

Quickie glossary of audio terminology

What they mean—just in case you are a bit puzzled by one or another of the buzz words often used—but not always correctly—in discussions about audio

Azimuth See head alignment

Base A thin, strong and flexible material, usually a polyester or acetate film, on which is deposited a magnetic formulation to make recording tape.

Bias An electrical signal of relatively high frequency applied to magnetic tape during the recording process, along with the audio signal, to permit the recording of higher (treble) frequencies, ordinarily not possible because of customary magnetic characteristics of all recording tapes. The bias frequency is several times higher than the highest audible frequency the recorder can accept, in the range of 60 kiloHertz.

Capstan A revolving shaft or flangeless pulley which drives the tape by squeezing it against a pinch roller, and which controls the rate at which tape passes over the heads of the tape recorder or deck.

Cassette A compact shell housing a miniature reel-to-reel tape system. It retains the flexibility and freedom of moving back-and-forth provided by a reel system and eliminates the inconvenience of tape threading. The compact elements of the system make for additional convenience.

Chromium Dioxide A special tape formulation that has certain advantages in high-fidelity cassette recording. Because of this oxide's very specialized bias requirements, it requires a special switched bias circuit when recording.

Crosstalk Unwanted sound that comes through from an adjacent tape track or from some other program source, such as the fm receiver. Crosstalk is usually at a low level, but can be very annoying, and should be remedied before any recordings are made. Often, crosstalk between tape channels is caused by poor head alignment.

Cueing The marking or other identification of particular points on sections of tape, to aid in the location of specific, desired selections or portions of

the recording. This may be done with grease-pencil or other markings directly on the tape or by making use of the digital index counter, where one exists on the recorder.

Decibel A unit of relative intensity of sound or an electrical signal, used for comparing the loudness of two different signals (e.g. one may be 20 dB greater than another), often expressed with reference to some fixed, arbitrary level (e.g. zero dB). A difference of one or two dB is generally considered the smallest that can be differentiated by the ear.

Degausser See demagnetizer.

Demagnetizer A component or device for removing undesired magnetism that builds up with use in the heads of a tape recorder.

Distortion Falsification of sound in reproduction. Extraneous tones or signals not present in the original sound constitute distortion, but the term may also broadly include noise, hum and peaks or dips (exaggerations or depressions) in the frequency response—in short, any departures from the original.

Dolby Name of a noise-reduction system available as a special circuit on some stereo cassette tape decks. Use of this circuit when the tape is recorded and during playback can reduce hiss level by as much as 10dB.

Domains See particles.

Dropout The momentary bias or reduction in level of a recorded signal caused by an imperfection in the magnetic coating on the tape at the point where that signal is recorded.

Dubbing Copying of already recorded material. In tape recording, playing a tape or disc on one machine while recording it on another. The copy is called a dub.

Echo An instantaneous repetition of the sound heard in playing some tapes or other recordings. This is caused by print-through

Equalization Reshaping the playback characteristics of a recording during playback mode. The simplest way is to adjust the treble and bass controls, but true equalization requires continuous adjustment of the

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playback frequency response curve at several points. A graphic equalizer is often used for this.

Flutter A rapid, extraneous variation in the pitch or frequency of a sound, usually caused by mechanical deviation in an element that should maintain constant speed. In tape recording, this may be caused by a faulty mechanism or by momentary sticking of the tape as it feeds through the transport and past the heads.

Frequency The number of cycles or complete alternations per unit of time of an oscillation. In music and sound, this corresponds to pitch (See Hertz.)

Frequency Response The relative sensitivity of a system, particularly any audio equipment, to different frequencies within the range it handles. With ideal or flat frequency response, all signals in the range receive the same degree of emphasis in passing through the system. Where there is deviation from flat response, some frequencies are emphasized or de-emphasized more than others.

Gap See Head

Harmonic Distortion The production of spurious frequencies, not present in the original sound, that are multiples of the original sound frequency. For example, a 100-Hertz tone in the original may produce spurious tones of 200 Hz, 300 Hz, and so on. The result is an audible blurring or loss of clarity in the reproduced sound. Total harmonic distortion of no more than 1 per cent is considered to be inaudible.

Head An electromagnetic device, usually consisting of a ring-shaped metal core wound with coils of wire, in which the continuity of the core is broken at one place, called the gap. Tape touches the head at the gap as it moves past it. A reproducing or playback head senses signals already magnetized (recorded) on tape and transforms them into electrical impulses which are then amplified and fed to a loudspeaker. A recording head accepts electrical signals and transforms them into magnetic impulses that are deposited on tape passing the head gap. An erase head, which the tape usually passes just before it reaches the recording head, demagnetizes the tape to remove previously recorded signals. Most cassette recorders use a single, combination record/playback head.

Head Alignment Adjustment of the recording or reproducing head so that it's at right angles to the longitudinal axis of tape. Also called azimuth alignment.

Hertz The unit of measurement of frequencies or cycles per second.

Hiss See Tape Hiss

Intermodulation Distortion The production of spurious frequencies, not present in the original sound, that result from the interference or interaction of two (or more) sound signals that simultaneously occur in the original. These generally are sum and difference frequencies. For example, a 200-Hz and 75-Hz signal may occur at the same instant. If the equipment is prone to intermodulation distortion, these two may interact to produce a spurious 125-Hz tone. Often abbreviated: IM distortion.

IPS Inches per second, the designation of tape speed
Leader A section of plain, nonmagnetic tape, usually plastic, affixed to the beginning of a length of recording tape. Attached to the end, it is called a trailer.

Monitoring Listening to sounds while they are being recorded, either in the form of the input signals going to the recording equipment or in the form of the already recorded material instantaneously being played back from the tape. Monitoring may also refer to adjustments (of volume, balance and the like) made during such listening.

Noise An undesirable and extraneous sound not found in the original live sound. Sometimes lumped with distortion, but different from conventional forms of distortion, which represent alterations in the nature of the original sound. Noise occurs independently of the original sound and may exist when there is no input signal.

Overloading Application to a system of more signal than it can handle, thus producing unacceptable distortion.

Particles Also known as domains, these small bits of oxide are the recording media on the tape. The smaller and more uniform they are, the better the tape's frequency response, provided they are evenly dispersed.

Peak The maximum level of a sound or electrical signal.

Polyester Base A plastic film material widely used as a backing for magnetic tape.

Print-Through The transfer of magnetization of recorded sound from one layer of tape to immediately adjacent layers of the wound tape. Print-through usually is encouraged by overloading during recording. The audible effect of print-through is echo.

Saturation The point where no more magnetic signal can be accommodated by either a head or by the tape; any additional signal beyond saturation causes distortion. Usually, the zero VU position on the VU meter indicates the point of saturation, although with TDK tapes, the saturation point is actually in the red "danger" area.

Signal-to-Noise Ratio The ratio, usually in dB, between the level of the loudest undistorted tone that can be recorded and the noise that is generated and recorded when no signal is present.

Tape Drive The motor and associated mechanism that pull the tape past the heads of playing or recording.

Tape Hiss Sibilant background noise heard when a tape is played. Although some of this noise is directly attributable to irregularities of the oxide coating, some also is contributed by the recording circuitry.

Trailer See Leader.

VU Usually used with meters, the volume unit is an arbitrary sound-level standard related to the decibel, and is used for calibrating recording levels on the tape equipment.

Wow A slow periodic change in the pitch of frequency of a sound during recording or playing, usually produced by mechanical deviations in the tape transport. Also see Flutter.