenuates energy at certain frequencies. See Crossover Network, Crossover.

**Fixed-pixel display** – Plasma, LCD (Liquid Crystal Display); DLP (Digital Light Processing); LCOS, (Liquid Crystal on Silicon)

**Flanging-** Another term for phasing.

**Flat-** Adjective used to describe the consistency of the frequency response of an audio or video component. A "flat response" is sound or video in which there are no colorations.

**Frequency Response-** the range of sound a speaker can produce. Good sound reproduction requires that all audible frequencies (approx. 20 - 20,000 Hz) are reproduced at roughly the same volume.

**Front Speakers-** These are the two speakers (right and left) placed in the front of the listening position.

**Fs-** The frequency of resonance for a driver in free air.

**Full screen/wide screen-** This legend appears on most 2-sided DVDs. Full Screen means the image will fill an entire 4:3 (standard) TV monitor, cutting off the sides of the film in order to do so. Widescreen shows the complete picture. But if you have a standard 4:3 TV, you will see black bands at the top and bottom. If these bands displease the viewer, a 16:9 or widescreen television is recommended.

**G-**

**Gain-** The function of a volume control.

**Gauge-** Gauge is a unit used to measure wire thickness. The smaller the number, the thicker the wire. (i.e. 10 gauge wire is much thicker than 16 gauge wire).

**Grain-** A listening term. A sonic analog of the grain seen in photos. A sort of "grittiness" added to the sound.



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H-

H Haas Effect- The psychoacoustic effect which allows us to perceive direction. If a sound reaches both ears simultaneously at the same level the sound appears to be coming from directly in front of the listener. Also see stereo.

Harmonic Distortion- Harmonics artificially added by an electrical circuit or speaker, and are generally undesirable. It is expressed as a percentage of the original signal. See THD.

Harmonics- Also called overtones, these are vibrations at frequencies that are multiples of the fundamental. Harmonics extend without limit beyond the audible range.

HDCD- high definition compatible digital. Pacific Microsonics' (now owned by Microsoft) trademark for their encode/decode scheme that allows up to 24 bit, 176.4 kHz digital audio mastering process, yet is compatible with normal 16 bit, 44.1 kHz CD and DAT formats. Sound best on an HDCD compatible player, but will still sound better than a CD on a standard CD player without HDCD compatibility.

HDCP – is copy-protection format that can be integrated into DVI equipped equipment.

HDMI – High Definition Multimedia Interface. Digital interface designed to carry multichannel digital audio in either a compressed or uncompressed form as well as all standard- and high-definition consumer video formats. HDMI can also carry control and status data in both directions. This is an all digital connection, no analog audio or video. HDMI cable is backwards compatible with DVI connectors. 1

HDTV- The highest rung in the ladder of various DTV formats. Three determining factors delineate HDTV: 1080 active scan lines, 16:9 widescreen ratio, and Dolby Digital sound.

Headroom- The ability of an amp to go beyond its rated power for short durations in order to reproduce musical peaks without distortion. This capability is often dependent on the power supply used in the design.



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Hertz- A unit of measurement denoting frequency, originally measured as Cycles Per Second, (CPS): 20 Hz = 20 CPS. Kilohertz (kHz) are hertz measured in multiples of 1,000.

High Pass Filter- A filter designed to pass high frequencies with little or no attenuation. A high pass filter filters out low frequencies.

Home Theater- An audio and video system designed to reproduce the theater sound experience while viewing movies at home. Usually consisting of a 5.1 multi-channel surround sound receiver, DVD player, left, right front speakers, a center channel speaker, and two rear surround speakers. Six and Seven channel-discrete formats (DTS ES and THX EX, etc) have been most recently introduced.

Home Theater In A Box (HTiB)- Any of several kinds of packaged audio-for-video systems designed to create an "instant" home theater; usually inexpensive and compact. Typically includes a multi-speaker complement plus a receiver or multi-channel amplifier to drive the speakers. May function as a stand-alone 5.1-channel system or may be designed to add channels to an existing stereo or other audio system.

HTPC - Home Theater Personal Computer: A computer designed to be used as a media center for digital home entertainment such as Movies, Music, Television, Games, Etc.

I-

IC- (See integrated circuit)

Imaging- the speaker's ability to localize different instruments playing simultaneously. Also See Soundstage.

Impedance- Electrical resistance, measured in ohms, to the flow of electrical current; usually used in reference to loudspeakers. The lower the number of ohms a given speaker presents, the more current the amplifier must supply on a continuous basis to drive it. Most speakers are rated at 8 ohms, but some are rated as low as 4 and 2 ohms.

Integrated Amplifier- Single unit containing both a preamplifier and a power amplifier.



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**Interconnects-** Cables that are used to connect components at a low signal level. Some examples include CD player to receiver, DVD player to receiver, receiver to powered sub, etc. Most interconnects use a shielded construction to prevent interference. Most audio interconnects use RCA connections although balanced interconnects use XLR connections.

**Interlace-** Part of many broadcast TV systems. Here in the USA, refers to the NTSC standard where 1/2 frames are broadcast every 1/60th of a second. A complete frame takes two of these 1/2 frames displayed taking up an actual 1/30th of a second. There are 400+ horizontal lines in each full NTSC frame... 200 per each 1/2 frame. One 1/2 frame is made up of the odd numbered scan lines, the other 1/2 frame contains the even numbered scan lines. The full frame is visible when the two 1/2 frames are merged (interlaced) to form a single image. Interlaced images contain motion artifacts due to the interlacing. Also see progressive-scan.

**In-Wall Speakers-** Speakers designed to mount flush within a wall.

J-

**Jack-** A term used to describe any female connector. The opposite of a plug.

L-

**Letterbox-** Term used to describe viewing a widescreen image on a NON-widescreen TV monitor. The result is a full width image with black bars at the top and bottom of the TV monitor screen. Similar to "Widescreen" (see Full Screen/Widescreen).

**LFE-** Low Frequency Effects. A home theater audio term that refers to low frequency sound effects in a multi-channel surround format, such as Dolby Digital or DTS. The .1 actually denotes the very low effects extracted from any of the surround channels (front left, front right, center, rear left, rear right, etc). If a subwoofer is present in the home theater system, all of the extracted audio information is routed to the subwoofer.

**Line Doublers-** Specially designed device to double the number of Scan Lines in an (usually) NTSC monitor or projector. Enhances picture quality by reducing jitter and video artifacts.

**Line Level-** An audio term referring to signal transfer before power amplification. In a system with separate pre-amp and power-amp the pre-amp output is line



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level. The amp to speakers is usually speaker level. CD players, VCRs, DVD players, Laserdisc Players etc., are connected in a system at line level, usually with shielded RCA type interconnects. (For techies, it's a signal level between -10dBu and +30dBu.)

Lines of Horizontal Resolution- Lines of horizontal resolution refers to visually resolvable vertical lines per picture height. It is measured by counting the number of vertical black and white lines that can be distinguished an area that is as wide as the picture is high. DVD has 720 horizontal pixels (on both NTSC and PAL discs), the horizontal resolution can be calculated by dividing 720 by 1.33 (for a 4:3 aspect ratio) to get 540 lines. VHS has about 230 lines, broadcast TV has about 330, and laserdisc has about 425).

Loudness- On a preamp or receiver, a function that boosts lower and higher frequencies of the audio spectrum for listening at low volumes.

Low Pass Filter- A filter designed to pass low frequencies with little or no attenuation. Low pass filters filter out high frequencies.

Luminance- Abbreviated Y. That part of the video signal that carries the information on how bright the TV signal is to be; The black and white signal.

M-

Magnetically Shielded- A type of loudspeaker in which the electromagnetic field created by the driver magnets - which can discolor a TV picture and potentially ruin a tube - is contained.

Matrix- A technique of storing more than one audio channel on a single channel. Dolby Surround is an example, where the center and surround channels are electronically extrapolated from the left and right channels of a stereo signal. This contrasts with today's discrete digital channels.

Maximum Power Rating- The maximum wattage that an audio component can deliver/handle as a brief burst during a musical peak. Most reputable manufacturers will provide both an RMS and Max power rating. Typically, the given value for the maximum power rating is twice to three times that of RMS.

Midbass- Mid frequency bass, usually frequencies just above the sub-bass range, from around 100 - 400 Hz or so.



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**Midrange-** The mid band of an audible signal, typically anywhere between 350 Hz and 3 kHz. Also refers to those specific frequencies as well.

**Mini-plug-** Eighth-inch connector (jack and plug) used primarily for headphone or speaker connections in personal electronics.

**N-**

**Noise-** Undesirable interference of picture or sound.

**Nominal-** This word has several definitions. In home audio there are two main definitions: 1. nominal power rating- minimum amount of power required to gain the best performance from the speaker. 2. nominal impedance- theoretically the lowest level of resistance the speaker will present to the amplifier.

**Nonresonant-** Materials that don't vibrate much or absorb vibration, which can affect sound reproduction; materials often included in the construction of a loudspeaker.

**NTSC-** National Television System Committee. The NTSC standard has a fixed vertical resolution of 525 horizontal lines. There are 60 fields displayed per second. A field is a set of even lines, or odd lines. The odd and even fields are displayed sequentially, thus interlacing the full frame. One full frame, therefore, is made of two interlaced fields, and is displayed about every 1/30 of a second. See also interlaced.

**O-**

**Octave-** An octave is a doubling or halving of frequency. 20Hz-40Hz is often considered the bottom octave, 40Hz to 80Hz is the bass octave. 80Hz to 160Hz is the upper bass octave, etc.

**Ohm-** Ohm is the unit used to measure the resistance presented by a loudspeaker when it is introduced a signal by an amplifier. (The word Ohm comes from German physicist Georg Simon Ohm, 1787-1854) An 8 ohm loudspeaker presents a good level of resistance and will be compatible with most amps. All speakers in your home theater system should have the same Ohm rating.

**Output-** The sound level produced by a loudspeaker.



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**Overload-** A condition in which a system is given too high of an input level. A common cause of distortion or product failure.

**Over sampling-** used in DAC systems. Over sampling increases signal frequency, making it easier for conversion circuitry and ancillary systems to filter out unwanted signals.

**P-**

**Passive-** Device neither having nor requiring power but allowing signals to pass through it.

**Passive Radiator-** A diaphragm (either a drone cone or a flat material) that reinforces the bass output of the speaker and is fitted to a speaker cabinet; acoustically similar to a port. A clear advantage of the radiator is the absence of port noise, and some audiophiles claim the radiator provides a better sounding bass than a ported enclosure. (See bass reflex)

**PCM-** Pulse Code Modulation. PCM is a digital scheme for transmitting analog data. The signals in PCM are binary; that is, there are only two possible states, represented by 1's 0's. This is true no matter how complex the analog waveform happens to be. Using PCM, it is possible to digitize all forms of analog data, including full-motion video, voices, music, etc.

**Peak Power-** the recommended highest power capacity of an amplifier or speaker.  
**Phase-** Refers to the timing relationship of two or more signals or sound waves. It's especially important to be sure that your speakers are playing "in phase." This means that the drivers of your speakers are moving in and out at the same time. If your speakers are "out of phase" there will be significantly less bass, and a loss of stereo imaging.

**Phono Plug-** Same as an RCA-type plug.

**Pink Noise-** Noise that has equal energy in each octave.

**Ported Enclosure-** A type of speaker enclosure that uses a duct or port to improve efficiency at low frequencies.

**Preamplifier (or pre amp)-** A preamp is the control center of an audio/video system. Source component switching is done here, as well as volume and balance



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control. This component generally has some degree of signal amplification associated with it. AV receivers contain both a preamp and amplifier.

Q-

Quantization Error – Occurs when there aren't enough digital steps to create a smooth transition from light to dark. The scourge of plasmas and other types of digital displays.

R-

RCA Connector- Standard pin plug or jack used to connect audio and video components, developed by RCA Laboratories. Also known as a phono plug or jack, even when applied to non-phono equipment.

Rear Channel Speaker- A Loudspeaker which sits beside or behind the listener in a surround sound system.

Rear Projection Television- A video monitor/television where the image comes from behind the screen- sometimes directly projected or sometimes bounced off of 2 or more mirrors to appear on the back of a screen.

Receiver- An audio (and/or video) component that combines a pre-amplifier, amplifier(s) and tuner in one chassis. A home theater receiver will also contain multi-channel surround decoders, such as Dolby Digital and DTS.

RMS- Acronym for root mean square. A power measurement (measured in watts) used in audio to help rate the continuous power output of an amplifier or input capability of speakers. This is the preferred method for comparing anything in audio applications.

S-

S/N- Signal to Noise Ratio. An audio measurement of the residual noise of a unit, stated as the ratio of signal level (or power) to noise level (or power), normally expressed in decibels.

SACD- Super Audio CD. A joint trademark of Sony and Philips for their proposal for the next generation CD-standard comprised of a 1-bit, 64-times over sampled direct-stream digital SACD format.



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**Satellite Speaker-** Loudspeakers designed to fit more easily into the interior decor of a home. They are smaller than full range speakers and typically need to be used with a subwoofer. Because of their smaller baffle and cabinet size, they are also known to provide a better sound staging compared to full range speakers.

**Scan lines-** Scan lines are the horizontal lines that make up the video image on a television or video monitor.

**Sealed Enclosure-** A loudspeaker cabinet without any vent or port holes. Not as efficient as a vented enclosure. Usually has better transient response at the expense of lower frequency extension.

**Sensitivity-** The sound pressure level, expressed in dB, measured at a distance of one meter (on axis) from the speaker when it receives 1 watt from the effect amplifier.

**Signal To Noise Ratio (S/N)-** An audio measurement of the residual noise of a unit, stated as the ratio of signal level (or power) to noise level (or power), normally expressed in decibels.

**Sine Wave-** The waveform of a pure alternating current or voltage. Audio signals are sine waves or combinations of sine waves.

**Single Link - Single T.D.M.S. (transition minimized differential signaling) link.** Each link has three data channels for RGB information with a maximum bandwidth of 165 MHz, which is equal to 165 million pixels per second. Bandwidth for a single-link connection supports resolutions of over 1920 x 1080 at 60 Hz (HDTV).

**Slew Rate-** This is a term used to describe how quickly the output of an amplifier can follow its input. Slew Rate is usually measured in V / msec. The higher the value, the better the amp is at reproducing the subtle nuances and dynamics associated with sound reproduction.

**Soft Dome Tweeter-** A dome loudspeaker who's membrane is made of soft material such as silk, or woven/processed synthetic material.

**Sound Pressure Level- (Spl)** Measured in decibels (dB); is an expression of loudness or volume. A 10db increase in SPL represents a doubling in volume. Live orchestral music reaches brief peaks in the 105db range and live rock easily goes over 120db.



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**Soundstage-** Listening term. Perceived width, depth, and height of music (or sound) especially for stereo reproduction. A set of speakers with good sound staging means you can localize a separate position for each instrument and voice, emulating a live performance.

**Spade Lug-** Type of speaker wire connector shaped like the letter "U" and designed to fit around a speaker binding post.

**Speaker-Level-** A type of connection taken from the speaker terminals. This signal has already been amplified.

**Spider-** The flexible material that supports the former, voice coil, and inside portion of the cone within the speaker frame.

**SPL-** See sound pressure level.

**SPL Meter-** Device used to measure decibel levels; often used to measure and equalize the loudness output from each speaker in a home theater system to "tune" a room.

**Standing Wave-** Acoustic anomaly in which sound, especially bass frequencies, bounces between opposite walls, effectively turning the room into a resonator. This results in muddy, booming bass; problem is variable depending on shape and size of room and sometimes can be minimized by placing speakers farther out from the wall.

**Stereo-** Derived from the Greek word meaning solid. Two channel audio format. However, the purpose of stereo is not to give you separate right and left channels, but to provide the illusion of a three-dimensional, holographic image between the speakers.

**Subwoofer-** A speaker designed exclusively for low-frequency reproduction. A true subwoofer should be able to at least reach into the bottom octave (20-40Hz). They are usually contained in their own enclosure and can be placed anywhere in a listening room due to the fact that low frequencies cannot be localized or pinpointed.

**Subwoofer Output-** Line-level (or low level) output on an A/V receiver or preamp that transmits only low bass signals.



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Surround- Also called suspension- the outer suspension of a speaker cone; holds the diaphragm in place but allows it to move when activated. Usually made of foam or rubber.

Surround Sound- Attempt to recreate the acoustical and ambient information of a particular environment, such as a church, a stadium, a movie theatre, etc using more than a stereo pair of loudspeakers

S-VHS- Super VHS. A recording and playback format requiring an SVHS VCR. As the name implies, it's better than standard VHS, producing about 480 lines of resolution. (Standard VHS displays about 240 lines.)

S-Video- A video transmission method that is better than composite video, not as good as component video. S-video separates luminance (black and white information) and chrominance (color information) signals. The S-video interconnect cable somewhat resembles a computer PS-2 cable.

Sweet Spot- Any location in a stereo loudspeaker playback system where the listener is positioned equidistant from each loudspeaker.

T-

THD- Acronym for Total Harmonic Distortion.

THX- Tomlinson Holman Experiment. THX is a set of technical standards and performance criteria developed by Lucasfilm to ensure that moviegoers see and hear a film at optimum performance levels, "as the director intended". This comprehensive set of standards includes rigorous specifications designed to optimize equipment, room acoustics, background noise levels, and projection and viewing angles.

THX Select- THX certification designed for optimal performance in smaller listening environments and at lower volume levels; conceived for rooms of less than 2000 cubic feet. (See THX)

THX Surround EX- a home theatre surround format engaging an additional rear surround speaker, allowing for dramatic 360 degree surround sound. This technology made it's theatrical debut with the opening of Star Wars: Episode I The Phantom Menace.

THX Ultra- THX certification designated for ultra high-end A/V gear, as opposed to



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THX Select, which is aimed at more moderately priced equipment; conceived for rooms of more than 2000 cubic feet. (See THX)

Timbre- The audible attribute that allows a person to distinguish the difference between two sounds of the same pitch and loudness.

Tonearm- On a phonograph (record player), the arm that acts as the support mechanism for a phono cartridge.

TOSLINK (Toshiba link)- In home audio, it refers to another term for "optical audio cable. Originally implemented and developed by Toshiba.

Total Harmonic Distortion (THD)- The RMS value of the harmonic components of the output signal, excluding the fundamental, expressed as a percentage of the RMS of the fundamental. When comparing electronic components, the lower the number, the better.

Transcoder - for HTPC use this refers to a device that receives the computer's native VGA format, and converts the signal to the component style signal needed for most HDTV sets.

Transducer- A Device that converts one type of energy-electrical, acoustical, magnetic or mechanical-into another. Examples include a phono cartridge, magnetic record or playback head, speaker, microphone or cathode ray tube (CRT).

Transient Response- The ability of a speaker to respond to any sudden change in the signal without smearing or blurring the sound. A speaker that can react quickly to rapid changes in sound has "good transient response".

Treble (highs)- The upper end of the audio spectrum reproduced by tweeters, usually 3 - 4 kHz and up.

Tri-wiring- The use of three pairs of separate speaker wire from the same amplifier to separate bass, midrange and treble inputs on the speakers.

TRS - TRS stands for Tip, Ring Sleeve. This is a three-pole connector (three conductors are used inside of the cable). The Tip carries one channel of the stereo signal, the ring carries the another channel of the stereo signal, and the sleeve carries the ground. (The other type of 1/4" inch connector is called a TS plug.



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This stands for Tip, Sleeve. The tip carries the mono signal, and the sleeve carries the ground.)

Tweeter- Transducer responsible for reproducing the higher frequencies of an audible signal, typically active above 3 or 4 kHz.

Two-way- Refers to a type of speaker system composed of two ranges of speakers, usually a woofer and tweeter.

V-

Vented Enclosure- See bass reflex.

Voice-matched- Speakers that are "voice-matched" have the same timbre or tonal quality. Voice-matched speakers in a home theater system will result in a convincingly seamless encompassing sound.

W-

Warmth- A listening term referring to a balanced frequency response in the midrange, approx. 150Hz-400Hz. A system with the "proper" warmth will sound natural within this range.

Watt- A unit of electrical power. A watt of electrical power is the use of one joule of energy per second. Watts of electrical power equals volts times amperes.

White Noise- A full audio spectrum signal with the same energy level at all frequencies.

Widescreen- In home theater, a viewing aspect ratio wider than 4:3 (which is the typical television ratio). There are various widescreen formats, one of which is 16:9.

Woofer- A loudspeaker dedicated to producing low frequency sound.

X-

Xmas- The maximum linear cone excursion of a driver, measured in inches or millimeters. Also an abbreviation for Christmas. Thank you for reading this far.

Y-



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Y-adapter- Any type of connection that splits a signal into two parts. An example would be a connector with one female RCA jack on one end, and two male RCA jacks on the other end.

YpbPr- another term for component video.