

Film/Video Sound Glossary

(from various sources)

A-2, A-4, A-7-See Voice of the Theater.

AB Reel - Term for a 23-minute or less (max 2,050 feet, including head and tail **leaders**) reel of film that is shipped to theaters and that may originally comprise two "1,000-foot" edit reels. AB reels are also known as "big reels" or "2,000-foot" reels. Projection reel 1AB would have been "small" reels 1 and 2 during editing and mixing. In the event that reels 1, 2 and 3 together add up to less than 2,050 feet, the first projection reel might be called 1ABC, although this is rare. Sometimes films are edited in AB reels, a practice that is becoming commonplace due to the reduction in number of 35mm mag film units, which are very cumbersome to deal with as 2,000-foot loads on editing **benches**.

This is not to be confused with AB-roll printing, in which the camera negative is cut in two strands, allowing for simple optical effects such as fades and dissolves to be made when making original-negative prints (see **ek neg**) or **interpositives**. This process is not limited to two (A, B) rolls, but can be as high as desired. Thus, a camera negative cut in four strands would go up to a "D" roll.

AC (Alternating Current) - An electric current with periodically changing polarity (e.g., 60 times per second for 60 Hz power mains, etc.)

AC-3 - Dolby Laboratories' low-bit-rate coding scheme that is used in its 5.1-channel **Dolby Digital** film and television formats.

Academy curve / Academy mono - The name of the standard mono optical track that has been around since the beginning of film sound. Standards were not codified until 1938, although they have "improved" slightly over the years. The response is flat 100-1.6 kHz, and is down 7 dB at 40 Hz, 10 dB at 5 kHz, and 18 dB at 8 kHz.

Academy theater - The Samuel Goldwyn Theater at the Academy of Motion Pictures Arts and Sciences on Wilshire Blvd. in Beverly Hills. Considered one of the best-sounding theaters in the world, and the neutral, "reference" theater for the Hollywood filmmaking community. Contrary to popular belief, voting for the Best Sound Oscar doesn't take place as a result of Academy members having seen the nominated films there. (All nominated films are screened at the Goldwyn Theater during the month-or-so voting period subsequent to the announcement of that year's nominations in mid-February.)

Acetate Base - The transparent cellulose acetate plastic film which for years formed the base or backing for magnetic recording tape.

A-Chain - The part of the motion picture reproduction system in a theater that contains the sound transducer (such as an **optical** analog track reader or digital sound format decoder), preamp, noise reduction and matrix decoding (if applicable). The B-Chain comprises the main fader, room EQ, crossovers, amplifiers, speakers and the influence of room acoustics on loudspeaker response.

Acmade - British manufacturer of **edgecoding** (*op. cit.*) machines. The company so dominates the market that edgecodes are often referred to as "Acmade codes."

Acoustics - A science dealing with the production, effects, and transmission of sound waves; the transmission of sound waves through various mediums, including reflection, refraction, diffraction, absorption, and interference; the characteristics of auditoriums, theaters, and studios, as well as their design.

Adapter - A device to permit interconnection of two connectors that do not match physically. They are usually supplied with the microphone. One end will adapt to a standard microphone boom or stand, the other will fit the specific microphone.

ADC - (Analog-to-Digital Converter) - An electronic device used at the input of digital audio equipment to convert analog electrical signals to digital values whose numbers represent the level and frequency information contained in the original analog signal.

ADR - Automated Dialog Recording. The act of recording another reading of a **production track** in post-production.

Usually the actor will be looking at the cut picture on a screen and will hear a series of beeps in a headphone giving a countdown to the beginning of the line. See **looping**.

AD Recordist - Hands-on operation of ADR machine.

ADR Supervisor - Programs the sequences, line by line, of the automatic dialogue replacement device. Works with the director in determining and accomplishing post production dubbing.

AES - Audio Engineering Society (professional organization)

Airline Version - A remixed (and possibly re-edited) version of a film removing curse words, sex and violence. Airlines are an even tougher "room" than the broadcast networks, and so a version that passes the airline censors will almost always "fly" on TV.

Aliasing - An undesirable distortion component that can arise in digital audio equipment when the input signal's frequency exceeds one half of the digital circuitry's sampling rate.

Alignment - For tape recorders, refers to the correct adjustment of the tape head position with respect to the magnetic tape path, and also adjustment of the recorder's electronics for the best frequency response.

"All-Digital" - An advertising claim used frequently in the '80s. Now considered meaningless and rude.

Ambiance - The distinctive acoustical characteristics of a given concert hall, recording studio, etc. It results from reverberations (multiple sound reflections) from the walls and ceiling. Rooms that are said to be "dead" lack ambiance.

American National Standards Institute (ANSI) - Organization responsible for most standards used for US audio-visual equipment.

Ampex - Former manufacturer of videotape recorders, analog tape recorders and magnetic tape products. Ampex was also responsible for the sound system of the 70mm **Todd-AO** format. Name is an acronym based on the founder's name: Alexander M. Poniatoff EXcellence.

Amplification - Increase in signal level, amplitude or magnitude.

Amplitude - Strength of an electronic signal, measured by its waveform's height.

Analog - Electrical signal that continuously varies in strength.

Analog vs. digital soundtrack - The width of an analog soundtrack varies in a way that is directly analogous to the varying soundwaves of the original sound. When played back, the varying width of the track is translated to a varying electrical voltage which ultimately causes the theatre's loudspeaker cones to move back and forth to recreate the original sound. With a digital soundtrack, points along the soundwaves of the original sound are assigned a numeric (or digital) value, consisting of ones and zeroes represented as tiny dots on the track. When a digital track is played back, the numeric values are converted to the varying electrical voltage needed to drive the speakers. (See Optical soundtrack.)

Anamorphic - The camera/projector lens system which "squeezes" an image (usually to a 2:1 ratio) onto film during shooting, and unsqueezes it during projection. The viewed image has an aspect ratio twice as wide as what was recorded on film: If the image on the print is 1.2:1, the screen aspect ratio will be 2.4:1. See *also* **CinemaScope**, **flat** and **'scope**.

Anechoic - without echo

Anechoic Chamber - An enclosure in which the reflective sound is negligible. Such rooms are used for measuring the characteristics of microphones, loudspeakers, and other acoustic transducers, and to provide environmental conditions similar to the outdoors.

Answer Print - The **composite** print of a film with final mixed track(s) and final picture color timings. In many

contracts the delivery of the approved answer print is specified because it means that post-production has ended and **release printing** can begin, although the majority of prints are usually made from an **internegative**. Should always be distinguished in conversation and film labeling from a **blacktrack** answer print, which contains no soundtrack.

Articulation - A quantitative measurement of the intelligibility of human speech, where 100% is completely understandable. For the typical sound reinforcement or communications system no more than a 15% articulation loss is acceptable.

Aspect Ratio - The width-to-height ratio in which an image is intended to be shown, most commonly expressed as width relative to height which has been scaled to 1 unit. Standard television screens are 1.33:1, **flat** U.S. theatrical films are 1.85:1, and **anamorphic** films are 2.40:1. Ratios are also sometimes expressed as whole numbers; in this manner TVs are 4x3 and the new widescreen TVs are 16x9 (or 1.78:1).

A-Track The primary dialog track cut by the picture editor. The B, etc., tracks will just be used for overlaps.

Asperity Noise - (hiss) Is caused by minute imperfections in the surface of recording tape.

Atmospheres - Low level background sounds, such as wind or traffic noise, on a film's soundtrack which add to the reality of a scene. These sounds are sometimes recorded separately at a shooting location, creating what is called a wild track for mixing into the soundtrack later.

Attenuate - To reduce a signal's strength.

A-Type - The original Dolby **noise reduction** process, introduced in 1965 for professional recording. A-Type splits a signal into four bands for processing, while B-Type noise reduction, introduced in 1968 for home use, only affects high frequencies above 5 kHz.

Audibility Threshold - The minimum sound intensity that the average human ear can hear, normally considered to be 0 dB SPL at 1000 Hz (same as 20 micro-Pascals).

Audio Analyzer - A test instrument used by motion picture theater sound engineers. The device contains terminations of various values capable of carrying up to 150 watts of audio power. Included is an AC voltmeter for measuring the frequency response of amplifiers, equalizers, filters, and the overall frequency response of the sound system.

Audio Cassette - A cassette designed to hold audio tape for automatic play in tape recorder devices.

Audio Frequency - Any frequency within the range of normal audible sounds, roughly 20 Hz to 20,000 Hz (Hz = cycles per second).

Audio Monitor - A studio-type speaker for listening to the playback of a recording, also used for editing and quality check. **Automatic Gain Control (AGC)** - Electronic circuit that adjusts the incoming signal to a

predetermined level.

Auto Stop - A device which automatically stops or disengages the transport at the end of a recording or playback. This feature may be combined with Automatic Shutoff. Full Auto Stop returns the mechanism to stop position at tape end in any mode fast forward and rewind.

Avid - Nonlinear picture editing system.

Baby Boom a) The nickname of the Dolby 70mm process that dedicates two of the six tracks on a 70mm print to low-frequency information below 250 Hz. No longer used due to the existence of a dedicated subwoofer track in digital release formats. b) Post-World War II period of vigorous sexual activity followed by frequent child births. Generally considered to end in 1964.

Backfill To edit **fill** between words so that the whole length of a scene (including sections where the take or angle in

question is not being used) is contiguous.

Backgrounds Sound effects that sonically define the time and place of a location. Called "atmospheres" or "atmos" in the UK. "BGs" are considered sound effects, and should not be confused with **room tone**.

Bake Off Hollywood colloquialism for the meeting of the Sound Branch of the Academy of Motion Picture Arts and Sciences in which the members hear 10-minute clips of the seven films that have made the semifinals of the Best Sound Effects Editing award.

Balanced - An audio circuit with 3 wires; two wires carry the signal, high (+) and low (-), and the third is a shield which is connected to chassis or system ground. The signal leads are both of equal potential difference from the ground, and are hence "balanced" with respect to ground. Sometimes improperly described as "floating."

Balanced connection - Microphone cable connection in which both conductors are electronically symmetrical with the case and cable shield (ground).

Bandwidth - Refers to the "space" in the frequency response of a device through which audio signals can pass (between lower and upper frequency limits, those points where the signal level has rolled off 3 dB).

B-Chain - See **A-Chain**.

Bench - Film sound slang for the editing table, which consists of hand-cranked rewinds handling reels of 35mm picture and **mag film**, a sprocketed synchronizer that keeps the reels in sync (in addition to providing a count) and a "squawk box," which is used to hear the tracks played back from heads mounted on the synchronizer.

Bias - A direct current (DC) or high frequency alternating current (AC) signal fed to a magnetic recording head with the audio in order to minimize distortion. AC Bias ordinarily provides higher fidelity.

Bi-directional or Figure 8 - Microphone patterns useful in stereo microphone techniques. Useful for situations such as recording two vocalists face to face.

Binky - Film sound slang for a mixing "top sheet," indicating the layout and content of **pre-mixes**. The layout is usually one column per premix.

B inputs - Additional set of inputs to a console channel that allow either additional (but usually not simultaneous) tracks to be assigned, or, more commonly these days, a different source of the same information that is appearing on the A inputs. This latter technique allows a sound editor to work offline on a workstation while the mixer is adjusting overall EQ and level in automation and playing back from another copy (often on multitrack tape). The material is recorded, after switching inputs, when the editor is finished.

Blacktrack Print - Silent **answer print** of a film, made from the original camera negative. The first answer prints are usually "blacktrack," in order to proceed with the color timing even while post-production sound is not finished.

Blimp - Solid cover for a motion picture camera designed to contain camera noise completely. A "barney" is a padded cover designed to reduce camera noise while still allowing hand holding and portability.

BNC - Blimped Newsreel Camera. The 35mm Mitchell Camera model, which was the industry standard for over 30 years. See **blimp**.

Boom - a) A pole-like attachment that mounts atop a microphone stand and has a swivel or pivot point. The boom permits the mic to be raised higher or lower than the top of the stand, and to be placed closely to the desired instrument or performer. b) An outmoded name for the **LFE** channel. See *also* **baby boom**.

Boom Operator - Operates overhead extension mics.

Broom - To not use a sound during a mix. "Site brooming" is when a director rejects a whole group of effects, often causing days of work to go down the drain.

BTSC - Broadcast Television Systems Committee. The FCC committee that decided the **MTS** standards for stereo television sound in the United States.

Bus - A signal path to which a number of inputs may be connected for feed to one or more outputs. In a mixing console, a bus is usually a long piece of wire to which any input channel may be connected by means of a switch or control. The end of the wire goes into a combining amplifier or summing amplifier which then feeds one of the console outputs.

Buzz Track - Alignment film used to set the lateral alignment of the "slit" in photographic (optical) sound reproduction systems.

Bypass - An alternate signal path that goes around a given circuit. A "hard wire" bypass uses a switch and a piece of wire to route the signal from the input to the output of a device. A "bypass" switch is sometimes called an "In-Out" switch.

Cable Operator - Ensures the physical safety of the actors and the equipment.

Capacitor (condenser) - An electronic device which passes AC currents, but blocks DC. Also used to store voltages. A capacitor is made of two metallic surfaces separated by an insulator.

Capstan - Rotating shaft used with a pinch roller which pulls tape through a tape deck mechanism.

Cardioid - Microphone with a heart-shaped pickup pattern, where sound waves coming to the microphone's rear and sides are rejected and those directly in front of it are received.

Cardioid Pick-up Pattern - The usual shape of the pick-up pattern of unidirectional microphones. Best attenuation occurs at signals arriving 180 degrees off axis.

Cartridge (Transducer) - The element in a microphone or turntable that converts acoustical energy (sound) to electrical energy (the signal).

C.A.S. - Cinema Audio Society. Los Angeles-based organization of film and television recording personnel; founded in 1964.

"Cat 43" - The Dolby Laboratories "single-ended" **noise reduction** device that turns a Cat. No. 22 Dolby A-Type noise reduction module into a 4-band "noise fighter." The precise frequencies of the bands are optimized for production sound problems and differ from those used in standard noise reduction applications. In 1991 Dolby formally introduced the SR-based 2-band version called the Cat. No. 430.

Channel - A complete, self-sufficient recording setup. A "production channel" would include a recorder, mixer, microphones, headsets, etc. A "transfer channel" would include a 1/4-inch tape deck, a 35mm mag recorder, a **resolver** and a monitoring system.

Chain - The group of equipment (frequently comprising **dip filter**, **graphic eq**, de-esser and compressor) that a re-recording mixer will have patched together in series, either inserted in a channel, on a console bus or in a **reassign** buss. See **iron**.

Changeover Projection - See **Projection**.

Cinema Digital Sound - The name of the theatrical reproduction format introduced by Optical Radiation Corporation, a division of Kodak, for digital sound on 35mm or 70mm prints. First used in 1990 for *Dick Tracy*, the format lasted two years and is now obsolete.

CinemaScope Widescreen - camera system developed by Twentieth Century Fox, which was responsible for popularizing the **anamorphic** format.

Cinerama Widescreen - system comprising three cameras/projectors running in interlock with 7-track **mag film**. Now obsolete.

Click Track - In motion picture or television sound recording, an electronic metronome is applied to the audio recording so that musicians can synchronize the musical tempo with the visual action or frame rate. The channel carrying the metronome signal is known as the click track.

Clipping - Occurs when the capabilities of an amplifier are exceeded. The result is very audible distortion, also visible on an oscilloscope.

Close Miking - A technique for recording or sound reinforcement whereby the microphones are placed close to vocalists and to instruments or small groups of instruments. Close miking provides a great deal of presence and detail for the nearby sound source(s), while avoiding leakage from more distant sound sources. Most of today's popular music recordings use close microphone techniques.

Closed Loop - A continuous loop from film or tape for repetitive playing, often in a cartridge.

Comb Filter - A comb filter has a series of very narrow, deep notches where signals are attenuated. When the frequency response of such filters are graphed, they resemble a hair comb.

Commag - Laboratory term for "composite magnetic print."

Comopt - Laboratory term for "composite optical print."

Compander - The combination of a compressor and an expander used together to achieve noise reduction and/or increase the dynamic range capability of recorders or audio systems.

Composite Print - Film print that contains a soundtrack.

Compression - A process whereby the dynamic range of program material is reduced. This is accomplished by making loud parts of the program quieter and/or quiet parts louder.

Comtek - Salt Lake City-based company that makes portable wireless transmitters and receivers. "Comteks" have become the generic term for wireless headphone feeds to directors and for wireless timecode feeds to slates.

Condenser - Microphone in which sound strikes an electronically charged diaphragm, which acts like a variable capacitor as it moves near a fixed plate of opposite polarity. Ultra-low moving mass insures extended frequency responses.

Conform - a) To re-edit sound elements to match a new version of the picture edit. b) To assemble sound elements (from their original sources) to match their location in a picture edit, often with the assistance of an Edit Decision List supplied in a computer-readable file.

Connector - Type of cable required. Virtually all professional microphones use a 3-pin XLR connector, known as a balanced configuration.

Container - Film sound slang for Dolby Laboratories' peak limiter designed specifically for controlling the dynamics of program material during **sva printmastering**.

Continuous Loop - A loop of film or tape made by splicing the ends together for continuous projection or operation. Ordinarily enclosed in a special cartridge for insertion into a compatible projector, recorder or playback.

Cps - Acronym for "cycles per second," cycles being the obsolete term for what is now referred to as Hertz (Hz).

Cross-Mod - Short for "cross-modulation test," which is a means of determining correct exposure on a **track negative** to result in minimum distortion on a positive print. Tests are conducted to determine the relationship of specific optical cameras to specific laboratories.

Cross Talk - Spillover of sound from one line to an adjacent line.

C-Type - See **Spectral Recording**.

Cue Control - A device for rapidly advancing or rewinding a tape or film to sample the contents or find a desired section.

Cue Sheet - A guide for mixing that gives locations of sounds on a track-by-track basis, either in film footages or in timecode numbers.

Cut Effects - Sound effects that are **pulled** from a sound library and edited; usually as opposed to **foley**, which is recorded specifically for each film.

Dailies - Uncut footage shot each day during production. If picture edits from a nonlinear edit system are conformed on film, with picture and synchronized **mag film**, those elements when edited together become the **workprint** and **worktrack**.

dB, Decibel - Unit of measure, based on a logarithmic scale, applied to sound and electrical signals.

dbx Noise Reduction - system for analog recording. Type I is used for professional applications, while Type II was optimized for lower-speed consumer use. The name, properly spelled as dbx, refers to founder David Blackmer.

DC (direct current) - An electrical current of constant and uniform polarity, unlike AC (alternating current), which regularly changes its direction and polarity.

Decoder - The device which reads the encoded signal or pulse and turns it into some form of control or usable information (Compare with Encoder).

Dialogue Editor - Ensures that production tracks are technically good; also locates alternate tracks/tasks that could augment background dialogue.

Digital - System whereby a continuously variable analog signal is reduced and encoded into discrete binary bits (ones and zeros to represent quantities) that establish a mathematical model of the original signal.

Digital Dubbers - Film industry name for multitrack (usually eight channels per unit) digital recorders that use removable hard drives or magneto-optical drives as the recording medium. The term is partly a misnomer since previous film sound terminology had used "dubber" to distinguish from "recorder."

Digital Recording - Advanced method of recording which involves a sequence of pulses or on-off signals rather than a continuous variable or analog signal.

Dip Filter - Parametric equalizer with an extremely narrow bandwidth ("Q") and that is designed to remove noises, such as those from a camera or a light, whose offending frequency range is very narrow. See **Little Dipper**.

Direct Positive - An **optical sound** recording that, when processed, results in a track that can be played and edited. A now-obsolete process.

Directional Characteristic - Indicates the pattern of the microphone: cardioid, supercardioid, omni, etc.

Discrete - Refers to a 1:1 relationship of recorded tracks on a print and the resulting number of speaker channels. For example, a 4-track magnetic print will be reproduced through four channels—left-center-right-surround—in the theater. Obviously, the surround channel has more than one speaker. Discrete playback is often contrasted with matrix **encoding/decoding**.

Discrete 6-Track - Traditionally means the five-speakers-behind-the-screen system made popular by the **Todd-AO** 70mm process (although it was first used for **Cinerama**). In the current vernacular, though, discrete 6-track sometimes means six non-matrixed tracks, assigned left, center, right, left-surround, right-surround, and subwoofer.

Distortion (Audio) - A modification of the original signal appearing in the output of audio equipment that had not been present in the input. The most common way of expressing distortion is in percent of original signal as Total

Harmonic Distortion (THD).

Diversity - Multiple antenna receiving systems for use with wireless microphones.

DLT - Digital Linear Tape. Stationary-head, tape-based computer backup format.

DME - Dialog, Music, sound Effects. The three basic food groups of film soundtracks. Originally referred to the 35mm 3-track master mix of **Academy mono** films.

Dolby Digital - The 5.1-channel digital format created by Dolby Laboratories. In current usage applies both to the company's 35mm theatrical format (which contains the data printed optically between the sprocket holes) and their video formats (such as DVD, laserdisc, and DTV). First used in 1992 for *Batman Returns*.

Dolby Digital Surround EX - The digital release format developed by Dolby Laboratories and THX for, and first used on, *Star Wars: Episode I—The Phantom Menace*. Three surround channels are derived by matrix-encoding them into the two previously existing surround tracks. Should not be referred to as a 6.1-channel format because the additional surround channel is not a discrete, recorded track.**Dolby noise reduction** - Complementary (record-play) signal processing system that reduces the noise inherent in analog recording media without affecting the sound being recorded.

Dolby, Ray M. - The founder and sole owner of San Francisco-based Dolby Laboratories.

Dolby SR - The most powerful analog Dolby system, Dolby SR (spectral recording) is used today for the analog soundtracks on virtually all releases, including those with digital tracks. Dolby SR soundtracks provide a dynamic range rivaling that of digital, are compatible with any 35 mm theatre, and provide backup in case of playback problems with digital tracks.

Dolby Stereo - Many meanings! In the broadest and most common sense, the trademark that appears on movie prints, advertisements and posters means that a given film has been released in prints that employ Dolby **A-Type noise reduction** encoding.

There are two tracks on 35mm *stereo* optical prints, referred to as **Lt** and **Rt**, which are matrix-encoded to contain four channels of information. The 4:2 **encoding** is done during the **printmastering**, with the 2:4 decoding occurring at the theater.

In their standard form, Dolby Stereo 35mm prints are encoded with A-Type noise reduction. Beginning in 1987, Dolby Laboratories has made their SR (see **spectral recording**) process available on 35mm stereo optical prints, with the advantage of greatly reduced optical noise and increased low- and high-frequency headroom.

All of the stereo optical prints—Dolby Stereo (**a-type**), Dolby SR, **DTS Stereo** and **Ultra Stereo**—occupy the same area as standard mono optical prints and are capable of mono-compatible performance. The exact degree of mono compatibility is mix-dependent.

Dolby Stereo on 70mm usually means four **discrete** primary channels (left, center, right, surround), with the left-center and right-center tracks dedicated to "boom" information below 250 Hz. The four primary tracks are normally A-Type encoded, although selected films since 1987 have utilized SR encoding on 70mm prints. The use of Dolby 70mm ceased along with the introduction of **Dolby Digital** in 1992.

The first Dolby Stereo films was *Lisztomania* in 1975. The first Dolby 70mm **baby boom** film was *Star Wars* in 1977.

Dolby Pro-Logic - The Dolby Laboratories trademark used for home surround decoding devices that meet more stringent standards, and offer such features as band-limited pink noise for aligning channel balance, plus a separate, matrix-derived center-channel output.

Dolby Surround - The umbrella term used to identify the analog home surround-sound format derived from the Dolby 35 mm analog soundtrack format.

Dolby Surround Pro Logic - The advanced form of Dolby Surround decoding found in virtually all home theater

systems, providing at home from video sources the same four-channel surround sound heard in cinemas from Dolby analog theatrical films.

Double System - a) Projecting a film with the picture, on 35mm film, in interlock with the soundtrack, most commonly on **mag film**. b) Film or video production that utilizes sound recorded on a separate tape recorder, such as a DAT or **Nagra**.

Downmix - A mix derived from a multichannel (usually 5.1) source to create a compatible version of fewer channels. Common use today occurs in consumer **Dolby Digital** products to play back a 5.1-channel DVD either via **Dolby Pro-Logic** decoding or in standard two-channel stereo (for headphone listening, for example). In those instances, an **Lt-Rt** or an **Lo-Ro**, respectively, are the result.

Drop-Out - Loss of a portion of the signal caused by lack of oxide on that portion of the tape, or by dirt or grease covering that portion of the tape.

DS4 - The name of the original Dolby Laboratories recording/monitoring unit used by re-recording stages during a **Dolby Stereo** mix. Prior to the 2-track **printmaster**, the unit is used for 4:2:4 (*op. cit.*) monitoring purposes: encoding a 4-channel composite mix into two tracks and decoding it back into four channels.

Later variations in the Dolby product line include the SEU4 and SDU4 units, which offer, respectively, the ability to encode and decode printmasters, although without the **container** or the optical track simulation featured in the DS4. (A SPU4 unit is available to add those capabilities to studios that have SEU4/SDU4 units.) The DS10 contains a magneto-optical recorder for theatrical **Dolby Digital** mixes. It also records the Lt-Rt SR-encoded printmaster with **AC-3** coding.

Neither the DS4, the DS10 or the SPU4 can be purchased, rented or leased; their use is free on films that have paid the appropriate license and trademark agreements.

DTS - The 5.1-channel system developed by Digital Theater Systems that utilizes a CD-ROM interlocked to a 35mm or 70mm print with timecode. Audio on the CD-ROM utilizes apt-X 100 low-bit-rate coding. First used in 1993 for *Jurassic Park*. See also **70mm**.

DTS 5.1 tracks can also be found on laserdiscs and DVDs, utilizing proprietary low-bit-rate coding.

DTS Stereo - The **SVA** encoding process developed by Digital Theater Systems.

Dub - In the most general sense, to dub is to copy, although in film sound vernacular it has acquired many similar shadings. It can refer to the act of replacing dialog (usually via the **ADR** process), either in the original language or in a foreign language. "Dubbing" is also the common name for **re-recording**, at least insofar as Hollywood and New York are concerned.

Dubber - Film sound term for a playback-only **mag** machine. See **digital dubber**.

Dubbing theatre - A theatre equipped for and dedicated to mixing film soundtracks. The sound systems in dubbing theatres where Dolby soundtracks are mixed and those in cinemas equipped for Dolby playback are calibrated to the same standards. This helps make it possible for audiences to hear the sound the director heard-and intended-when the soundtrack was mixed.

Dub masters - See **final mix**.

Duo-bilateral - The technical term for the variable-area photographic soundtrack format used for almost all 35mm mono and stereo soundtracks.

Dynamic Microphone - One in which the output is generated by sound striking a diaphragm which moves an attached coil of wire in a magnetic field. Resembles a small loudspeaker that listens rather than talks.

Dynamic Range - The difference, in decibels, between the loudest and the quietest portions of a musical

performance (or between the maximum signal level and the noise floor of electronic equipment).

Earwig - Small earpiece used to give actors an audio reference (frequently a guide music track) so that their live audio, such as singing or music playing, can be recorded live. See also **thumper**.

Edgecode - Inked numbers applied outside the sprocket holes on film prints and **mag film**, used for synchronization reference. See **acmade**.

Effects - Sound effects, i.e., the non-musical elements on a soundtrack other than dialogue.

Effects Editor - Provides all incidental sounds, from footsteps to fist fights, doors slamming to lovemaking, and cars screeching. Records or replicates the sounds or designs a new combination.

EFP (Video) - Specialized equipment for electronic field production.

85 - The sound pressure level when **pink noise** is sent through one speaker (left, center or right) at 0 VU bus level, which is the equivalent of —20 dBfs in digital recording. (Measurement is at the console, with an SPL meter set to C weighting and slow response.)

88 - The sound pressure level for Dolby Stereo SR films. If a film has been monitored at 85 during the final mix, the **stems** will be lowered 3 dB when making an SR Lt-Rt printmaster to accommodate for the increased monitor level.

EK neg - Laboratory colloquialism for "original camera negative;" used in film vernacular to describe a **release print** made from the original negative. "EK" stands for "Eastman Kodak," although the term is used without regard to a film having been shot on Eastman stock. Also called "OCN."

Encoder - Device which alters the character of an electronic signal or superimposes other information on it.

Encoding / Decoding - In audio, encoding refers to the altering of a signal prior to its being recorded or transmitted, with decoding during playback/reception resulting in the best possible reproduction of the original signal considering the limitations of the recording or transmission medium. In motion-picture sound this can have one of two meanings: Matrix encoding/decoding, used in 35mm **Dolby Stereo**, encodes four channels into two in the studio, with the resulting optical print decoded from two tracks into four channels at the theater. For an explanation of encoding/decoding with regard to noise reduction, see **noise reduction**.

ENG (Video) - Specialized equipment for electronic news gathering.

Equalization - Normalization of an electronic signal, either audio or video. In audio it means attenuating or boosting specific frequencies to create a more pleasing sound or picture.

Equalization, Room - The process in which a speaker system is aligned by playing **pink noise** into a room and adjusting an equalizer to obtain the selected response when viewed by an **RTA**. Common room EQ utilizes 1/3-octave controls, with 31 knobs spaced across the audible frequency range, although parametric equalizers are also used. Most room equalizers also have an overall "bass" and "treble" adjustment. See **X-Curve**.

Exciter Lamp - The small lamp which projects its single-coil illumination through the optical sound track on 16mm film; the varying light intensity

Feedback - In a PA system consisting of a microphone, amplifier, and loudspeaker, feedback is the ringing or howling sound caused by amplified sound from the loudspeaker entering the microphone and being re-amplified.

FET (Field Effect Transistor) - Special kind of transistor consisting of metal oxides. Used in audio equipment because of its good linearity and high impedance.

50% level - The standard reference level for optical sound recordings that corresponds to the width of the track at 50% modulation, or 6 dB below clipping. In practice, there is about 2 dB of additional headroom available, assuming a perfectly aligned projector sound head.

Fill - The sound between words in a **production track** that is used both to replace undesirable noises on the track and to create "handles" extending the track at the beginning and end. Handles enable the re-recording mixer to crossfade smoothly between shots with differing background tones. See *also* **room tone**.

Fill Leader - The film that is inserted into **units of mag film** in order to keep synchronization during silent sections. Fill leader is usually made up of recycled **release prints**.

Film Footage - There are 16 frames per foot of a standard 35mm film image (running vertically through the camera and projector), each lasting four sprocket holes (perforations or "perfs"). At the standard rate of 24 frames per second, film runs at 90 feet per minute, or 18 inches per second. One film frame is the equivalent of 1.25 30 fps timecode frames.

Final Mix - The act of mixing the sound for a motion picture (or television show) into separate dialog, music and sound effects **stems**, which, combined and played at equal level through the monitor, represent the finished soundtrack. In a stereo film (or surround-encoded TV), it is most common to record the dialog, music and sound effects stems on three pieces of 4- or 6-track magnetic film, utilizing Dolby SR **noise reduction**. (The choice of which noise reduction system is used at this stage—SR, **A-Type**, or even **dbx**—has no relation to what **printmasters** might be made.) Final mixes are also frequently recorded on analog or digital **multitrack** tape or on **digital dubbers**.

These stems, also known as "dub masters," are then used to create the printmasters, the **M&E**, the mono mix and possibly even an **airline version**.

The exact format and track layout of the stems is up to the post-production sound crew; if a multitrack or digital dubber is used, then additional tracks are opened up at no additional cost and little trouble. With these formats it is easier to record an additional set of stems, keeping, for example, the **foley**, the background sound effects, a laugh or crowd track, or special creature voices separate, to allow for greater flexibility in the final mix, during printmastering and the **M&E** mix.

If the project is a non-surround-encoded stereo television show, then the stems might be in standard 2-track stereo format, although this is not recommended due to the use of 5.1-channel stereo in Digital Television. And, of course, mono films only require from three to six tracks, usually on the same piece of film or tape.

5.1 - Stereo format utilizing three primary channels (left, center, right), two surround channels (left surround, right surround) and an LFE channel, which is the ".1" channel because it uses approximately one-tenth of the bandwidth of a full-frequency channel. Pronounced "five point one."

Flat - With respect to film projection, refers to non-**anamorphic** lenses. In the U.S. it's considered synonymous with 1.85:1 widescreen.

Flutter - Rapid change in frequency of an audio or video signal due to variations in tape or disc speed. Wow is usually considered a lower frequency speed variation.

FM (Frequency Modulation) - A method by which sound frequencies are carried in radio transmission; more noise-free and generally with a broader frequency range than AM (Amplitude Modulation) transmissions. Desirable for high fidelity applications.

FM sync - The 13.5kHz frequency-modulated sync pulse recorded on **Nagra IV-S** recorders.

Foley - Sound effects recorded in synchronization to edited picture in post-production. Named after Jack Foley, who was the head of the sound effects department at Universal Studios for many years. Contrary to popular myth, he did not invent the process. Foley is often expressed as "Foleys" in New York. Likewise, what is called the "cloth" track on the West Coast is referred to as "rustle" back East.

Foley Artist - The person who makes the sound effects that aren't replicated by other methods by using voice, hand props, gadgets or tools. Actually performs to picture.

Foley Mixer/Foley Editor - Responsible for linking up the artist and the picture so they mesh.

Foreign Version - See **M&E**.

4+2 - Four Plus Two. Film sound slang for a 6-track element (usually **mag film**) that contains a 4-track **M&E**, one track of material which may or may not be needed in a foreign-language mix, and one track of the original dialog as a reference.

4:2:4 - Four Two Four. Film sound slang for the act of monitoring a mix through matrix **encoding** (4:2) and decoding (2:4). This means that the effect of the matrix encoding will be heard (which they would not be when monitoring **discrete**), and adjustments can be made accordingly.

Fox Holes - Small perforations on 35mm **release prints** that allowed for the addition of **mag stripe** for the **CinemaScope** process, which was developed by Twentieth Century Fox. Whereas one had to be careful in the old days to ensure that sprockets that pulled the film through the projector could accommodate Fox holes (standard sprockets were too big and would tear them), all sprocket mechanisms today can handle Fox-hole prints with no problem. (This is ironic since the process has been used on less than a dozen films since the coming of **Dolby Stereo** in 1975.)

FPS - Acronym for "frames per second."

Frequency - Number of times a signal vibrates each second, expressed as cycles per second (cps) or as Hertz (Hz).

Frequency Response - (Audio and Video Systems) - The frequency range over which signals are reproduced within a specified amplitude range. Generally expressed in dB versus Hz; example: 100-5000 Hz + or - 5dB.

Fullcoat - See **mag film**.

Gaffer - a) On a film set, the head electrician; since the early 1990s the term "Chief Lighting Technician" has been more common. b) In general film industry usage, the head of a crew, as in "gaffing mixer" to note the re-recording mixer in charge. Thus, "to gaff a mix." An older Hollywood phrase for the gaffing mixer was the "gunner."

Gain - Amount of signal amplification.

Gink - Hollywood film sound vernacular for "to screw up."

Graphic EQ- Multiband equalizer utilizing slide pots for each band, with the resulting boost or cut forming a "graphic" representation of the sound. Generally considered to have been invented by Fred Wilson of the Samuel Goldwyn Studios sound department.

Hang - Film sound slang for the act of playing back a given element during a mix, as in, "We won't premix the **foley** cloth but will hang it at the final mix instead."

Hertz - Abbreviated "Hz," the unit of measurement for frequency; 1 Hz is equal to one cycle per second (cps).

Hot Hole - Slang for the projector gate itself, where the picture start mark in the **leader** is threaded up at the beginning of a session.

HX - Headroom eXtension. The **Dolby Laboratories** process used during recording only; it varies the bias current according to program needs. Now superseded by HX-Pro.

Hypercardioid - A variation of a cardioid pattern which provides a greater front-to back sensitivity ratio. At the sides (90 degrees and 270 degrees) the hypercardioid is about 4 times less sensitive than at the front, and at the rear it is about half as sensitive as the front.

Impedance - Resistance to the flow of an electrical current, expressed as high or low impedance, Hi-Z or Low-Z, measured in ohms. A lower value means you can run longer cable without loss of signal integrity.

In-Band Gain - The standard for adjusting subwoofer response, such that the subwoofer sound pressure level, within its operating range, is louder than a full-range screen speaker in the same range. All of today's digital theatrical

formats use 10 dB of in-band gain.

Inductive Loop - A wire loop connected to the output of a tape recorder, receiver or PA system that produces an electromagnetic field within and adjacent to the loop. A small battery powered induction receiver built into an earpiece picks up and amplifies this signal to audible level.

Input - The program that enters a unit or system; the jack or receptacle into which a signal is fed.

Intercom - A device or component of a system that permits two-way communication.

Interlace - Scanning method in which the lines of two fields are combined into a frame such that all the lines are visible.

Internegative - Laboratory film element that is made from an **interpositive** and is used to make **release prints** not only at high speed (because the color is balanced and there are little or no splices to worry about), but more importantly because the **EK neg** is protected.

Interpositive - Laboratory film elements made from the original camera negative in preparation either to make an **internegative** or to be used in a **telecine** machine to transfer the film image to tape. (Unless they are the only extant elements of a film, standard **release prints** are never used for video transfers.) Also known as an IP, an interpositive contains shot-to-shot color correction so that internegatives can be made with no further color adjustments, although further adjustment is always necessary when doing film-to-tape mastering. If the camera negative was cut in AB rolls (see **AB reels**), then the IP can incorporate first-generation fades and dissolves.

IPS - Inches Per Second. Standard method for measuring the speed of tape movement.

Iron - Pejorative term for "equipment" in the context of its effect on sound quality: "He has so much iron in his **chain** it's a wonder that we can distinguish between men and women on his dialog **premix**."

ITC - Intermittent Traffic Control. Film production term for the presence of traffic control during location shooting; very helpful for quality production sound recording.

Jack - Receptacle for a plug connector for the input or output circuits of an audio or video device.

Jam Sync - Process of synchronizing a time code generator with time code being played on a tape, and then re-entering that time code on to the tape. Done to extend code, or to replace bad code - without disturbing the continuous count of code.

Key Numbers - Numbers on the side of film stock created during film manufacture that are visible on the developed negative and positive prints made therefrom

Kirsch - Film sound slang (popularized in Northern California) for when a director will request a change in the sound and will give his or her approval to what in fact was no change at all (either accidentally or deliberately) on the part of the mixers. Variants such as a "self-inflicted kirsch" in which the mixer will adjust a knob without it being in the signal path or will listen for a change while the **pec/direct** paddles are in playback (as opposed to input).

Lavalier - Tiny microphone that can be clipped onto clothing.

Layback - A transfer of a mix (usually a **printmaster**) to a video master.

LCRS - Designates a recording in which four tracks are to be assigned, respectively, to the left-center-right-surround speaker channels. Thus, other variants such as LCRC, when the fourth track is to be assigned to the center, or even CCCC, as in a center-channel dialog **premix**.

Leader - The head leader, at the beginning of each reel of a film, comprises a thread-up section that contains information about the reel's content (such as film title, reel number, etc.). The countdown section begins with the Picture Start frame, which is considered the "start mark," followed by a numbered rundown, totaling 12 feet or 8 seconds. The last number is two seconds (three feet) before the beginning of the active picture ("first frame of

picture").

The Academy leader contains one number per foot following the Picture Start, with 11, 10, etc., leading to three. As projected, numbers are upside down. The SMPTE Universal leader is designed to be used primarily for video uses and features a sweep hand counting down from eight seconds.

LED - Light Emitting Diode.

LFE - Low Frequency Effects. The low-frequency track assigned to the subwoofer in theatrical stereo formats. For home video formats, the subwoofer will frequently contain low-frequency information from the main channels in addition to the original LFE track.

LFOP - Last Frame of Picture. Film industry acronym for the length of a given reel. In its standard meaning includes the head **leader** up to and including the last frame of the reel. Because it is standard to start counting with the "Picture Start" frame of the leader as 0000+00 (zero feet and zero frames), the actual running time of a reel can be calculated by subtracting 11 feet and 15 frames to account for the 12-foot, 8-second leader. The **two-pop** is at 0009+00. The first frame of picture of a reel is at 0012+00. Sometimes also referred to as LFOA, for "action."

Lightworks - A nonlinear picture editing system.

Little Dipper - Nickname of the popular **dip filter** previously manufactured by UREI (Model 565).

Little Old Ladies with Blue Hair - Colloquial expression in the film sound community for how loud a film can be before movie patrons will complain. Therefore, the top end of the dynamic range available to mixers is defined not necessarily with regard to a theater's ability to reproduce a mix. See *also* **popcorn noise**.

Looping - The process of post-production dialog replacement using identical-length loops of picture, guide track and record track. The line to be replaced would thus repeat over and over, and the actor would go for a take when they were ready. Also referred to as "virgin looping," when recording onto a blank piece of mag film. When optical sound was used, the recordings were made sequentially on a roll and later manually synched to picture.

Although this process is not used these days (see **ADR**), the act of replacing dialog is still often referred to as "looping."

Lo-Ro - Left only-Right only. Indicates a standard left-right stereo signal that has been **downmixed** from a **discrete** digital signal (such as a **Dolby Digital 5.1**). Because the surround information has been incorporated into the signal without matrix encoding, a Lo-Ro cannot be decoded back into the surround format.

Lt-Rt - Left total-Right total, *not* Left track-Right track. Indicates the presence of matrix encoding of four channels on a 2-track stereo master. See *also* DS4, 4:2:4 and **encoding/decoding**.

Mag Film - Short for "sprocketed magnetic film." Can have either an acetate or polyester base, and from one to six tracks, depending upon the head stack used. Three-track head gaps are 200 **mils** wide, the equal of half-inch 2-track tape; 35mm 4-track is 150 mils wide, and 6-track is 100 mils wide, where 8-track 1-inch or 16-track 2-inch are 70 mils. (For point of reference, 24-track 2-inch head gaps are 43 mils wide.) The oxide coating is very thick, varying from 3 to 5 mils.

There is also "stripe," which has two magnetic stripes on a base of clear film. One stripe is large and contains a single track of audio (in the same size and location as track one of a 3-track), while the other stripe is smaller and exists only to make the film pack evenly when wound together, hence the term "balance stripe." The balance stripe is sometimes used to record timecode from 1/4-inch or DAT timecoded production masters.

Fullcoat is mag film that is covered edge-to-edge by the magnetic oxide.

Mag Stripe Print - A 35mm or 70mm print with magnetic oxide stripes painted lengthwise down both sides of film on either side of the perforations. These formats are now obsolete.

Magnetic soundtrack - Narrow stripes of oxide material (similar to the coating on recording tape) added to a

developed release print, then recorded in real time with the film's sound. Introduced in the 1950s to provide the first stereo sound in the cinema, magnetic soundtracks have been superseded today by advanced analog and digital optical soundtracks, which are more practical and durable.

Masking - A phenomenon whereby one or more sounds can "trick" the ear into not hearing other weaker sounds that are present simultaneously, even if they are different frequencies.

M&E - Music and Effects. Standard motion picture practice today entails creating a minus-original-dialog element that can be used to create a foreign-language mix by adding only the newly recorded foreign-language dialog. This requires that all sound effects that are otherwise included in the dialog stem be copied across to this element. If these production effects are not clear of dialog, then they must be replaced either by **Foley** or by **cut effects**. Once the effects are "complete," the track is said to be "filled;" thus, contracts specify "music and filled effects." Also known as the "international" version.

Matrix - See **encoding/decoding**.

mil - Short for one-thousandth of an inch. The width of standard 35mm single-stripe and 3-track head gaps are 200 mils, or 1/5-inch. Mils are a good increment to deal with for films since there are 999 of them between the sprockets.

Mix - The procedure whereby two or more signals from live and/or recorded sources are combined to achieve a desired balance. Mixing consoles provide separate level controls for each source, as well as overall controls for the mixed (combined) signal. Consoles may also provide equalization and auxiliary signal processing such as echo and reverberation.

Mixdown - The process whereby signals from a multi-track tape recorder are routed to a mixing console and recombined to make a stereo or monaural master tape. The 4, 8, 16, or 24 tracks of the multi-track master are positioned anywhere from full left, through center, to full right of the stereo perspective, and the individual track levels and equalization are adjusted to achieve the desired balance. Echo, reverberation and other special effects may be added during the mixdown.

Mixer - A device or system in which two or more signal sources (mic or line level) can be combined and fed to another device or part of the audio system. Larger mixers are often called "mixing consoles," especially if they include a built-in mounting pedestal or are designed for mixing many inputs or feeding many outputs.

Monitor Mixer - A mixer or mixing console that is used primarily for balancing the sound fed to monitor speakers or performer cue headphones. Usually used for stage monitor speakers during live performances, where the on-stage sound balance requirements are substantially different from the house sound requirements. Some mixing consoles have a separate set of controls for mixing the sound fed to the monitors; this is the console's monitor section.

MOS - Scene shot silent, i.e., without sound rolling. Derives from "mit out sound," as in "ve vill shoot mit out sound," allegedly spoken by a director of Germanic descent to his Hollywood crew. Pronounced "m-o-s."

Moviola - The upright film editing machine that was the standard for picture editing until the '70s, when it was replaced (although not entirely) by flatbed editors. Remained the standard for sound editing until the early '90s, when it was gradually replaced by digital audio workstations.

M.P.S.E. - Motion Picture Sound Editors. Los Angeles-based honorary organization of film and television sound editors; founded in 1953. Every spring the MPSE gives out its Golden Reel awards at its annual banquet.

M-S - An abbreviation for mid-side, a stereo microphone technique using two microphones in a special configuration.

MTS - Multichannel Television Sound.

Mufex - See **M&E**.

Multi-Pattern Microphone - A microphone which can be switch selected to two or more pickup patterns.

Multitrack - A non-sprocketed tape recorder (analog or digital) that records and plays back eight or more tracks. The

most common analog format is 24 tracks on 2-inch tape, frequently with some form of **noise reduction**. The digital world is shared between the DASH (Digital Audio Stationary Head) format, with 1/2-inch tape recording either 24 or 48 tracks, and the PD (ProDigital) format, recording 32 tracks on 1-inch tape. Modular digital multitracks use video cassettes to store 8 to 12 tracks of audio. Locking together multiple transports can provide up to 128 tracks in a standard configuration.

Music cue sheet - Not a standard **cue sheet** but instead a list of music used in a film, along with its type of usage (source, background instrumental, visual vocal, etc.), composer name and publishing information.

Music Editor - Designs music tracks to fit with dialogue and sound effects. Helps define and design proper levels.

MUT - MakeUp Table. The motor-driven **bench** designed to load and rewind film. In the acronym form usually refers to the setup that drives a large reel of **mag film** during a **double system** preview screening.

Nagra - The name of the line of professional 1/4-inch tape analog and digital recorders manufactured by Kudelski S. A. of Switzerland. Their battery-operated portable analog recorders, especially the 4.2 mono and IV-S stereo models, have been the standard of the motion picture industry for over 30 years. Nagra means "recorded" in Polish, founder Stefan Kudelski's native tongue. Use of a stereo Nagra on location is almost always to record two separate tracks simultaneously, and does *not* usually mean a stereophonic recording.

Nagramaster - Equalization curve developed by Nagra which uses high-frequency boost during recording and de-emphasis during playback to increase the signal-to-noise ratio at 15 ips.

Neopilot - The sync pulse system used in Nagra mono recorders (such as the 4.2), recording the sync pulse (usually 50 or 60 Hz) twice, out of phase with each other. The sync signal will not be heard when played back on a full-track mono head.

Noise - In audio systems, noise is electrical interference or any unwanted sound or signal, such as hum, hiss, rumble, crosstalk, etc.

Noise-Canceling - A microphone designed to cancel ambient noise so that it will not be broadcast or recorded. The housing of the microphone allows noise to reach both sides of the diaphragm simultaneously, thereby canceling each other out.

Noise Reduction - In audio, recording a signal onto tape or film utilizing a device that will modify the signal before recording it (encoding), and then perform the opposite modification (decoding) during playback, the purpose being to avoid the noise inherent in the transmission medium.

The best-known noise reduction processes are Dolby Laboratories' A-Type, B-Type, C-Type, S-Type, and **Spectral Recording**; **dbx** Type I and Type II; and telecom Cd4.

None of the above processes removes noise already present in a recording.

Norvalizing - Hollywood slang for the act of playing a sound effect at a lower level in a vain attempt to hide the fact that it is not in sync.

N.T. Audio - Santa Monica, Calif.-based sound facility which is noted for its half-speed mastering of optical soundtracks.

Octave - The interval between two frequencies having a ratio of 2:1. That is, twice a given frequency or half a given frequency is one octave away from that frequency.

Ohm - The unit of measure of electrical resistance or impedance.

Omni-directional - Equal sensitivity in all directions. Usually refers to non-directional microphones.

1:1 - One to one. In standard usage, a copy of the edited **worktrack** onto another roll of **stripe** so that sound editors and mixers working on a film will have access to the worktrack. In general, though, it stands for any single-track-

to-single track identical copy, and thus has variants such as 3:3, 4:4, etc.

Open Reel - Audio or video tape or film mounted on a reel that is not enclosed in a cartridge or cassette.

Optical recorder - The machine that transforms a completed mix on tape or disc into an optical soundtrack. It creates a photographic negative of the optical track, which is combined ("married") with a negative of the picture to create a release print (see **Printer**).

Optical soundtrack - Photographic strips on movie prints that vary in some way with the variations in sound. Analog optical soundtracks vary in width, while digital optical soundtracks have patterns of dots (see **Analog vs. digital** and **Variable area**). As the film is pulled through the projector's soundhead, a narrow light beam passes through the moving soundtrack, which causes the intensity of the beam to vary. The varying light falls on a sensor, creating electrical signals, which the theatre's loudspeakers convert back to sound.

ORC - See **Cinema Digital Sound**.

Output - Signal delivered from any audio or video device; also a jack, connector or circuit which feeds the signal to another piece of equipment such as a speaker or headphone.

Paddles - See **PEC/direct**.

PDL - Projectionist Dummy Loader. Union terminology for person in a film re-recording facility who functions both as projectionist and as a machine room operator.

PEC / Direct - In film re-recording, the act of switching between playback from the recorder (either off the play or record heads) and the console bus. "PEC" stands for photoelectric cell, and originates from when monitoring off optical photoelectric cell was as close as you could get to "playback."

PFX - Production effects, i.e., sound effects from the **production track**, kept separate during dialog editing and **premixing** for ease of integration into the **m&e**.

Phantom Power - A method of remotely powering the preamplifier or impedance converter which is built into many condenser microphones by sending voltage along the audio cable. Phantom power is usually from 6 to 48 volts DC and is run along the same conductors that carry the mic signal. The DC is separated from the audio by using capacitors and special transformers.

Phase - Timing relationship between two signals.

Pickup Pattern - Directions from which a microphone is sensitive to sound waves. Varies with the mic element and mic design. The two most common patterns are omni and uni-directional.

Pink Noise - Full-frequency noise, consisting of equal energy per logarithmic units of bandwidth (such as octave or 1/3-octave), used to align the frequency response of tape recorders and speaker systems. Pink noise can be thought of as (and indeed almost always is) filtered white noise, which contains equal energy per linear unit of bandwidth. The high end on white noise is "tipped up" because there are "more" frequencies between octave and third-octave divisions.

Pirate Ship - To make a copy of material for one's library. Commonly used to refer to making a copy of good sound effects recorded in production, thus the order to "pull up the pirate ship" and to make sure that those recordings will be available after the film is finished and the masters are sent away.

Platter Projection - See **projection**.

Polar Pattern - A graph of a transducer's directional characteristics measured in a 360° pattern, and usually at several different frequencies. Speaker polar pattern indicated relative output level, whereas microphone polar patterns indicates relative sensitivity.

Polarity - Refers to the relative position of the high (+) and low (-) signal leads in an audio system. When two channels

are reversed in polarity relative to each other, and are either mixed together or fed to a stereo speaker system, signal cancellations will occur. This is usually not desirable.

Pop - A thump or explosive breath sound produced when a puff of air from the mouth strikes the microphone diaphragm. Occurs most often with "p", "t", and "b" sounds.

"Pop a Track" - The act of aligning a start mark exactly nine feet or six seconds from the **two-pop**, either on **mag film** or a **bench**, or in a digital audio workstation.

Popcorn Noise - Colloquial expression in the film sound community for the factors (such as popcorn chewing, air conditioning noise, and bleed from adjacent theaters) in a motion picture theater that influence the low end of the dynamic range, and how soft a sound will "read" in the real world. See *also* **little old ladies with blue hair**.

Pop Filter - A cloth, foam or similar shield placed over a microphone to avoid "popping" sounds from sudden bursts of breath. Also, an electronic filter that attenuates low frequencies where the "popping" sounds exist (a high pass filter with its cutoff at approximately 70 Hz to 100 Hz).

Post-Synchronization - Term used on the Continent and in the U.K. for **ADR**.

Pre-Amplifier (also Pre-Amp) - An amplifier that strengthens weak signals such as those from a microphone, magnetic playback head, photo cell, or a phonograph pick-up to a level sufficient to drive a power amplifier.

Pre-Lay - Usually stands for the act of editing sound onto a multitrack. This writer, for one, finds this term stupid and meaningless (not to mention demeaning), as it seems to try to make something else out of what is simply "multitrack editing."

Premix - The act of mixing edited sound elements (either dialog, music or sound effects) so that the **final mix** can be accomplished with less work involving level, equalization, effects or panning. With sound effects and music, there will also be a substantial reduction in the number of tracks, as in premixing 24 tracks into a 4-track **lcrs** premix. Dialog premixing often does not actually reduce the number of tracks that will go to the final mix, but instead just copies a cut track across with careful equalization and fader moves.

Presence Peak - An increase in microphone output in the "presence" frequency range of 2,000 Hz to 10,000 Hz. A presence peak increases clarity, articulation, or apparent closeness.

Preview Codes - Edgecoding of edited **workprint** (or dupes made therefrom) and sound elements to create a new reference for a given version of the film. When the film is subsequently re-edited, the process of **conforming** multiple tracks can be sped up greatly.

Printer - A machine that exposes raw film stock to negatives of the movie's soundtrack and picture, at speeds up to 20 times faster than film is projected, to create a release print. The rapid, simultaneous printing of sound and picture contributes significantly to the relatively low cost of 35 mm optical release prints (see **Optical soundtrack**).

Printmaster - The final, composite (dialog, music and sound effects recorded together) mix of a film that can be transferred directly to a **track negative** or a **mag stripe** print with no further changes in level or equalization. If noise reduction is used on a printmaster, it most often matches that of the final print format, and thus can be transferred **stretched** to the **mag stripe print** or **track negative**. In the case of a stereo optical film, the printmaster contains two tracks, **Lt** and **Rt**, that are transferred directly to an optical sound negative.

The soundtrack of a **discrete** 35mm 4-track or 70mm 6-track mag print will be recorded from a 4- or 6-track printing master in a real-time transfer.

Production Sound Recordist - Hands-on sound recording work in the field or live stage, often responsible for capturing and monitoring dialogue, sound effects, and other incidental noises.

Production Track - The track recorded synchronously during shooting. In film it's almost always on 1/4-inch tape or **r-dat** digital cassette. See *also* **wild track**.

Projection - In most commercial movie theaters, all reels are joined together on a platter to form one continuous strip of film through one projector. In screening rooms equipped with two projectors, each reel is kept separate, and the projectionist will manually start the incoming projector when he sees "changeover" dots in the upper right corner of the screen. This first set of dots is the "motor cue," with a second set of dots (a second before the end of the outgoing reel) indicating to switch over the picture and sound to the next reel.

You can have **double system** or composite projection with both platter and changeover techniques. Movie previews are often conducted in commercial theaters, with the 35mm **workprint** "built up" on a platter, and the 35mm mag **temp dub** on a **mut**.

Pull - Colloquial term for adding another recorder to a system. Also describes the act of deciding which sound effects from a library will be used in a scene. See *also* **spot**.

Quad Track Negative - and release print made therefrom, which contains all three digital sound formats (**Dolby Digital**, **DTS** and **SDDS**) plus a standard **SVA** analog track.

Reassign - Output bus designed for internal re-routing and combining within the console.

Recordist - To some, a "sound recordist" is the person who records sound during shooting. This usage is more popular in the UK and on the Continent than in the U.S., where "production mixer" is more common. In U.S. re-recording parlance, the recordist is the person in the machine room who is in charge of aligning and loading the recorders and playback **dubbers**.

Reel - For information on how reels of film are counted in motion pictures, see **AB Reel** and **film footage**.

Regroup - The transfer procedure in which material is copied from one medium (most often multiple **units of mag film**) to another in order to facilitate **re-recording**. For example, a facility might have only five playback **dubbers** on a re-recording stage, and they might transfer 20 units of mag film to a piece of 24-track tape in four passes in order to be able to hear all 20 tracks simultaneously.

Release print - The actual film played in the cinema. A release print consists of reels approximately 20 minutes long which are played consecutively without interruption either by alternating between two projectors, or by splicing the individual reels together into one large reel called a platter. Prints are recorded at 16 frames per foot and played at 24 frames per second.

Re-Recording - Also known as **dubbing**, the process in which dialog, music and sound effects are mixed to picture.

Re-recording Sound Mixer - The end of the chain. The Post Production Mixer uses the tracks provided by the sound editor and prepares them for the final mix. Assembles the pieces, enhances and blends the tracks, works with equalization of the tracks, and cleans up dialogue tracks.

Resolver - Device that governs the speed of audio machines with reference to either a given recording or a common, known reference, such as a crystal or AC line frequency. A resolved transfer ensures that material will always be transferred at the same speed, and in the case of motion pictures, will be in sync with picture.

Reverberation - Multiple, blended sound images caused by reflections from walls, floor and ceiling. Also can be created artificially by electronic or mechanical devices.

RF (radio frequency) - Any frequency at which radio waves occur; generally the AM broadcast band is from 510-1600 kHz, while the FM band is from 88-108 MHz. Overall radio frequency spectrum can be considered to extend from 30 kHz to many billion Hz.

Ribbon Microphone - A dynamic microphone that generates an electrical signal when sound waves cause a metallic strip or ribbon to vibrate in a magnetic field.

Room Tone - The sound present in any production recording between the words. Also known as "fill." Should not

be confused (during post-production) with background sound effects.

RTA - Real-time analyzer. Audio measuring equipment used to view the whole audio spectrum simultaneously, as opposed to the voltage of a specific frequency. Typically, the display resolution is 1/3-octave.

Running Master - See **printmaster**.

'**Scope** - Film industry slang for **anamorphic** prints or lenses. Originally an abbreviation of **CinemaScope**.

SDDS - Sony Dynamic Digital Sound. Digital film format that utilizes in its complete form five screen channels (instead of the usual three) plus stereo surround tracks and an LFE track. The optical digital information is printed outside the sprocket holes on the print. First used in its final format in 1994 for *City Slickers II*.

SDU4 - See **DS4**.

Sensitivity - In audio, a higher sensitivity microphone will generate greater output voltage than a lower sensitivity microphone when exposed to the same sound source.

Sensurround - The now-obsolete low-frequency enhancement system for motion picture exhibition developed by Universal Studios in 1973 for *Earthquake*. The first film simply triggered a noise generator during the earthquake sequences, although later versions of Sensurround did record very low-frequency information on the print.

Sepmag - Laboratory term for a print whose track is on a separate roll of mag film to be run in interlock with the picture. Same as **double system**.

70mm - The motion picture exhibition format that contains 6-track magnetic sound. In use primarily from 1955 to 1971, 70mm films usually made use of camera equipment manufactured by **Todd-AO** and Panavision. The camera negative was 65mm wide, with the additional 5mm outside the sprocket holes used for the magnetic stripes on **release prints**.

Almost all films released in 70mm from 1971-1992 were originally photographed in 35mm and then blown up primarily for the 6-track magnetic sound. With 6-track digital sound now available in 35mm, there is no need to do a blow-up for sound quality, and in fact almost all newly manufactured 70mm prints in the U.S. have no magnetic track, but instead use the **DTS** system in the form of two players (one as a backup) in conjunction with a wide timecode track outside of the perforations.

The image, in its standard form, has an **aspect ratio** of 2.20:1, which is *narrower* than the 2.40:1 **anamorphic** 35mm format that is the source of many 70mm prints. However, when **flat** 1.85:1 films are blown up to 70mm, they usually retain their original aspect ratio, with black borders on the side.

The IMAX/OMNIMAX special venue format also uses 70mm film, although it runs horizontally through the camera/projector, and each frame is 15 "perfs" long, as opposed to the standard five perfs. Sound is always double-system, utilizing mag film or custom digital formats.

Shielding - There are two types of shielding, electrical and magnetic. Electrical shielding may be copper screen, a wire braid, or any conducting material which surrounds a circuit or cable conductors to exclude electrostatic or radio frequency noises. Magnetic shielding may be iron, steel, nickel, mu-metal or other magnetic material and is used to exclude unwanted electromagnetic fields from circuitry, transformers or conductors.

Shockmount - Usually refers to a microphone mounting mechanism which isolates the mic from mechanical vibration. Several means are common, especially elastic bands and rubber cushions.

"**Shoot**" - Film sound slang for recording. Derives from the previous use of **optical sound** in all film sound recording.

Shotgun - A highly directional microphone consisting of a mic element mounted in an interference tube with slots along its length. Its pickup pattern is extremely directional at high frequencies and becomes less directional at bass frequencies. Such mics are rarely used in recording and sound reinforcement, but are common in broadcast and film

work.

Signal Processing Equipment - Any equipment or circuit that is used to intentionally change the characteristics of a signal (other than overall level). Synonymous with "signal path."

Signal-to-Noise Ratio (S/N) - Amount of video or audio noise mixed in with the basic signal. The higher the signal-to-noise ratio (the more signal, the less the noise), the better the quality of the resulting sound or picture.

Simuldat - A DAT recording made during **telecine** in which the production audio is transferred to a DAT whose timecode matches that of the videotape.

Single System - The act of shooting film or video in which the audio is recorded on the same medium as the image. (Video is by definition single-system, although it can also be **double system** if a separate recorder is used.)

Skywalker Sound - The post-production sound company at George Lucas' Skywalker Ranch in Nicasio, Calif., approximately one hour north of San Francisco.

Small-Room X Curve - See **x curve**.

smart Slate - Timecode slate that contains a timecode generator. A "dumb" slate must be fed timecode constantly, either hard-wired or via a wireless transmitter. It is a misnomer to refer to all timecode slates as "smart slates."

SMPTE - Society of Motion Picture and Television Engineers (professional organization)

SMPTE curve - Reproduce equalization curve standard in the U.S. for 35mm mag film.

SMPTE leader - See **leader**.

Snake - A multi-channel audio cable intended for use with microphone level signals or line level signals.

Sound Assistants - Help with various aspects of the recording process.

Sound Designer - In its most common usage, the person who creates special sound effects for films. In its original and perhaps most proper usage, the person responsible for the overall sound of the film in much the same way the director of photography is responsible for picture. This person will usually supervise both sound editing and **re-recording**.

Sound Engineer - Designs sound devices.

Sounding - The act of recording sound on a mag release print. Now obsolete.

Sound Mixer - (AKA location sound mixer) Sound recordist responsible for capturing sound on production, determining microphone types and placement. Primarily focuses on dialogue.

Sound Reinforcement - A general term for the amplification of sound for live performances; also called "PA" for public address.

Sound Stage - Large warehouse-like room where sets are built and films are shot. Not to be confused with a **re-recording** stage.

Sound Technicians - Responsible for keeping recording equipment running properly.

Soundtrack - The sound for a film. Should be used to refer to the CD or other release of the music that is sold to the public but should not be used to refer to the music in the film.

Special Effects - Awkward term often given to sound effects. "Special sound effects" is a useful description, though, for out-of-the-ordinary effects that have to be created.

Spectral Recording - The recording process introduced by Dolby Laboratories in 1986 that offers up to 24 dB of noise reduction (16 dB below 800 Hz). SR is more similar to **C-Type** noise reduction than it is to their previous professional format, **A-Type**, in that it uses sliding-band circuits. S-Type is the consumer version of SR and was introduced in 1990.

"Speed" - Word yelled by the production sound mixer when the production recorder is up to speed (indicated by "flags" on a **Nagra**), indicating to the camera crew and the assistant director that he or she is recording. While both Nagras and digital machines get up to speed quite quickly, the term derives from Hollywood technology in which a common motor system drove cameras and film sound recorders (originally optical, and later either 17.5mm or 35mm **mag**) and sometimes even turntables for music playback.

"Splice" - Incorrect word used by many journalists to describe what picture or sound editors do when they *edit*. In other words, it is bad usage, just as it is incorrect to refer to what journalists do as typing instead of writing.

Split Surrounds - Also known as "stereo surrounds." The nickname of the Dolby 70mm format that gives two surround channels (left-surround and right-surround) on a mono-surround-compatible print. Also stands for the use of separate surround speakers in any sound format, such as IMAX or Showscan, both of which have two completely discrete surround tracks.

Spo - The optimum viewing spot in a theater: always in the center (unless there's an aisle there!), and usually about halfway between the projection booth and the screen (this depends on the length-to-width ratio of the room). Spo first came into usage during the mix of *Apocalypse Now*. Among the more common variants are "spo meter," the Radio Shack Sound Level Meter (Cat. No. 33-2050) used industry-wide to measure SPL.

Spoach - To arrive early at a movie theater and get the best seats for you and your yet-to-arrive friends. See **spo**.

Spot - In film sound, the act of listing the sound effects or music required for a scene. Also, the general act of reviewing the film with the director to determine work that will be needed on the soundtrack. For example, spots for a car chase scene would be tire skids, auto accelerating, auto suspension bumps, etc. The next step is to audition and **pull** specific skids, bumps, etc., from the sound library.

SR - See **Spectral Recording**.

SR•D - The 35mm digital sound print format developed by **Dolby Laboratories**. It places five full-range digital tracks and one **LFE** track on a 35mm print in addition to an SR analog stereo optical track. The digital recording format—theatrical or home—is more properly referred to as **Dolby Digital**.

"The Stage" - The **re-recording** room and the people contained therein: "The stage has broken for lunch," or "This is a stage rush" (and must be transferred now so the sound editor can cut it ASAP).

Stage Sync - How close in (or out) of sync the **foley** or **ADR** is when it is recorded.

Stems - The three or more final components of a stereo film mix, usually comprising three **lcrs** mixes, one each of dialog, music and sound effects that, combined, make up the **final mix** of a film. Minimal (hopefully no) additional level changes, equalization, etc., should be needed to create a **printmaster**, although of course a 6-track print master will have different requirements than a 2-track stereo optical print master.

The separation of elements afforded by stems allows domestic (English-language in the U.S.) mono and **M&E** stereo and mono mixes to be easily derived from the original stereo mix. The word "stem" should not be used for any other element prior to the final mix masters; it is a common mistake to refer to the various **premixes** as stems.

Stereo - Sound recording and reproduction by more than one (mono) channel. In home music reproduction, "stereo" came to mean two channels (left and right), while in the film industry, "stereo" is understood to include surround and center channels in addition to left and right. To avoid confusion, multichannel stereo is often referred to as "surround sound."

Stretched - A recording that has been processed through noise reduction encoding. A stretched transfer involves making a new recording of a stretched recording without decoding and then re-encoding the material. In this manner, a

stretched transfer retains the original noise reduction encoding level. As a rule, it is recommended to *not* transfer stretched because any response error is multiplied by the compression ratio, typically 2:1, of the noise reduction system.

Stripe - Short for "single stripe"; see **mag film**.

String Off - Copying off a track from a multitrack master, usually to single-stripe 35mm **mag film**, in order to facilitate editing. Can be either a noun or a verb. See **regroup** and **layback**.

Studio Sound Recordist - Actual hands-on sound recording work involving monitoring of mix-down and playback sessions with a focus on quality control in the studio.

Subwoofer - A loudspeaker dedicated to reproducing very low bass. Dolby Digital soundtracks provide a separate low-frequency effects (LFE) channel specifically for playback over subwoofers, usually between the range of 20 to 120 Hz.

Supercardioid - A variation of a cardioid pattern which is similar to a hypercardioid but has a slightly lower front-to-back ratio. While sensitivity at the rear (180 degrees) is actually less than a hypercardioid, its sensitivity at the sides (90 degrees and 270 degrees) is greater.

Super 35 - Widescreen film format that makes use of the full width of the 35mm film frame (including the area normally occupied by the **optical soundtrack**). Therefore, there can never be any 35mm **EK neg** prints from a Super 35 negative. An **interpositive** from the full-aperture original negative is enlarged to an **anamorphic** internegative when the aspect ratio is 2.40:1.

Supervising Sound Editor - Pulls together various dialogue, effects and music tracks, sometimes in charge of dialogue, music and effects editors and sometimes singly handling those chores.

Surround Channel - The single track that feeds multiple speakers usually placed on the walls of a theater. Today's digital formats all have two surround channels, for the left and right sides of the auditorium. In standard motion picture practice surround channels are used for ambient information primarily.

Surround sound - The reproduction of ambience, atmospheres, and occasional special effects that are recorded on one or more dedicated channels, and played through speakers placed along the sides and rear of the auditorium to surround the audience.

SVA - Stereo Variable Area. The technical term for the recording format of Dolby Stereo in optical 35mm prints. The term is not used much anymore.

Sweeten - To add a sound to other, previously existing (i.e., cut or mixed) sounds. ("We sweetened the car crash with some dumpster hits.") Should never be used in reference to mixing, although this usage is indeed common, especially in reference to television shows.

Sync - In multi-track tape recorders, a technique where channels on the record head can be used for tape playback while other channels are being recorded. This permits performers to listen to previously recorded tracks and to record additional tracks in perfect synchronization.

Sync Generator - Pulse generator producing the sync signals necessary to integrate the functioning of various pieces of video equipment in relation to each other and the video signal.

Sync Pop - A single film frame of 1 kHz sine wave tone used as a guide to synchronize sound and picture. The pop on the resulting **track negative** creates a visual guide to the negative cutter, who uses it to make a printing start mark. The pop occurs two seconds before the first frame of picture, and thus corresponds to the "2" frame on the sweep-hand SMPTE Universal Leader, which counts down in seconds. On standard film leaders, the number at the pop is "3," because they count down in film footages.

TAP - Theater Alignment Program. In 1983, Lucasfilm Ltd. began an organized process of inspecting selected (mostly 70mm in the early days) prints and theaters for their films and anyone who contracts their services.

Telecine - The process in which film is transferred to video. Telecine occurs at three points in the filmmaking process: 1) When film is transferred to video in preparation for editing on a nonlinear system. 2) When an edited **workprint** is transferred to video to give sound editors a guide with which to edit sound. 3) When an **interpositive** is transferred to a videotape to create a master for home video release.

Temp Dub - Quick mix of a film made during the post-production process, allowing the movie to be screened and evaluated in **double system**.

Thumper - A pure, low-frequency tone (around 30 Hz), triggered by a noise gate keyed to a click track. Used to give dancers the beat of a song while recording synchronous production sound, which can be used once the "thumper" track is filtered out.

THX - Specifications for motion picture sound systems and projection licensed by Lucasfilm Ltd. (Various parts of the home video chain, including laserdiscs and home theater equipment, are also licensed.) The only part of the theatrical system manufactured by Lucasfilm is the speaker crossover network; other parts, such as amplifiers and speakers, must be on the "approved" THX list. Installation procedures in a THX theater also must follow rigorous Lucasfilm specifications.

The name is a *double entendre*, partly being derived from the name of George Lucas' first feature film, *THX-1138*, and partly as an acronym standing for Tomlinson Holman's eXperiment, as he was the person responsible for the system design and philosophy.

To clear up a few misconceptions: THX has nothing to do with the recording of sound on a print, and therefore is not a competitor to **Dolby Stereo** or any of the digital release formats. Films do not "play in THX," and there is no such thing as a "THX film." Also, it has nothing to do with whether or not the soundtrack has been edited or mixed by the staff of Lucasfilm Ltd. and its **Skywalker Sound** facility.

Time Code - Frame numbering system developed by SMPTE that assigns a number to each frame - divided into hours, minutes, seconds, and frames.

Todd-AO - a) The **70mm widescreen** process developed by the promoter Mike Todd in association with the American Optical Company. b) The Hollywood-based film sound company.

Top Sheet - See **binky**.

Track - The path of a recorded signal on film, tape or disc. Audio on tape is ordinarily along a straight longitudinal track; video on tape is ordinarily along a helical or diagonal track; the track on a disc is a spiral.

Track Negative - Standard laboratory terminology for the soundtrack negative. "Photographic sound" might be more by the book, though.

Transducer - A device that converts one form of energy to another. A microphone transducer converts acoustical energy (sound) to electrical energy (the signal).

Trombone Gobble - Classic sound effect used when Warner Bros. cartoon characters are hit in the head.

TTL - (Transistor Transistor Logic) - Circuit design used in digital components.

Two-Pop - See **sync pop**.

Type C Printer - Industry-standard printer, originally manufactured by Bell & Howell, for the slow-speed (up to 180 feet per minute) manufacture of film prints.

UHF (Ultra High Frequency) - Television transmission on channels 14 through 83.

Ultra Stereo - The stereo optical process designed to be compatible with standard **A-type Dolby Stereo** prints.

Unadvertised Specials - Sounds that appear on a track but whose presence is not noted by the **cue sheet**.

Uni-Directional - Microphone less sensitive to sounds arriving from the sides and rear, picking up sound mainly from one direction.

Unit - A single reel of edited **mag film**, corresponding to a given picture reel. The unit can be made up of either single-stripe or fullcoat **mag film**, and will almost always contain **fill leader** in certain sections in order to maintain sync.

Variable area - The technical term for the analog optical soundtrack whose width varies with the sound. A Dolby analog optical soundtrack sometimes is referred to as an SVA track, for "stereo variable area." An earlier type of optical track, variable density, varied the track's photographic shading (rather than its width) with the sound.

VCR (Video Cassette Recorder) - Acronym for video tape recorder.

VHF (Very High Frequency) - Television transmission on channels 2 through 13.

VHS (Video) - A 1/2" video cassette format. Not compatible with the Beta format which is also 1/2" but differs electronically.

Voice of the Theater - The theater speaker system developed in the 1940s by Altec Lansing Corp. for motion picture theaters, and the industry standard for 40 years until the introduction of direct-radiator speakers such as the JBL 4675 in the early '80s. The basic horn-loaded design dates back to the '30s and speakers manufactured at MGM and The Bell Laboratories. The product line included the single-cabinet A-7 and A-4, and the dual-cabinet A-2 for larger theaters. These speakers are no longer made.

Walla - Film sound slang for the sound of a group of people talking. "Group walla" is when a number of actors will create background crowd sounds in a studio against edited picture.

VU Meter - A meter designed to measure audio level in volume units. VU meters may be calibrated to various "0 VU" standard levels (i.e., 0 VU = -10 dBV, +4 dBm, +8 dBm, etc.). The VU scale may also be calibrated in percent, based on 100% modulation for broadcast transmission. True VU meters should always have a specified standard "ballistic" or pointer reaction behavior, chosen because it provides a good indication of average level as it corresponds to perceived loudness.

Walla - Film sound slang for the sound of a group of people talking. "Group walla" is when a number of actors will create background crowd sounds in a studio against edited picture.

Watt - A unit of measure for electrical or acoustical power.

Wave - A regular variation in electrical signal level or sound pressure level.

Westrex - The sound company that, along with RCA, ruled over film sound for the first 40 years. Its equipment—which encompassed the whole chain from microphones, production recorders, re-recording consoles and machines to optical cameras—was leased to studios in exchange for royalty fees. By the '70s most licenses were not being renewed with the coming of manufacturers of specialized gear: consoles (Quad-Eight), mag machines (Magna-Tech) and stereo processes (**Dolby Laboratories**).

Licensees to Westrex equipment included Paramount Pictures, Twentieth Century-Fox, MGM, **Todd-AO** and Universal Studios. RCA's domain included Republic, Warner Bros. and Walt Disney Pictures.

Wide-Range Curve / Wide-Range Monitoring - See **x curve**.

Widescreen - Film and television picture formats whose **aspect ratio** is wider than 1.33:1.

Wig-Wag - Hollywood slang for the lights outside **sound stages** to indicate when shooting is taking place.

Wild Track - A recording of dialog or sound effects on the set of a film but without the camera running. Wild tracks are

frequently used to get a clean recording of dialog that was otherwise unobtainable because of the noise-production devices (e.g., wind machines) that have to be on during filming.

Windscreen - see **pop filter**

Wireless Microphone - Any of several types of microphones that utilize a miniature FM radio transmitter to send the audio to a remotely located receiver. Wireless mics are common in sound reinforcement and film work because they offer freedom of motion for the performer by eliminating mic cables. Also known as "cordless" mics.

Worldize - To re-record a track (usually music) in the space where it would naturally occur. This "worldized" track (or two) is then mixed together with the dry original.

Workprint / Worktrack - Respectively, the edited sound and picture elements that the picture editor cuts together during editing. They both are invaluable because of the **Acmade** edge numbers (placed by the editorial department on both sound and picture to guide in synchronization) and **key numbers** (placed on the film negative by the manufacturer).

Wow - A low rate periodic disturbance in sound usually caused by regular variation in the rotation of some mechanical component of the recording system. Usually Wow and Flutter are combined. See **Flutter**.

X-Copy - An exact copy of material. See **1:1**.

X Curve - Stands for "extended," as opposed to the "N" (normal) curve, which is the same as the **Academy Curve**. The "X" curve is also known as the "wide-range curve," and is codified in ISO Bulletin 2969. Specifications call for pink noise, at listening position in a re-recording situation or two-thirds of the way back in a theater, to be flat to 2 kHz, rolling off 3 dB per octave after that. This curve is found in all motion picture theaters and re-recording stages worldwide.

The "small-room X curve" is designed to be used in rooms with less than 150 cubic meters, or 5,300 cubic feet. This standard specifies flat response to 2 kHz, rolling off 1.5 dB per octave after that. Some people use a modified small-room curve, starting the roll-off at 4 kHz, with the response down 3 dB per octave thereafter.

XLR-Type Connector - Describes any of several varieties of audio connectors having 3 or more conductors plus an outer shell which shields the connection and locks the mating connectors. 3-pin XLR-type connectors are commonly used to make balanced mic and line level connections in professional audio systems. The XLR-type connector is sometimes called a "Cannon" connector, so named for the original manufacturer.

XMTR - abbreviation for "transmitter"

XTAL - abbreviation for "crystal"

X-Track - Portions of **production track** that are split off into a separate **unit** (or separate track on a workstation) because they will be replaced by **adr**.

X-Y Pattern - A pair of cardioid microphones or mic elements aimed at crossed directions with the mic elements almost touching, feeding two channels for stereo pickup.