

Optimal Audio and Video Reproduction at Home

Improving the Listening and Viewing Experience

Audio Video Glossary

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1 Introduction

This eBook is a glossary for my book *Optimal Audio and Video Reproduction: Improving the Listening and Viewing Experience*. The book that will help you set up a modern audio-video system. It contains practical advice for setting up an audio-video system to optimally reproduce audio and video with high quality in a small room, such as a home listening room, home theater, or studio control room.

Find out more at: vincentverdult.nl or routledge.com

The definitions in this glossary are specific for the context of my book *Optimal Audio and Video Reproduction: Improving the Listening and Viewing Experience*. Several definitions have been taken or adapted from the glossaries of:

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2 Glossary

3D Three-dimensional. Having or appearing to have width, height, and depth in space.

AAC Advanced Audio Coding. A coding system for lossy compression of digital audio with up to 48 discrete channels sampled at 96 kHz. AAC is part of the MPEG-2 and MPEG-4 specifications.

A/B comparison A back-and-forth listening comparison between two musical presentations, A and B.

absorber In the context of acoustics, any material or device that absorbs sound.

absorption coefficient In the context of acoustics, the fraction of sound energy that is absorbed at any surface. It has a value between 0 and 1 and varies with the frequency and angle of incidence of the sound.

AC-3 The former name of the Dolby Digital audio coding system. See *Dolby Digital*.

acoustics 1) The science of sound waves and their production, transmission, reception, and control. 2) The effect a given environment has on sound.

active system System (for example a filter or loudspeaker) that in addition to the input signal needs an external power source. Compare *passive system*.

acuity The ability of the visual system to accurately discriminate spatial detail.

A/D Analog-to-Digital. Compare *D/A*.

adaptation The adjustment of the eye to variations in light intensity.

ADC 1) Analog-to-Digital Converter. Circuitry that converts analog signals to digital signals. Compare *DAC*. 2) Audio Device Class for the USB Audio interface.

adjacent-boundary effect The low-frequency sound emitted by a loudspeaker is modified by the reflection of the sound from nearby room boundaries.

AIFF Audio Interchange File Format. Container format in which digital audio data is stored in LPCM format. See *LPCM*.

aliasing An effect that causes digital signals obtained by sampling different analog signals to become indistinguishable (or aliases of one another).

ambience Spatial aspect of sound that creates a sense of size and atmosphere.

ambient light The light in a viewing room produced by sources other than the video display.

ampere The unit of electric current.

amplifier A device that increases the amplitude of the input signal.

amplitude The numerical value attained by a signal at any instant.

analog A signal of infinitely variable levels. Compare *digital*.

anamorphic An image format (or its associated lens) in which the horizontal dimension of a widescreen image is squeezed by some factor to fit into the horizontal dimension of an image having a narrower aspect ratio.

anechoic room An acoustically reflection-free room. The walls of the room are covered in highly absorbent material so that no sound is reflected back into the room.

ANSI lumens The measurement of luminous flux of a display by averaging the illumination values measured at nine points on the screen; standardized by the American National Standards Institute (ANSI).

APL Average Picture Level. The average of luminance throughout an entire image or scene.

artifact An unnatural effect that occurs during the reproduction of audio or video. This effect is not present in the original audio or video.

aspect ratio The ratio between the width and height of an image, screen or display.

attack 1) The manner of beginning of a sound. 2) The initial transient of a musical note.

auditory system The human hearing system made up of the external ear, the middle ear, the inner ear, the nerve pathways, and the brain.

Auro-3D Immersive 3D audio format based on a standard 5.1 layout with five additional height loudspeakers close to the ceiling and one overhead loudspeaker installed in the ceiling above the primary listening position.

A/V Audio-Video.

AVC Advanced Video Coding. The informal name for the video coding system for lossy compression of digital video that is described in MPEG-4 Part 10 and ITU H.264 Part 10.

A/V controller A component that performs surround sound decoding and drives the power amplifier. It includes controls to set the playback volume and to select the A/V source.

A/V receiver The central component of a home-theater system. It contains an A/V controller, multichannel power amplifier, and a tuner to receive radio broadcasts.

A-weighting A filter used for SPL measurements that emphasizes the mid frequencies around 3.5 kHz where the ear is most sensitive.

AWG American Wire Gauge. A standardized wire gauge system used predominantly in the United States and Canada for the diameters of wire. Increasing gauge numbers give decreasing wire diameters.

axial mode A room mode produced by reflections off two of the six surfaces of the room.

baffle The surface upon which a loudspeaker is mounted.

banana plug Small tubular plug used to connect loudspeakers to power amplifiers.

band-pass filter A filter that allows only signals in a selected range of frequencies to pass through. Signals having a frequency outside of this range are reduced in amplitude.

bandwidth 1) The frequency or frequency range where a signal's magnitude has fallen 3 dB from its value at a reference frequency. 2) The capacity for data transfer of an electronic communications system.

basilar membrane A membrane inside the cochlea of the ear which vibrates in response to sound. Its vibrations lead to neural activity. See also [Cochlea](#).

bass The lower range of audible frequencies: below 200 Hz.

bass extension The lowest frequency that an audio system can reproduce.

bass management A signal processing option in an A/V receiver, A/V controller or multichannel source component that determines which speakers receive bass signals. With bass management it is possible to combine the low frequencies in any or all of the main channels, add them to the low-frequency effects (LFE) channel, and deliver the combination signal to a subwoofer output.

bass reflex A type of loudspeaker design with a hole, slot, or port in the cabinet that allows sound inside the cabinet to emerge into the listening room. Also called *vented loudspeaker*.

BD Blu-ray Disc.

BD-R Record-once Blu-ray Disc, similar to [DVD-R](#).

BD-RE Re-recordable Blu-ray Disc, similar to [DVD-RW](#).

BD-ROM Blu-ray Disc Read-Only Memory. The pre-recorded form of Blu-ray disc.

- bi-amping** Using two power amplifiers to drive one loudspeaker. One amplifier drives the woofer, the second drives the midrange and tweeter.
- binary** A numbering system using the digits 0 and 1, instead of the 10 digits (0–9) in the commonly used decimal system.
- binding post** A connection on power amplifiers and loudspeakers for attaching loudspeaker cables.
- bit** Short for 'binary digit'. A unit of computer information equivalent to the result of a choice between two alternatives (zero or one).
- bit depth** 1) In the context of digital video, bit depth is the number of bits used to indicate the color of a single pixel, or the number of bits used for each color component of a single pixel. 2) In the context of digital audio, bit depth is the number of bits used to represent one sample of the audio signal.
- bit rate** The speed at which bits are transmitted.
- bitstream** A sequence of bits, usually encoded, that is designed to be processed sequentially and continuously.
- bi-wiring** The practice of running two cables to one loudspeaker. One cable is connected to the woofer, the second cable to the tweeter. The loudspeaker must have separate terminals for the woofer and the tweeter.
- black level** 1) The level representing black in a video signal. 2) User-accessible means to adjust the level representing black. This control is often called *brightness*.
- blooming** An undesirable effect in which a white line that is supposed to be thin becomes fat and fuzzy on the video screen.
- Blu-ray disc** A digital optical disc data storage format designed to supersede the DVD format. This optical disc is read by a blue laser.
- boomy** Having an excessive accentuation on the bass in reproduced sound.
- break-in** Initial period of use of a new loudspeaker, during which time the loudspeaker's sound improves.
- brightness** 1) The attribute of a visual sensation according to which an area appears to emit more or less light. Brightness is, by definition, subjective. Related objective quantities are lightness, luma and luminance. 2) User-accessible means to adjust *black level*.
- buffer** Temporary storage space in the memory of a device. Helps to smooth data flow.
- byte** A unit of computer information that consists of a group of eight bits.

calibration The act of fine-tuning an A/V system for optimal performance.

candela The unit of luminous intensity.

capacitance The property of an isolated conductor or set of conductors and isolators to store electric charge.

capacitor Electronic device that is capable of storing electrical energy.

cd See [candela](#).

CD Compact Disc. A small optical disc usually containing recorded music or computer data.

CD-ROM Compact Disc Read-Only Memory. An extension of the CD format that allows computer data to be stored on a compact disc.

CD-RW Compact Disc Rewritable. Re-recordable CD.

center channel In a multichannel audio system, the audio channel that carries information that is produced by a loudspeaker centered between the left and right front loudspeakers.

channel 1) A part of an audio track. A stereo audio track consists of two channels. 2) A portion of the television broadcast spectrum assigned to a particular broadcasting station.

channel balance The relative levels or volumes of the channels in an audio system.

channel separation A measure of how well sound in one channel is isolated from the other channels in an audio system.

chassis Component of a conventional loudspeaker, forming a frame on which other components are mounted.

chroma 1) A component or set of components that conveys color independent of luma. For example, C_B and C_R in digital component video. 2) User-accessible means to adjust [saturation](#).

chroma subsampling Reducing color resolution by taking fewer chroma samples than luma samples.

chromaticity Specification of color (in the absence of luminance), in terms of CIE (x, y) or (u', v') coordinates.

- chromaticity diagram** A plot of the (x, y) or (u', v') chromaticity coordinates defined by the CIE (Commission Internationale de L'Éclairage / International Commission on Illumination).
- clarity** 1) In the context of audio, the ability to hear and distinguish different instruments and voices within complex orchestrations and the ability to distinguish individual notes and words. Also called *definition* or *transparency*. 2) In the context of video, *definition* or *sharpness* of a picture.
- class-A amplifier** Mode of amplifier operation in which a transistor or tube amplifies the entire audio signal.
- class-A/B amplifier** Mode of amplifier operation in which the output stage operates in Class-A at low output power, then switches to Class-B at higher output power.
- class-B amplifier** Mode of amplifier operation in which one transistor or tube amplifies the positive half on an audio signal, and a second transistor or tube amplifies the negative half.
- class-D amplifier** Mode of amplifier operation in which all transistors are operated as binary switches: they are either fully on or fully off.
- class-G amplifier** An output stage with decked supplies. Higher supplies are connected by series transistors when the signal increases.
- class-H amplifier** Similar to class-G: an output stage with decked supplies. Progressively higher supplies are connected by parallel transistors to handle signal peaks.
- clipping** If the signal level exceeds the capabilities of the system through which it passes, the positive and negative peaks of the signal will be clipped off. This results in severe distortion of the signal.
- clock signal** A signal present in all digital circuits that acts as a timekeeper.
- closed-box** A sealed loudspeaker cabinet. Also called *infinite baffle*.
- coaxial cable** A cable in which an inner conductor is surrounded by a tube-like conductor that acts as a shield.
- coaxial driver** A loudspeaker driver in which the high-frequency drive unit is mounted inside the midrange or bass drive unit.
- cochlea** The part of the inner ear that changes mechanical vibrations into electrical signals. It contains the endings of the nerve that carries information about sound to the brain.
- codec** Coder/decoder. Software or hardware to encode or decode data between two formats.

color 1) The subjective sensations elicited in humans (and presumably many other animals) by different spectral distributions of light. 2) User-accessible means to adjust *hue*.

coloration The distortion of a sound signal detectable by ear.

color banding See *contouring*.

color depth The number of levels of color that can be represented by a pixel. Generally expressed as a number of bits or a number of colors.

color space The mathematical depiction of human color perception in a space with three axes representing the perceptual attributes of hue, saturation, and brightness.

color temperature Characterization of a white reference in terms of the absolute temperature of a black body radiator having the same chromaticity. Measured in Kelvin.

component 1) One of the pieces of equipment making up an audio-video system. 2) Part of a video signal.

compression 1) The process of removing redundancies in digital data to reduce the amount that must be stored or transmitted. 2) The process of attenuating high levels of a signal to reduce the dynamic range of the signal.

compression ratio A ratio of the amount of uncompressed data to the amount of compressed data.

cone 1) Photoreceptor in the eye specialized for high visual acuity and the perception of color. 2) The diaphragm of a loudspeaker that moves back and forth to create sound.

contouring Visible luminance steps in a video image that occur when there is an insufficient number of bits per pixel in the source. Contouring appears as hard lines (bands) in regions where the shade of the color gradually changes. Also called *color banding*.

contrast 1) The luminance difference between two regions of visual space. 2) User-accessible means to adjust *white level*.

contrast ratio The luminance ratio between two regions of visual space.

convergence Alignment of the red, green, and blue images in a video display such that the eye fuses them into a single full-color image.

cornea Clear outer portion of the eyeball that provides the major refractive power for focusing light in human and other eyes.

- crossover** Electrical circuit that splits up the input signal into two or more signals having different frequency ranges.
- crossover distortion** A type of distortion in a power amplifier which is caused by switching between transistors driving a load.
- crossover frequency** The frequency at which a crossover filter splits a signal into two or more signals having different frequency ranges.
- crossover slope** The steepness of a crossover filter. A steeper slope splits the frequency spectrum more sharply and produces less overlap between the two frequency bands. Usually expressed in dB/oct.
- cross talk** Interference from one signal on another signal.
- CRT** Cathode-Ray Tube. A video display that consists of a vacuum tube containing an electron gun and a fluorescent screen. The gun shoots electrons in horizontal lines to the screen, which is coated with phosphors that glow when excited by the electrons.
- current** The rate of flow of electrons.
- cutoff frequency** The frequency where the magnitude of a signal has fallen 3 dB from its value at a reference frequency.
- D65** The standard chromaticity of white, representative of northern daylight and having a color temperature of approximately 6504 K.
- D/A** Digital-to-Analog. Compare [A/D](#).
- DAC** Digital-to-Analog Converter. Circuitry that converts digital data (such as audio or video) to analog signals. [Compare ADC](#).
- DAE** Digital Audio Extraction. Reading digital audio data directly from a CD audio disc.
- damping** Any mechanism that causes an oscillating system to lose energy.
- damping factor** A number that expresses a power amplifier's ability to control woofer motion. Related to the output impedance of the amplifier.
- D'Appolito loudspeaker** Loudspeaker with a tweeter placed between two midrange drivers to restrict the loudspeaker's dispersion and limiting the area into which it radiates sound.
- dB** Decibel.

- dBA** A-weighted sound level in decibels. It emphasizes mid frequencies and approximates human hearing sensitivity around 70 dB SPL.
- dBC** C-weighted sound level in decibels. With music, dBC is almost a flat response test which measures most of what is really present.
- dBFS** Decibels referenced to Full Scale in digital audio. Full scale is the maximum level that a sound signal can attain. It corresponds to 0 dBFS. Lower levels are expressed with a negative number.
- DCT** Discrete Cosine Transform. The mathematical transform at the heart of the JPEG and MPEG algorithms. It transforms blocks of pixel values into blocks of spatial frequency values.
- decibel** A unit of measurement expressing ratios using logarithmic scales. The number of decibels is equal to 10 times the logarithm of the ratio of two powers, or 20 times the logarithm of the ratio of two amplitudes.
- decoding** Converting one or more coded signals into uncompressed form, reversing a previous encoding operation that was applied to reduce data rate for transmission or recording. Compare *encoding*.
- definition** 1) In the context of video, a description of *sharpness* or *clarity* of a picture. High definition pictures portray a lot of detail, while low definition pictures look soft and less clear. 2) In the context of audio, *clarity* or *transparency* of the sound.
- degree** Unit to measure angles based on the division of a circle into 360 degrees.
- deinterlacing** The process of converting interlaced video into progressive video. See also *interlaced* and *progressive*.
- diaphragm** Any surface that vibrates in response to sound or is vibrated to emit sound, such as in microphones and loudspeakers.
- diffraction** Bending of sound or light waves as they pass around an obstacle.
- diffusion** Scattering of sound or light waves as they hit an uneven surface.
- diffuser** In the context of acoustics, any material that scatters sound.
- digital** Expressed in digits. A set of discrete numeric values, as used by a computer. Compare *analog*.
- dip** A reduction in energy over a band of frequencies. Compare *peak*.
- dipole loudspeaker** A loudspeaker that produces sound from the front as well as the rear, with the front and rear sound waves out-of-phase with each other.

directivity Method of describing the directional response of a loudspeaker that compares the sensitivity in a particular direction to that which an omni-directional source of equal total output would achieve.

directivity index Logarithmic statement of directivity.

direct view A display in which the image is viewed directly, rather than projected onto a screen.

discrete surround sound Multichannel audio in which each channel is stored and transmitted separately from and independent of other channels.

display rate The number of times per second the image in a video system is refreshed.

DLP Digital Light Processing. The trademark name for Texas Instruments' digital micromirror device for video image generation and projection.

DMD Digital Micromirror Device. A reflective micro-electro-mechanical technology developed by Texas Instruments.

Dolby Atmos Immersive 3D audio format that supports up to 24 loudspeakers at ear height and 10 overhead loudspeakers. More realistically, Dolby recommends to add two or four ceiling loudspeakers to an existing 5.1, 7.1, or 9.1 system.

Dolby Digital A coding system for lossy compression of digital audio with up to 5.1 discrete channels sampled at 48 kHz.

Dolby Digital EX An extension to the Dolby Digital audio coding system that supports 6.1 channels. Matrix encoding on the left and right surround channels is used to add a surround center channel.

Dolby Digital Plus An extension to the Dolby Digital audio coding system that supports 7.1 discrete audio channels and a higher bit rate.

Dolby Digital Surround EX Cinema version of the Dolby Digital EX audio coding system.

Dolby Pro Logic An audio processing technique to extract a center channel and a band-limited surround channel from a matrix-encoded two-channel audio signal. See also [Dolby Surround](#).

Dolby Pro Logic II An improved implementation of the Dolby Pro Logic processing technique that converts ordinary stereo content into five channels.

Dolby Pro Logic IIx An extension to the Dolby Pro Logic II processing technique that converts any two-channel or 5.1-channel audio signal into an audio signal with 6.1 or 7.1 channels.

Dolby Pro Logic IIz An extension to the Dolby Pro Logic II processing technique that converts any two-channel, 5.1- or 7.1-channel audio signal into an audio signal of up to 9.1 channels that includes two front height channels.

Dolby Stereo Early version of the Dolby Surround audio coding system used only in cinemas.

Dolby Surround An audio coding system which employs matrix encoding to store a mono surround sound channel in a stereo signal. A Dolby Surround decoder extracts only the surround channel, while a Dolby Pro Logic decoder also extracts a center channel. See also [Dolby Pro Logic](#).

Dolby TrueHD A coding system for lossless compression of digital audio with up to 7.1 discrete channels at 96 kHz sampling, and up to 5.1 discrete channels at 192 kHz sampling. It is based on MLP combined with a Dolby Digital stream for backward compatibility.

Dolby Vision HDR video format that uses the SMPTE ST 2084 transfer function and dynamic metadata to perceptually map luminance to the possibly limited luminance range of the video display. See also [HDR](#).

Doppler distortion Frequency modulation dependent on the speed with which a source of sound is either approaching or receding from a listening position.

downmix An algorithm that combines the components of a multichannel audio signal, making it suitable for reproduction through a smaller number of channels.

downsampling Resampling that produces fewer output samples than the number of input samples provided. Compare [upsampling](#).

DRC Dynamic Range Control. A technique of reducing the range between loud and soft sounds in order to make dialogue more audible when listening at low volume levels.

driver The actual loudspeaker units inside a loudspeaker cabinet.

DSD Direct Stream Digital. A coding system for digital audio that is used for SACD.

DSP Digital Signal Processor. A digital circuit that can be programmed to perform digital data manipulation.

DTS Digital Surround A coding system for lossy compression of digital audio with up to 5.1 discrete channels sampled at 48 kHz.

DTS Digital Surround 96/24 An extension to the DTS Digital Surround audio coding system with a sample rate of 96 kHz and 24 bits per channel.

DTS Digital Surround ES An extension to the DTS Digital Surround audio coding system that adds a discrete surround center channel to deliver 6.1-channel audio.

DTS-HD High Resolution A coding system for lossy compression of digital audio with up to 7.1 discrete channels sampled at 96 kHz.

DTS-HD Master Audio A coding system for lossless compression of digital audio with up to 7.1 discrete channels at 96 kHz sampling and up to 5.1 discrete channels at 192 kHz sampling.

DTS Neo:6 An audio processing technique that creates 5.1 or 6.1 channels of surround sound from a two-channel audio source.

DTS Neo:X An audio processing technique that creates up to 11.1 channels of surround sound from a two-channel, 5.1-, 6.1- or 7.1-channel audio source. The 11.1 channels include three front channels, two wide front channels, two front height channels, four surround channels and one LFE channel.

DTS:X Immersive 3D audio format that can handle a combination of all the Dolby Atmos and Auro-3D loudspeaker positions.

DVB Digital Video Broadcasting. A European standard for digital video broadcast, cable, and satellite transmission.

DVD Digital Versatile Disc or Digital Video Disc. Generic name for a family of related disc formats encompassing video, audio and computer data storage on an optical disc format.

DVD-Audio Format for storing digital audio on DVD. Primarily uses LPCM audio with MLP encoding, along with an optional subset of DVD-Video features.

DVD-R DVD Recordable. Record-once version of [DVD-ROM](#).

DVD+R Alternative to [DVD-R](#).

DVD-RAM DVD Random-Access Memory. Officially know as DVD rewritable. It is an erasable, re-recordable version of [DVD-ROM](#).

DVD-ROM DVD Read-Only Memory. The pre-recorded form of DVD.

DVD-RW DVD Re-recordable. It is a rewritable version of [DVD-R](#).

DVD+RW Alternative to [DVD-RW](#).

DVD-SR DVD Stream Recording. Format for recording streaming data from digital audio and video sources.

DVD-Video Format for storing digital audio and video on DVD.

DVD-VR DVD Video Recording. Format for recording video (and audio) in real-time.

dynamic compression Phenomenon in loudspeaker drivers in which an increase in drive signals results in little increase in acoustic output. It occurs when the voice coil heats.

dynamic range The difference between the loudest and softest sound in an audio signal or system.

echo A delayed return of sound that is perceived by the ear as a discrete sound image.

edge enhancement Video processing that enhances contrast in areas of transition between light and dark or different colors.

efficiency Ratio of input to output power.

electric charge The quantity of electrons that flows past a point in a period of time.

electromagnetic radiation The full spectrum of radiation in the universe, of which light comprises only a tiny portion.

EMI Electromagnetic Interference. Disturbance caused by radiation of electromagnetic waves. See also [RFI](#).

encoding The process of converting one or more signals into a more complex representation, with the goal of reducing data rate for transmission or recording. Compare [decoding](#).

enclosure Box in which a loudspeaker is mounted.

energy The property of a system that is a measure of its ability to do work.

envelopment In the context of sound quality, the subjective impression that you are being surrounded by sound.

equalization The correction of undesired frequency or phase response.

error correction Perfect correction, by playback or receiver units, of errors introduced in reading media or transmission. Correction is effected using redundant information inserted by the recorder or transmitter.

excursion A measurement of how far a driver diaphragm can move.

feedback 1) In amplifier circuits, taking part of the output signal and sending it back to the input to reduce distortion and improve stability. 2) Unwanted interaction between the output and input of an acoustical system, for example, between a loudspeaker and a microphone.

fidelity As applied to sound quality, the faithfulness of the original.

field One set of scanlines of interlaced video that consists of two fields, one containing the even lines, the second containing the odd lines.

file A structured collection of data characterized by a metadata header and a single body of data payload.

file server A storage system that provides data files to all connected users of a local network. Typically the file server is a computer with large disk storage which is able to record or send files as requested by the other connected (client) computers.

filter A circuit or process that reduces the amount of information in a signal.

FLAC Free Lossless Audio Codec.

flat-panel display A display such as an LCD in which the display is flat and relatively thin compared to its height and width.

flicker The rapid and periodic fluctuation in intensity of a light source, as perceived by the human eye.

flutter A repetitive echo set up by parallel reflecting surfaces.

Fourier analysis Mathematical procedure for representing any function as the sum of a set of sinusoids.

FPD Flat-Panel Display.

fps frames per second. A measure of the rate at which pictures are shown for a motion video image.

frame The piece of a video signal that contains all of the elements of one complete picture. In an interlaced system, a frame comprises two fields, each field contains half the lines of the frame.

frame rate The rate at which pictures are shown for a video image. Usually measured in frames per second (fps).

frequency The number of repetitions of a phenomenon in a unit of time and/or space. See also *period*.

frequency range Often used to denote where response limits have fallen by -10 , -3 or -1 dB.

frequency response Ratio of output signal to input signal, reported as a function of frequency.

front projection A projection system in which the light is incident on the projection screen from the same side as the audience.

full-range loudspeaker A loudspeaker that reproduces bass as well as midrange and treble frequencies.

fullscreen A video image that fills the entire screen of the video display.

fundamental frequency The frequency of a sinusoidal component of a periodic signal that has the same period as the periodic signal.

gain 1) The increase in power level of a signal. 2) A measurement of the amount of light radiating perpendicularly from a projection screen.

gamma 1) The numerical value of the exponent to which a video signal R' , G' , or B' is raised to obtain a linear-light signal. 2) User-accessible means to adjust gamma.

gamut The range of colors allowed in a specific system, as defined within a triangular area located on the CIE chromaticity diagram of which the corners are the three primaries of the system.

ground 1) An isolated or at least separated reference conductor for equipment's internal circuitry. 2) Power-systems grounding is that point to which the neutral conductor, safety ground, and building ground are connected. This grounding electrode may be a water pipe, driven ground rod, or the steel frame of the building.

ground loop A circular or multiple connection of ground conductors. The circuit formed acts as a shorted turn in the presence of power line magnetic fields, hence high currents may flow, causing substantial 'hum' voltage differences to appear along the wire in such a loop, even if the wire's resistance is low.

group delay The frequency-dependent response delay through systems which is given rise to by phase distortions.

Haas effect See [precedence effect](#).

- harmonic** A sinusoidal component of a signal having a frequency that is an integer multiple of the fundamental frequency of the signal.
- harmonic distortion** The production of spurious frequencies at multiples of the original frequency, caused by nonlinearity in the system.
- HDCP** High-bandwidth Digital Content Protection. Technology to restrict copying of digital video and audio by encrypting the transmission over digital interconnect formats such as DVI and HDMI.
- HDMI** High-Definition Multimedia Interface. An interface for transmitting digital audio and video over a single cable.
- HDMV** High-Definition Movie mode. An application format for Blu-ray disc, that is similar to DVD-Video, for displaying menus with animated buttons and sounds, pop-up menus, video, audio, subtitles, slide shows, and more.
- HDR** High Dynamic Range. In the context of video, having a large luminance range with brighter whites, deeper blacks, and at least a 10-bit color depth.
- HDR10** HDR video format that uses the SMPTE ST 2084 transfer function and static metadata to perceptually map luminance to the possibly limited luminance range of the video display. See also [HDR](#).
- HDTV** High-Definition Television. A video system having an aspect ratio of 16:9 and an image that comprises 0.75 million pixels or more. Common examples are 720p, 1080i or 1080p.
- hearing loss** The loss of sensitivity of the auditory system. Some hearing loss is age-related; some related to exposure to high-level sound.
- Helmholtz resonator** Acoustic device with a small opening that absorbs sound by causing the air in the device to resonate at a particular frequency.
- hertz** The unit of frequency. One hertz equals one times per second.
- HID lamp** High Intensity Discharge lamp.
- highlights** The lightest part of an image, normally white or nearly white.
- high-pass filter** A filter that passes signals having frequencies above a specific frequency (the cutoff frequency). Signals having frequencies below the cutoff frequency are reduced in amplitude.
- high-resolution audio** Digital audio with a sampling rate of 88.2 kHz or higher and 20-bit word length or greater.

HLG Hybrid-Log-Gamma. HDR video format that uses a hybrid transfer function to map luminance. It applies a standard gamma curve to the lower luminance range and a logarithmic curve to the higher luminance range. See also [HDR](#).

hue 1) The attribute of a visual sensation according to which an area appears to be similar to one of the perceived colors, red, yellow, green and blue, or a combination of two of them. 2) User-accessible means to adjust hue.

Hz See [hertz](#).

IC See [integrated circuit](#).

ILD Interaural Level Difference.

illuminance The total luminous flux incident on a surface, per unit area.

image broadening The ability of strong reflections of sound in a room or in a recording to make a sound source appear larger. Also called *apparent source width (ASW)*.

imaging 1) The process of generating visual images. 2) In the context of reproduced sound, the impression of hearing musical instruments and voices as objects in space.

IMD See [intermodulation distortion](#).

immersion In the context of sound quality, the impression of being immersed in the sound field.

impedance The opposition to the flow of electrical or acoustic energy. Impedance is the opposition to flow that results from the combination of resistance, inductance, and capacitance.

impulse A very short, transient signal.

inductance An electrical characteristic of circuits, especially of coils, that introduces inertial lag because of the presence of a magnetic field. A reluctance for current to cease flowing immediately, according to the strength of magnetic field caused by the current flow.

infinite baffle See [closed-box loudspeaker](#).

integrated amplifier Audio product combining a preamplifier and power amplifier into one chassis.

integrated circuit Monolithic circuit, made by building up on, and etching patterns onto successive layers of metals, semiconductors, and insulators, beginning on a substrate of silicon.

interconnect A cable that carries line-level audio signals, digital audio signals, or analog/digital video signals.

interference The (unwanted) interaction of two or more signals.

interlaced A scanning standard in which alternating lines of a frame are displayed to make up a field. One frame is made up of two interleaving fields, each containing half the scanlines. Compare *progressive*.

intermodulation distortion The interaction of two or more signals that results in distortion components that are multiples of the sums and differences of these signals.

interpolation Resampling that produces more output samples than original samples. Also called *upsampling*.

inverse-square law Sound intensity decreases with the square of the distance: each doubling of the distance reduces the sound pressure level by 6 dB.

inverse telecine The reverse of pulldown, where the frames that were duplicated to create a higher frame rate are removed. See also *pulldown*.

iris Circular, pigmented membrane behind the cornea; perforated by the pupil.

ITD Interaural Time Difference.

jitter Deviation in timing of data transitions with respect to an ideal clock.

JPEG 1) Joint Photographic Experts Group. A committee that has developed standards for the lossy compression of digital still images. 2) A standard, adopted by the Joint Photographic Experts Group, for the lossy compression of digital still images.

judder A temporal artifact associated with moving images that produces an appearance of jerky motion in the image.

kelvin The unit of temperature.

keystone A geometrical distortion in which the top (or bottom) of the image is wider than the bottom (or top) of the image and the sides are not parallel to each other.

layer The plane of an optical disc on which information is recorded in a pattern of microscopic pits.

LCD Liquid Crystal Display. Flat-panel, energy-efficient display made of thousands of tiny crystal coils that control the amount of light passing through them.

LCoS Liquid Crystal on Silicon. A miniaturized reflective active-matrix liquid-crystal display using a liquid crystal layer on top of a silicon backplane.

LED Light Emitting Diode. Solid-state device that emits light when current is passed through it.

lens Any object that refracts light.

letterbox A widescreen image (such as 16:9 aspect ratio) conveyed or presented in a format having a narrower aspect ratio (such as 4:3), using the full width of the narrower format but not using the full height. Black horizontal mattes are added to the top and bottom of the widescreen image to fit it into the narrower format.

level The amplitude of a signal.

LFE Low Frequency Effects. A separate channel in multichannel surround sound formats reserved for low bass effects such as explosions.

light The wavelength range in the electromagnetic spectrum (400–700 nm) that elicits visual sensations in humans.

linear system A system which satisfies the conditions of superposition and homogeneity.

line level An audio signal with an amplitude of approximately 1 to 2 V.

liquid crystal A liquid phase molecular system which has long-range order. The optical properties of liquid crystals can be changed by such outside influences as the electric field and temperature.

lm See *lumen*.

localization The ability to detect the direction of sounds.

logarithm An exponent of 10.

lossless compression Compression where redundancies in the data are identified and recoded using less bits. The original data can be reconstructed perfectly. There is no loss of data.

lossy compression Compression where part of the data is permanently removed in order to achieve high compression ratios. It is not possible to retrieve the original data. Properties of human perception are used to discard as much data as possible without perceptually degrading the data.

loudness Attribute of auditory sensation in terms of which sounds may be ordered on a scale extending from quiet to loud. It is a subjective term for the perceived sound pressure level.

loudness level The sound pressure level in dB of a pure tone of frequency 1 kHz which is judged by the listener to be equivalent in loudness.

loudspeaker A device that converts an electrical signal into sound.

low-pass filter A filter that passes signals having frequencies below a specific frequency (the cutoff frequency). Signals having frequencies above the cutoff frequency are reduced in amplitude.

LPCM Linear Pulse Code Modulation. PCM with linear quantization.

LSDI Large Screen Digital Imagery. A family of digital imagery systems applicable to programs such as dramas, plays, sporting events, concerts, cultural events, etc., from capture to large screen presentation in high resolution quality in appropriately equipped theaters, halls, and other venues.

luma A video signal representative of the monochrome (lightness) component of a scene, denoted by Y' .

lumen The unit of luminous flux.

luminance The physical (photometric) intensity of light returned to the eye (or some other detector) adjusted for the sensitivity of the average human observer. Luminance is related to the brightness sensation of human vision.

luminous flux The rate of flow of radiant energy as evaluated by the luminous sensation that it produces.

lux The unit of luminous flux density and illuminance.

lx See *lux*.

masking The amount or the process by which the threshold of audibility for one sound is raised by the presence of another (masking) sound.

mastering The set of those technical activities that lead to the finished edited master of a program, which materializes the creative intent of its authors.

matrix encoding The technique of combining additional surround-sound channels into a conventional stereo signal. See also *Dolby Surround*.

matte An area of a video display or motion picture that is covered (usually in black) or omitted in order to create a different aspect ratio within the picture frame.

MDF Medium Density Fiberboard. Composite wood material from which most loud-speaker cabinets are made.

microphone A device that converts sound into an electrical signal.

midrange Audio frequencies in the middle of the audible range: 200 Hz to 2 kHz.

minimum phase A minimum phase signal/system is one in which the phase shift associated with the amplitude response is the minimum that can be allowed whilst still exhibiting the properties of a causal system (one in which the output never arrives before the input). As there is a strict relationship between amplitude and phase in such systems, correcting either one will inevitably tend to correct the other.

MLP Meridian Lossless Packing. A lossless compression technique that removes redundancy from PCM audio signals to achieve a compression ratio of about 2:1.

moiré pattern Image artifact where two spatial frequencies in an image interact to generate a repetitive pattern.

mono Single channel sound.

monaural A situation in which sounds are presented to one ear only. Listening through one ear.

monoblock A power amplifier with only one audio channel per chassis.

monochrome The black and white (grayscale or lightness) component of image data.

mosquito noise A term referring to the fuzzy dots that can appear around sharp edges after video compression.

motion blur The apparent streaking of moving objects.

motion vector A two-dimensional spatial displacement vector used for MPEG encoding.

moving coil Electro-mechanical transduction means in which a current is passed through a coil suspended in a magnetic field.

MP3 MPEG-1 Layer III Audio. An audio compression standard, defined in MPEG-1 and MPEG-2, that is widely used for distributing music on the internet.

MPEG 1) Moving Picture Experts Group. A committee that has developed standards for the lossy compression of digital audio and video. 2) A family of standards for the lossy compression of digital audio and video. The MPEG video algorithms exploit temporal coherence found in motion image sequences.

MQA Master Quality Authenticated. An audio codec using a combination of perceptual and lossless coding for high-resolution audio.

multichannel Multiple channels of audio, usually containing different signals for different loudspeakers to create a surround-sound effect.

music server A device that stores digital audio on hard disk drives or in solid-state memory.

native resolution 1) The resolution at which video was captured. 2) The number of actual pixels (horizontal and vertical) in a video display.

noise Any unwanted signal that contains irrelevant, meaningless, disturbing, or erroneous information.

noise shaping Digital audio technique in which quantization noise is shifted to the top octave of the audioband, or above the audioband, thus decreasing the audible noise.

NTSC A method of composite video encoding, used in the United States and standardized by the National Television System Committee.

oblique mode A room mode produced by reflections off all the six surfaces of the room.

octave The interval between two tones when their frequencies have a ratio of 2:1.

OFC Oxygen-Free Copper. High conductivity copper alloys that have been electrolytically refined to reduce the level of oxygen to 0.001% or below.

off-axis response A loudspeaker's frequency response measured at the sides.

ohm The unit of resistance and impedance.

Ohm's law The ratio of applied voltage to the resultant current is a constant at every time instant and this ratio is defined to be the resistance.

OLED Organic Light Emitting Diode. A device made of organic material that emits light when a current is passed through it.

omnidirectional Radiating or receiving equally in all directions.

on-axis response A loudspeaker's frequency response measured directly in front of the high-frequency driver.

ossicles A linkage of three tiny bones providing the mechanical coupling between the ear drum and the oval window of the cochlea. The cochlea consists of the hammer, anvil, and stirrup.

oval window A tiny membranous window on the cochlea to which the stirrup ossicle is attached.

overscan The area at the edges of a television display that is covered to hide possible video distortion.

overtone A component of a complex tone having a frequency higher than the fundamental.

Pa See *pascal*.

PAL Phase Alternate Line. A method of composite video encoding, used in most of Europe.

pascal The unit of pressure.

passive radiator Diaphragm in some loudspeakers that is not driven by an electrical signal, but is moved by air pressure inside the cabinet created by the motion of the woofer. The passive radiator replaces the port in a bass-reflex loudspeaker.

passive system System (for example a filter or loudspeaker) without any source of external power other than signal energy itself. Compare *active system*.

peak 1) A short-term, high-level signal. 2) An excess of energy over narrow frequency band. Compare *dip*.

perception Typically considered the subjective awareness of any aspect of the external or internal environment.

perceptual coding Lossy compression techniques based on the study of human perception. Perceptual coding systems identify and remove information that is least likely to be missed by the average human observer.

period The smallest time interval over which a periodic signal repeats itself. Inverse of *frequency*.

periodic Description of a signal that cyclically repeats itself.

perspective The representation of three-dimensional objects on a two-dimensional surface by projection. As a result, the same objects have different sizes as a function of distance.

phantom imaging The creation of an apparent sound source between two loudspeakers.

phase The fractional part of a period through which a periodic signal has advanced, measured from some arbitrary point in time.

phase shift Any change that occurs in the phase of one quantity or in the phase difference between two or more quantities.

phon The unit of loudness level.

photoreceptors Cells in the retina specialized to generate neural signals in response to light stimuli.

pillarbox An image (such as 4:3 aspect ratio) conveyed or presented in a format having a wider aspect ratio (such as 16:9), using the full height of the widescreen format but not using the full width.

pincushion distortion A geometric distortion of a video image in which the corners of the display are too far from the center, compared to the edges.

pink noise Noise of which the spectrum level decreases by 3 dB for each doubling of frequency.

pinna The exterior ear.

pitch Attribute of auditory sensation in terms of which sounds may be ordered on a musical scale extending from low to high. It is a subjective term for the perceived frequency of a sound.

pixel Picture element. A single element of the array of discrete elements that comprises a two-dimensional digital image.

PLUGE Picture Line-Up Generation Equipment. A video test pattern containing below black, black and near-black signals to assist in setting black level on a video monitor.

polarity The relative position of the high (+) and low (–) signal leads in an audio system.

polarization The direction of the electric or magnetic field in light with respect to some external axis. Most light sources produce unpolarized light (random polarization).

posterization Similar to contouring, except it is visible as steps in the color of a video image. This occurs when an insufficient number of bits is used to transmit the color information.

power amplifier An audio component that boosts a line-level signal to a powerful signal that can drive loudspeakers.

power handling The maximum amplifier power a loudspeaker can take before it is damaged.

power supply Part of an A/V component that converts the alternating current from the wall outlet into direct current and different voltages needed by the audio and video circuits.

preamplifier A component that drives the power amplifier. It includes controls to set the playback volume and to select the audio source.

precedence effect All reflections arriving at the listener's ear within 20 to 40 ms of the direct sound are integrated, or fused together, with the resulting apparent increase in level and a pleasant change of character. Also called *Haas effect*.

presence In the context of sound quality, the subjective impression that you are in an acoustical space together with the sound sources.

primary colors The three colors: red, green, and blue (RGB).

progressive A scanning standard in which all lines of a frame are displayed consecutively in one pass. Compare *interlaced*.

projection screen A viewing screen designed to show projected images.

projector A piece of equipment designed to project an image onto a screen.

psycho-acoustics The study of the interaction of the auditory system and acoustics.

pull-down A process whereby motion picture film is transferred to video. In 2:2 pull-down each film frame is scanned twice; once to produce the first video field (or frame), and once again to produce the second field (or frame). In 2:3 pull-down (also called 3:2 pull-down) alternate film frames are scanned first two then three times to form successive video pictures.

pupil The perforation in the iris that controls the amount of light reaching the retina.

Q factor See *quality factor*.

QRD Quadratic-Residue Diffuser.

quality factor Property of a mode of a resonant dynamic system controlled by the amount of damping present.

quantization The process of assigning a discrete, numbered level to each of two or more intervals of amplitude of a sample.

quantization error Difference between the value of an analog signal and the number representing that value in the digital signal.

rainbow effect Unwanted visual artifact in DLP projectors utilizing a mechanical spinning color wheel. People who are sensitive to this effect will see flashes of color when they look across the display from one side to the other.

ray Conventional term used to indicate the passage of light or sound from source to target in a straight line.

RCA plug A type of connector used on interconnect cables.

rear projection A projection system in which the light is incident on the screen from the opposite side as the audience.

recording The process of capturing sound waves in air and storing them on a medium such as a disc, tape, electronic memory device, etc.

reference black The level corresponding to picture black.

reference white The level corresponding to white. In video, it is standard for reference white to correspond to light having the spectral and/or colorimetric properties of CIE illuminant D65.

reflection The return of light or sound hitting a surface as a result of its failure to be absorbed or transmitted.

reproduction The process of converting a sound recording into audible sound.

resistance The property of conductors that, depending on their dimensions, material, and temperature, determines the current produced by a given voltage. It is also that property of a substance that impedes current and results in the dissipation of power in the form of heat.

resolution 1) Generally, a measure of the ability to delineate picture detail. 2) In digital imaging, the count of columns and rows of pixels in a device or in an image. 3) In the context of sound reproduction, the quality of an audio system to reveal low-level musical information.

resonance An enhancement of the intensity of a sound that occurs when its frequency equals or is close to the natural frequency of vibration of an acoustic system.

retina Laminated neural component of the eye that contains the photoreceptors (rods and cones) and the initial processing circuitry for vision.

reverberation The tailing off of sound in an enclosure because of multiple reflections from the boundaries.

reverberation time The time required for the sound in an enclosure to decay 60 dB.

RFI Radio Frequency Interference. Electromagnetic signals of a frequency associated with electromagnetic radiation, which are coupled to a conductor either directly or with an antenna. See also [EMI](#).

RGB Video information in the form of red, green, and blue tristimulus values.

ringing Oscillation of a system with a high Q-factor.

rms Root-mean-square.

room correction Technique of removing room-induced frequency-response peaks and dips with a digital signal processor or equalizer.

room gain Increase in bass level when a loudspeaker plays in a room compared with the loudspeaker's bass level in an anechoic room.

room mode The modes of vibration of an enclosed space.

RT₆₀ See [reverberation time](#).

sabin The unit of sound absorption. One square foot of open window has an absorption of one sabin.

SACD Super Audio Compact Disc. CD-sized disc that contains CD-quality audio as well as high-resolution digital audio.

sample The value of a bandlimited continuous signal at an instant of time and/or space. Usually, but not necessarily quantized.

sample rate The number of times a digital sample is taken per unit time. Usually measured in Hertz.

sampling 1) The process of forming, from a continuous bandlimited one-dimensional function of time, a series of discrete values, each of which is a function of the distribution of intensity across a small time interval. 2) Two-dimensional sampling: The process of assigning to each element of a sampling grid, a value that is a function of the distribution of intensity over the corresponding small area of the image plane.

satellite loudspeaker A small loudspeaker with limited bass output designed to be used with a subwoofer.

saturation 1) The colorfulness of an area judged in proportion to its brightness. It is the subjective sense of the perceptual distance of the color from neutrality (an unsaturated color is one that approaches a neutral gray). 2) User-accessible means to adjust saturation.

scaling 1) Altering the spatial resolution of a single image to increase or reduce the size. 2) Altering the temporal resolution of an image sequence to increase or decrease the display rate.

scan line A single horizontal line traced out by a scanning system of a video display.

Schroeder frequency The transition from the region of wave acoustics to the region of ray acoustics in large rooms with a strong diffuse sound field.

screen-door effect The visible perception of an image being broken down into individual pixels, even when those pixels are not fully resolvable.

SDTV Standard-definition television. A video system having an image that comprises fewer than 0.75 million pixels. Common examples are 480i and 576i.

secondary audio The audio stream associated with a secondary video stream on Blu-ray disc.

secondary video A supplemental video stream on Blu-ray disc for picture-in-picture (PIP) in the primary video.

sensation The subjective experience elicited by energy in one form or another impinging on an organism's sensory receptors.

sensitivity 1) The degree of ability to respond to the energy in a sensory stimulus. 2) A measure of the sound power a loudspeaker produces for a given amount of amplifier power.

shadows Regions of diminished light that occur when objects are interposed between light sources and a surface potentially in receipt of that light.

sharpness 1) In the context of video, the amount that a picture is in focus with clear-cut edges. 2) User-accessible means to adjust the sharpness of a picture.

shield The conductive covering of a cable or enclosure. Drains away incident RFI currents, ideally protecting the audio signals traveling along the conductors inside.

signal Representation of time-varying information.

signal-to-noise ratio The ratio of pure signal to extraneous noise. Usually measured in decibels (dB).

simultaneous brightness contrast The ability of contextual information to alter the perception of luminance (brightness) of a visual target.

sine wave A periodic wave related to simple harmonic motion.

slew rate The maximum rate of change of signal that an amplifier can process accurately, above which severe distortion sets in. Usually measured in $v/\mu s$.

SNR See *signal-to-noise ratio*.

soap opera effect The effect that video frame interpolation removes the judder from cinematic material, smooths motion, and reduces motion blur. The interpolated video no longer has the distinctive cinematic judder but looks as if it has been shot using a video camera.

solid-state amplifier Any amplifier using transistors or other semiconductors, instead of valves.

sound 1) Physical event of sound waves propagation through a medium. 2) Perception arising from sound waves exciting the human hearing mechanism.

sound intensity The rate of flow of sound energy through a unit area normal to the direction of flow. Measured in W/m^2 .

sound pressure level The acoustic pressure of sound in decibels relative to the reference pressure of $10^{-12} W/m^2$.

soundstage The impression of sound space existing in three dimensions in front of and around the listener.

source components Components that provide audio or video signals to the rest of the system.

spade lug A connector on loudspeaker cables with a flat area that fits around a binding post on an amplifier.

S/PDIF Sony/Philips Digital Interface. A consumer digital audio transmission standard.

spectral balance In the context of sound quality, the balance between the different frequencies in the audible frequency spectrum.

spectrum The power distribution of a continuous variable at different frequencies or wavelengths.

specular Referring to surfaces that reflect light preferentially at the angle of incidence (for example a mirror).

SPL See *sound pressure level*.

standing wave A resonance condition in an enclosed space in which sound waves traveling in one direction interact with those traveling in the opposite direction, resulting in a stable condition.

stereo Two-channel sound.

stereoscopic 3D Refers to film or video material that is shot using a set of two cameras and is shown on the screen such that two offset images are presented separately to the left and right eye of the viewer. These two-dimensional images are then combined in the brain of the viewer to give the perception of 3D depth.

subpixel An independently controllable optical modulator that does not produce all the information necessary for a pixel. In the most common situation, one subpixel will modulate one of the primary colors, taking three subpixels to make a full color pixel.

subwoofer A loudspeaker designed to reproduce only low frequencies. An active subwoofer includes a power amplifier to drive the loudspeaker.

surround loudspeaker Loudspeaker located beside or behind the listener that reproduces a surround channel of a surround-encoded audio program.

surround mode A setting on A/V controllers and A/V receivers that determines the method of surround decoding or surround signal processing on the input signal.

surround receiver See *A/V receiver*.

surround sound A multichannel audio system with speakers in front of and behind the listener to create an enveloping sound and to simulate directional audio sources.

suspension Component(s) by which moving elements of a loudspeaker are fixed to the chassis.

tangential mode A room mode produced by reflections off four of the six surfaces of the room.

telecine The process used to transfer film to video.

TFT Thin Film Transistors. A transistor made in a thin film of a semiconductor material, normally on an insulating substrate such as glass or quartz.

THD Total Harmonic Distortion.

thermal noise The noise produced in any resistance that is at a temperature above absolute zero (0 K). The noise results from the thermal agitation of free electrons in the material.

throw distance The distance from the screen surface to a projector.

throw ratio The ratio of the distance from the projection lens to the screen to the width of the image at the screen.

THX certified 1) Set of patents, technologies, and performance criteria for sound reproduction in cinemas and home theaters. 2) Certification of consumer A/V equipment that correctly implements THX technologies and meets stringent performance criteria.

timbre Attribute of auditory sensation in terms of which a listener can judge that two sounds similarly presented and having the same loudness and pitch are dissimilar. It relates to the perceived quality of sound.

tint User-accessible means to adjust *hue*.

toe-in Angling loudspeakers so that they point directly toward the listening position rather than straight ahead.

tone A sound wave capable of evoking an auditory sensation having pitch.

tone control An electrical circuit to allow rudimentary adjustment of frequency response.

track 1) A distinct element of audiovisual information. 2) One revolution of the continuous spiral of information recorded on an optical disc.

transducer In the context of audio, any device that converts sound into an electrical signal, or the other way around. Transducers include microphones and loudspeakers.

transient A short-lived sound, often at high level.

transistor Electronic device made from silicon that can be used to amplify signals.

transmission line A loudspeaker loading technique in which the woofer's rear wave is absorbed in a long duct or labyrinth (transmission line) inside the enclosure.

transparency In the context of audio, *clarity*.

trapezoid distortion A form of geometric distortion which results in the image resembling a trapezoid rather than a rectangle.

treble The higher frequencies of the audible spectrum: above 2 kHz.

trichromaticity The property of human vision whereby additive mixtures of exactly three properly chosen primary components are necessary and sufficient to match a wide range of colors.

tube Electronic device that can be used to amplify signals. A tube consists of a sealed glass or metal envelope, often tube-shaped, from which atmospheric gases have been removed. The tube typically contains one or more devices for amplifying electric currents.

tube traps Proprietary acoustical units used for the absorption of low frequencies.

tweeter A loudspeaker driver designed to produce treble.

UHDTV Ultra High-Definition Television. A video system having aspect ratio 16:9 and an image that comprises 7.5 million pixels or more.

UHP Ultra-High Performance lamp. Philips trade name for AC-driven mercury lamps.

upmixer An algorithm that processes an audio signal and makes it suitable for reproduction through a larger number of channels. Upmixers may be optimized to convert standard stereo recordings into multichannel versions.

upsampling Resampling where more output samples are produced than the number of input samples provided. Compare *downsampling*.

USB Universal Serial Bus. A serial bus interface to connect devices to a host such as a computer or optical disc player.

VC-1 Video codec standardized by the Society of Motion Picture and Television Engineers. It is based on Microsoft's Windows Media Video 9 technology.

vented loudspeaker See *bass reflex*.

vision The process by which the eye and the brain translate information conveyed by light into perceptions appropriate for visually-guided behavior.

voice coil Component of the motor of an electro-dynamic loudspeaker. The voice coil is a coil of wire through which the current from the power amplifier flows.

volt The unit of voltage.

voltage The line integral of the electric field strength between two points. Also called *electric potential*.

volume 1) The quantity of three-dimensional space enclosed by some closed boundary.
2) In the context of audio, the colloquial equivalent of sound level.

watt The unit of power.

wavelength In a periodic wave, the distance over which the wave's shape repeats.

weave A deinterlacing technique that merges fields together irrespective of interfield motion.

white level 1) The level representing white in a video signal. 2) User-accessible means to adjust the level representing white. This control is often called *contrast*.

white light Broadband light that is perceived as lacking color (as neutral).

white noise Noise with a spectrum level that does not vary as a function of frequency.

white point The color of gray in video. It is the color that you get when the RGB components contribute equally.

widescreen A video image wider than the standard 4:3 aspect ratio.

WMA Windows Media Audio.

woofer A loudspeaker driver designed to produce bass.

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Improving the Listening and Viewing Experience

Routledge, 1st edition (2019), 356 pages, 208 illustrations

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