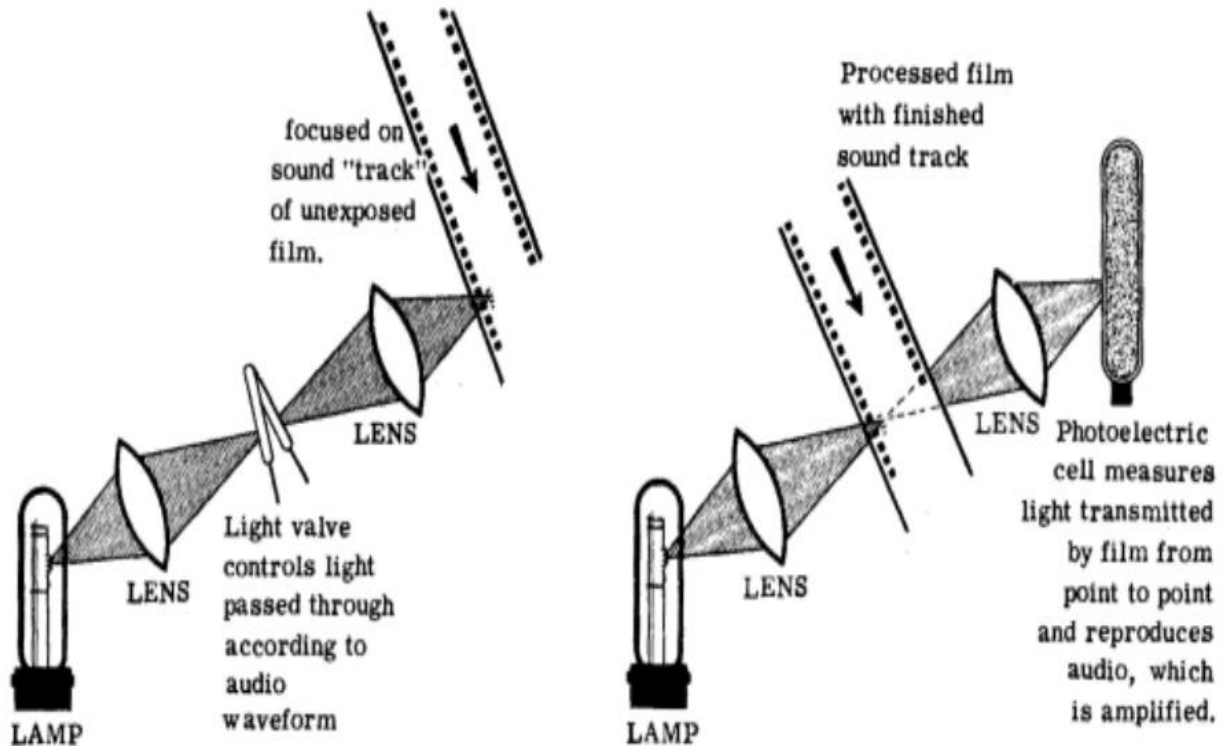


# Fundamental recording techniques

## **Recording Technique Tips for Vocal Recording**

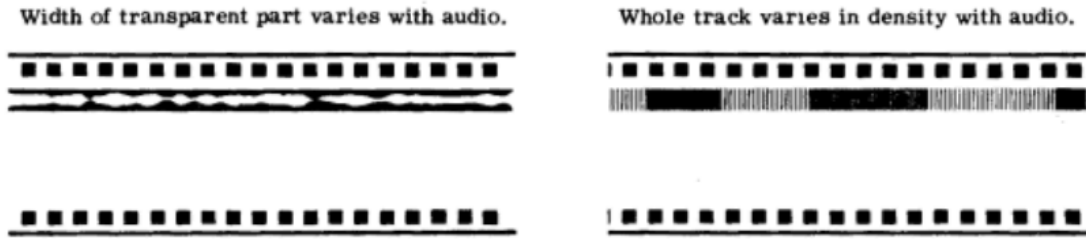
1. Make sure the singer is well rehearsed, physically comfortable, and under no psychological pressure. Most singers perform best standing up in a room that has a comfortable but not over-warm temperature
2. Take time to get the vocalist's headphone mix right, and give them a little reverb to help them sing more confidently. If you can rig up a system which allows vocalists to adjust their own monitor level, it will make life a lot easier. A good headphone mix really helps to encourage a good performance.
3. Always use a pop shield between the singer and the microphone. Failure to do so will almost certainly result in unnatural 'pops' on plosive 'b' and 'p' sounds that can't be fixed afterwards.
4. Use a good microphone: it doesn't have to be anything too special, but you should avoid low-cost 'bargain' models or those designed for use with home stereos or portable cassette recorders. Professional studios generally use capacitor microphones, but in the project studio a good back-electret mic or even a good dynamic vocal mic can produce excellent results.
5. Pick a mic to suit the singer. Singers with thin or excessively bright voices may actually sound better with a dynamic mic, such as the ubiquitous Shure SM58
6. Use the right mic pickup pattern: most project studio vocal recordings are made using a cardioid or unidirectional mic, as these pick up less sound from the sides and rear. However, an Omni mic of a similar quality generally imparts a more natural,. If you work a couple of inches closer to an Omni mic, you'll get close to the same 'direct sound to room sound' ratio you'd achieve with a cardioid.
7. Put the mic at the right distance, because if you get too close to it you'll increase the risk of popping and the level will change noticeably every time the singer moves slightly. As a rule, a mic distance of around six to nine inches (15-24 centimeters) is ideal.
8. Minimize the room's influence on your sound. The mic picks up both direct sound from the singer and reflected sound from the room. Reduce the room's contribution by keeping away from the walls and by improvising screens using sleeping bags or duvets behind and to the sides of the singer.

## Optical Recording



Film recording is usually achieved photographically by producing an exposure on the film proportional to the instantaneous audio. This is accomplished by means of a light "valve" that controls the amount of light falling on the film as it passes by a slot. In playback, the same film, with the recording photographically reproduced on it, is scanned by means of a photoelectric cell, the output from which is amplified by an audio amplifier.

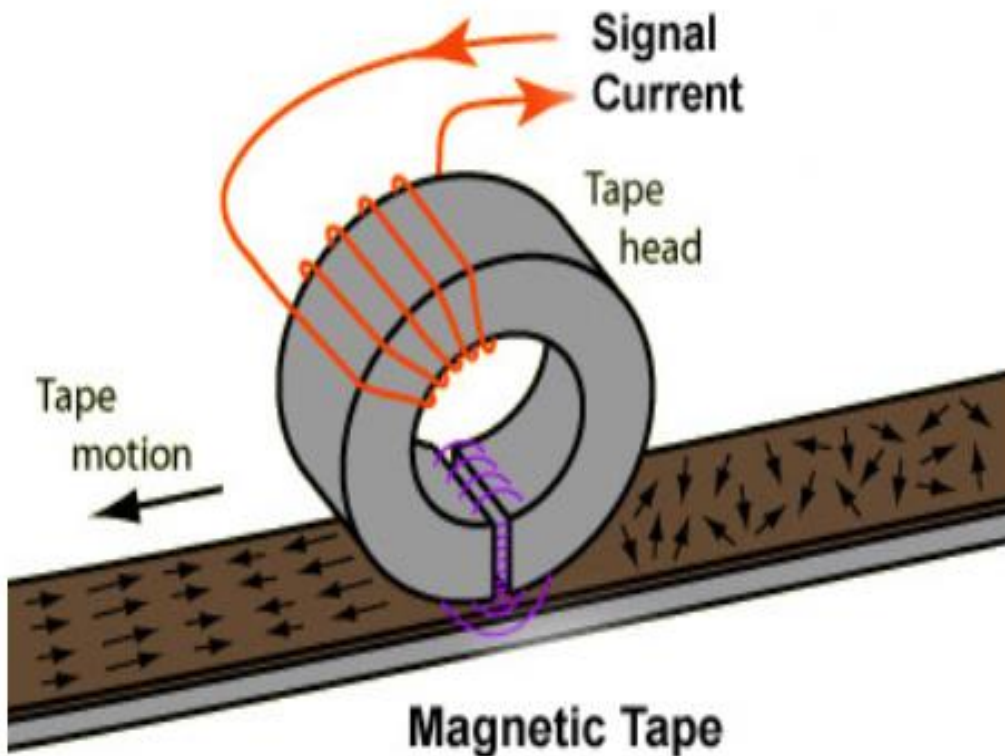
Because the photoelectric cell is sensitive to the quantity of light, the sound track on the film can vary either in the area through which light passes or in the transparency (**density**) of the film. Both methods have their uses, their advantages and disadvantages, which are concerned more with light and optics than with audio. As with the other methods of recording, special equalization is required on playback.



Sound For optical recording on film there are two methods utilized. Variable density recording uses changes in the darkness of the soundtrack side of the film to represent the sound wave. Variable area recording uses changes in the width of a dark strip to represent the sound wave.

Electrical signal has been converted as light Energy by photoelectric cell and thre light energy which is going to stored in sound negative or film.

# Magnetic sound Recording



High fidelity tape recording requires a high frequency biasing signal to be applied to the tape head along with the signal to "stir" the magnetization of the tape and make sure each part of the signal has the same magnetic starting conditions for recording.

Sound signal can be stored on tape in the form of magnetized iron oxide or chromium dioxide granules in a magnetic emulsion. The tiny granules are fixed on a polyester film base, but the direction and extent of their magnetization can be changed to record an input signal from a tape head. Sound energy has been converted as electrical energy by microphone. An electrical energy which is going to stored or recorded in magnetic tape according to the ac bias current.

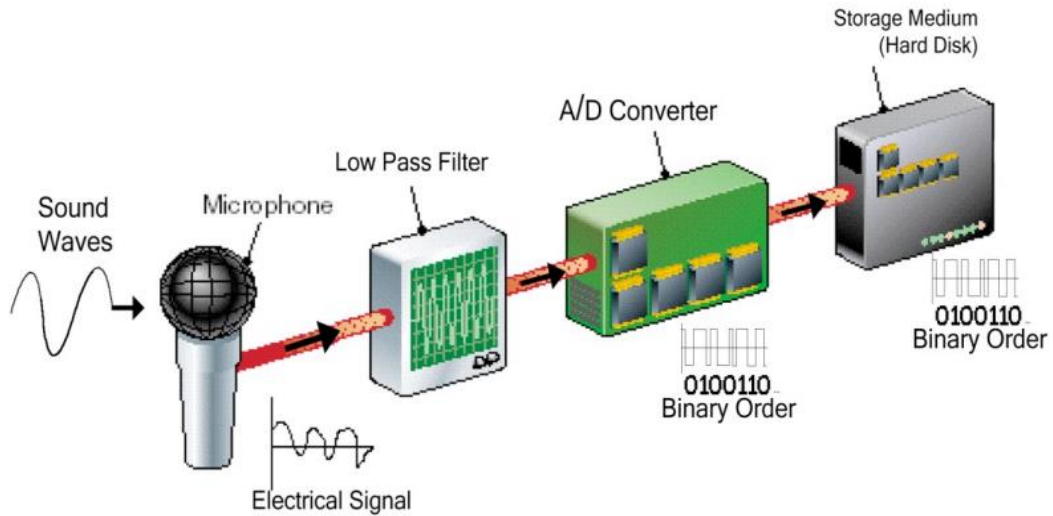
## Digital recording

The most common digital sound recording method is pulse code modulation OR (PCM)

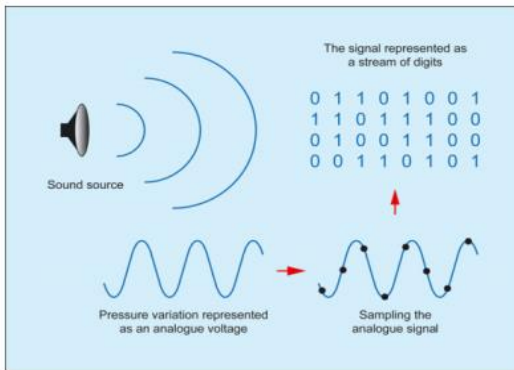
### Process of Digital recording

1. The sound signal from your audio mixer is run through a low pass filter which removes all frequencies above 20 kHz
2. Next, the filtered signal passes through an analog-to-digital (A/D) Converter. An Analogue to Digital (A/D) converter converts analogue signal into a digital number. This converter measures sample the voltage of the audio wave form several thousand time
3. Each time wave form is measured, a binary number made (1, 0.s) is generated that represents the voltage of the wave form at the instants its measured this process is called quantization. Each 1 and 0 is called a bit, which stands for digit.
4. The binary numbers are stored on the recording medium as a modulated square wave recorded at maximum level.
5. Storage of digital data can be performed on magnetic tape, optical disk, magnetic disk, or RAM (Random Access Memory)

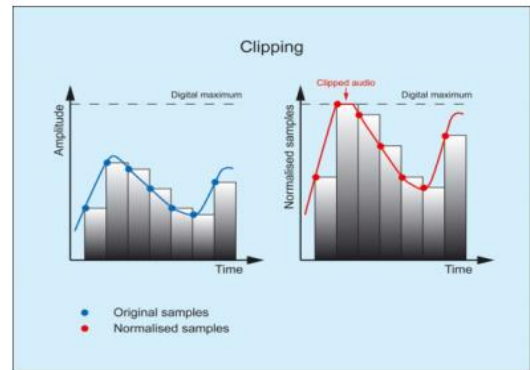
## Block Diagram Of Digital Recording



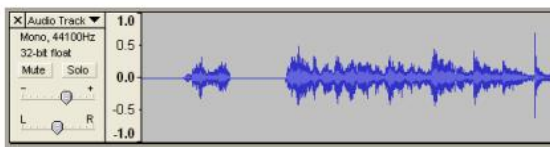
### Sound signal with binary order Conversion



### Digital signal after A/D



### Mono Recording



Mono recording is recording that is done on one single channel. This is in contrast to stereo recording, which is recording done on two separate channels composing of left and right sound

inputs. Mono mixing is useful when only one source has been recorded a recording with a single microphone.