

EQ

Equalization may best be thought of as a spectrum shaper. An equalizer is basically a tone control and consists of a filter, which can either cut (decrease) or boost (increase) the volume of an audio signal. Typically, an EQ affects only those frequencies specified by the user. For example, if you want to brighten the tone, you can boost only the upper frequencies. However, keep in mind that when you change the level of certain frequencies, there is not an abrupt change in that frequency range, but a gradual change up to that frequency range. So, frequencies bordering the targeted frequencies will also be impacted to a certain degree. The change in frequency levels behaves in a progressive manner so that a natural curve is created. This produces a much more musical result.

When boosting certain frequencies keep in mind that a boost of more than 15-18db will result in distortion. Therefore, it is important that care be taken to have a hot signal when recording. Then you only need to worry about cutting frequency levels. Use a very sparing amount of EQ. It's main use is to reestablish a sound's natural sound that may have been altered by bad wiring, poor recording technique, or even old strings on an instrument.

Keep in mind that bright sounds seem closer and dark sounds seem farther away. This will have strong implications in the mixing stage.

Types of EQs:

- (1) Shelving – A shelving EQ doesn't try to remove frequencies, but boosts or cuts the signal level above or below a certain frequency. This frequency boost or cut gradually flattens out. The greater the frequency boost or cut, the steeper the curve.
- (2) Bandpass – Affects only a certain band of frequencies, leaving outside frequencies unaffected. It is therefore usually used on midrange frequencies. The Bandpass EQ consists of a frequency control used to target the center frequency, a cut/boost control used to decrease/increase the volume of the frequency determined by the center frequency control, and, usually, a Q control which narrows (sharpens) or widens the bandwidth (the bandwidth is the frequency range 3db below the peak frequency). A sharpened Q will result in more bazaar sounds, as the targeted frequency will really "pop" out abruptly.
- (3) Sweep EQ – A type of bandpass filter with a fixed Q and adjustable center frequency (or cutoff frequency). Frequently found on studio mixing boards.
- (4) Parametric EQ – Very flexible but difficult to learn. Like a Sweep EQ with a variable Q.
- (5) Graphic EQ – Consists of a collection of several fixed frequency bandpass filters. It may use constant Q or constant bandwidth filters (normally 1/3 of an octave). Less precise than other types and therefore more useful for live applications.