Film-Tech

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Film Sound Glossary

Acoustics -- The characteristics, such as how sound is reflected and absorbed, that acoustically differentiate one environment from another, such as a living room from a concert hall.

Ambiance -- Low level sounds that set a mood or suggest the character of a particular place.

Analog vs. digital -- The difference between analog and digital sound is explained best in terms of the analog and digital soundtracks on the Dolby Digital print shown in Figure 1.

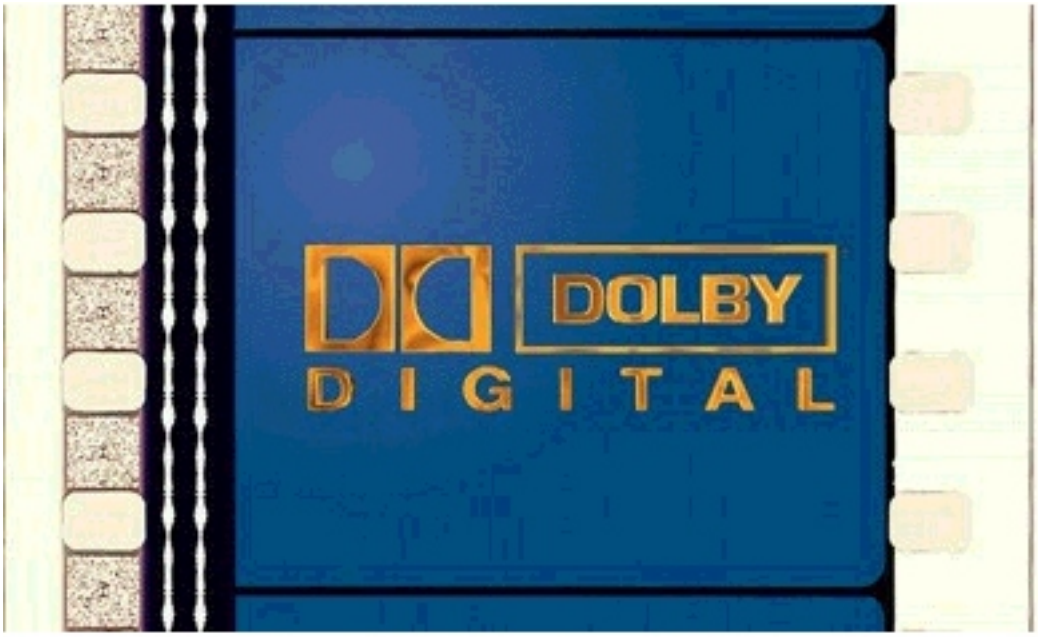

Figure 1

The width of the analog soundtrack varies in a way that is directly analogous to the varying soundwaves of the original sound. All analog formats have an equivalent varying parameter, such as the strength of the magnetic field on recording tape, or the side-to-side swings of the groove on a phonograph record. When played back, the varying width of the track is translated to a varying electrical voltage which ultimately causes the theatre's loudspeakers cones to move back and forth to recreate the original sound.

With a digital optical soundtrack, points along the soundwaves of the original sound are assigned a numeric (or digital) value, which are represented as tiny dots on the track. These values can also be recorded as magnetic pulses on tape, or as microscopic pits on CDs. When a digital track is played back, the numeric values are converted to the varying electrical voltage needed to drive the speakers.

Digital sound can be of very high quality, and resistant to wear and tear. Without sophisticated techniques such as the Dolby AC-3 process used on Dolby Digital prints, however, it takes much more space to record or transmit digital sound than analog.

Atmospheres -- Low level background sounds, such as wind or traffic noise, 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.

Dolby AC-3 -- The multichannel coding technology used on Dolby Digital films soundtracks and the new Dolby Digital (Surround AC-3) laser discs, by the upcoming US High Definition TV system, by the new DVD, and in numerous cable and satellite applications.

Dolby noise reduction -- Complementary (record-play) signal processing systems developed by Dolby Laboratories to reduce the noise inherent in recording media without affecting the sound being recorded. Dolby A-type noise reduction is the original professional Dolby system and is used on Dolby movie soundtracks, while the Dolby B-type, C-type, and new S-type systems are for consumer formats such as the audio cassette.

Dolby Stereo -- Dolby Laboratories' original motion picture system, wherein Dolby A-type noise reduction was used in the recording and playback of movie soundtracks. Dolby Stereo represents 4 channels of sound (see the definition of Stereo below) with Dolby recording equipment used to combine the four channels used in the studio into 2 channels for placement on the film, and then Dolby playback equipment used to convert the 2 tracks on the film back into 4 channels of sound in the cinema. Today the term has come to represent and umbrella term for Dolby film sound technologies.

Dolby SR (spectral recording) -- The most powerful analog Dolby system, used for the analog soundtracks on all Dolby Digital prints and on many analog-only releases as well. It not only provides greater noise reduction than the original Dolby A-type system, but also permits recording a wider frequency range, particularly at high signal levels.

Dolby SR•D -- The term the film industry uses to identify 35 mm release prints containing both an analog Dolby Stereo SR ("SR") and Dolby Digital ("D") optical soundtracks. The term is sometimes misused to identify just the Dolby Digital format or presentations.

Dolby Digital -- The multichannel digital format used in cinemas and in consumer delivery systems such as home theatre (including laser discs), HDTV and DVD. The format uses Dolby's AC-3 audio compression technology to derive the required digital audio bit streams.

Dolby Surround -- The home surround-sound format derived from Dolby Stereo film sound.

Dolby Pro Logic -- The more advanced form of Dolby Surround that not only recovers the surround information from encoded program material, but also adds a center channel to keep dialogue and center effects firmly positioned on the television screen. Pro Logic permits a wider listening/viewing area, provides better channel separation, and gives more accurate sonic perspectives.

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

Dynamic range -- The range between the loudest and softest sounds a sound format or system can reproduce properly.

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

Foley -- The art of recreating incidental sound effects, such as footsteps or rustling clothes, in sync with

the picture. Named after one of its first practitioners.

Magnetic soundtrack -- Narrow stripes of oxide material (similar to the coating on recording tape) that are added to a developed release print, then recorded in real time with the film's sound. For playback in the theatre, projectors are equipped with magnetic heads like those on a tape recorder. Introduced in the 1950s to provide stereo sound in the cinema, magnetic offers very high sound quality. The prints themselves and theatre maintenance are costly, however, so today there is just only one magnetic format remains, six-track 70 mm.

Mix -- The blend of dialogue, music, and effects which comprises a film's soundtrack. Also, when used as a verb, the process of to assembling and balancing these elements electronically, thereby creating the final soundtrack.

Optical recorder -- The machine that transforms a completed mix on magnetic tape 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 -- A photographic strip adjacent to the picture on a 35 mm movie print, varying in some way with the variations in sound (see Figure 1). Analog optical soundtracks vary in width, while digital optical soundtracks have patterns of dots (see **Analog vs. digital** and **Variable area**). Because optical soundtracks are printed at high speed at the same time as the picture, the release prints are economical, as opposed to magnetic prints whose soundtracks are recorded in real time as a separate step.

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 to create electrical signals for the theatre's loudspeakers to convert back to sound.

Printer -- A machine that exposes raw film stock to negatives of the movie's soundtrack and picture, at speeds up to twenty 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**).

Release print -- The actual film played in the theatre. 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 played at 24 frames per second and prints are recorded at 16 frames per foot.

Stereo -- Sound recording and reproduction by more than one (mono) channel. In home music reproduction, "stereo" means two channels (left and right). In the film industry, however, "stereo" is understood to include a surround channel. Proper movie stereo also has a center channel to keep on-screen dialogue centered for viewers seated off to the sides. Thus Dolby-format stereo film presentations comprise at least four channels, with left, center, and right speakers behind the screen, and surround speakers at the rear and sides of the auditorium. Other so-called "stereo" presentations, however, may consist of no more than a single mono speaker behind the screen with some surround speakers at the back.

Since "stereo" came to mean two channel sound in the home, this is why Dolby's film sound technology could be identified simply as Dolby Stereo for the film industry, and why a new term, Dolby Surround, was needed to identify multichannel home sound reproduction.

Subwoofer -- A loudspeaker dedicated to reproducing the very low bass. Dolby Digital and 70 mm magnetic soundtracks provide separate bass effects channels specifically for playback over subwoofers

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

THX -- A trademark licensed to movie theatres and manufacturers of home theatre products, identifying compliance with the performance parameters of Lucasfilm Ltd. for commercial and home theatre sound systems. Unlike Dolby's focus on soundtrack formats and processes, THX develops standards for the playback evironment, regardless of film format. THX-certified theatres use professional Dolby cinema processors for playing Dolby soundtracks (which is why both logos can appear on the same theatre marquees), and all THX-licensed home theatre systems are based on Dolby Pro Logic Surround decoding.

Time Link -- A high-quality, yet economical, digital audio delay technology developed by Dolby Laboratories and used in some Dolby Surround decoders.

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." Another type of optical track, variable density, was tried at an earlier time, which varied in photographic shading with the sound, rather than in width.