

Recording Basics: Analog Recording

Basic Information:

- Analog is a continuously variable signal
- A physical quality in the medium is directly related to the physical sound
- Tape has a dynamic range of 50-70dB (depending on NR applied)
- Copies/Regenerations lose quality
- Linear editing= fast forward and rewind...

Before Recording to Tape:

- Reference Calibration: tape operating level and the amount of saturation desired
- Repro Head Alignment (playback): adjust tape speed at different frequencies
- Sync Head Alignment (record): adjust tape speed at different frequencies
- Bias calibration: set according to manufacturer's specs for each track

Complexity:

- Calibrations are done using a reference tape, vu meters, and an oscilloscope
- Must overcome hysteresis by using bias (different amount for each tape)
- Saturation: tape can no longer get louder, starts erasing high frequencies
- Dolby Noise Reduction: boosting/reducing high frequencies when recording/playing at quiet levels in order to improve the s/n ratio
- Quality affected by surface area and tape speed (15ips to 1-7/8ips, 2" to 1/8" tape)
- Time Instability: clock reference is from AC power- differs between machines
- Mechanical Problems: slippage/fluctuations due to capstan and pinch roller, reel back-tension, reel distribution