

Limiter

Limiters are used to stop a signal's amplitude going over a certain level. In FM, the larger the signal's amplitude, the more bandwidth the transmitted signal takes. If an FM transmitter is overmodulated (with large amplitude signals,) its frequency can shift too much, causing interference with other transmitting stations. This overmodulation also sounds very bad

on receivers designed to handle only a certain amount of bandwidth. Limiters protect the transmitter from receiving audio signals over a certain amplitude and can protect the transmitter from overmodulation. Figure ' ' shows a signal before and after going through a limiter. The large amplitude signal is compressed down to the limiter's limit value while the smaller amplitude signal is unaffected.

Some CD's are louder than others just as some voices are louder than others, even with careful adjusting of the mixing console it is easy to overdrive, thus overmodulate the transmitter. Accidents like dropping the mike or running the needle over the record can also cause large amplitude signals to reach your transmitter, unless of course you are using a limiter. Limiters like compressors can be built around compandor IC's.

Low Pass Filtering

If you look at Figure ' ' you will notice that the main channel (L+R) has a range from 0 to 15 kHz, and that the suppressed carrier sidebands are each 15 kHz in length. This is the maximum frequency response of a FM system. It is desirable to run the audio into a low pass filter with a cutoff of 15 kHz so that higher frequency audio doesn't interfere with the stereo pilot or cause excessive sidebands in the stereo subcarrier. Even if you are broadcasting a monophonic signal, high frequencies can effect a stereo receiver causing 'false' stereo by turning on the stereo decoder with energy that falls around 19kHz. Figure ' ' shows a typical filter response used for conditioning audio signals to be feed into a transmitter. If a stereo signal is being transmitted 2 filters, one for each channel is needed.

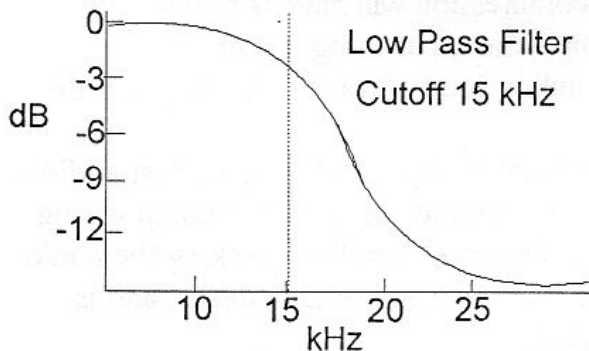


Figure X

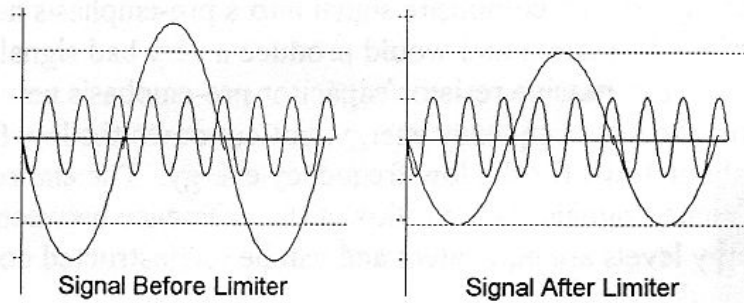


Figure X