

From : <http://tech.groups.yahoo.com/group/TacTAudioUsersGroup/message/27325>

**Re: flat target curve???**

McIntosh Labs explained why you don't want a flat response 25+ years ago when they manufactured several analog equalizers that they sold with their speaker systems(see brief writeup below). You can find the curves mentioned below in my files on TAUGSOA:

<http://tech.groups.yahoo.com/group/TAUGSOA/files/Keiths/>

"A loudspeaker system could be adjusted to measure an acoustically flat frequency response across the entire audio range of 20Hz to 20,000 Hz. However, this type of system almost always sounds too bright. There are several reasons for this effect which include human hearing, recording methods, and the acoustics of the living room and concert hall.

How the ear hears, differs from typical measuring techniques in ways that can be misleading. Most measurements combine the effects of the direct sound from the loudspeaker with the multiple room reflections or reverberation. Since typical room acoustics accentuate low notes and attenuate high notes, the response of a good loudspeaker will automatically take on a downward slope in a typical listening room. The ear, however, places more emphasis on the direct sound that has arrived unmodified from the loudspeaker. Equalizing the overall response (both direct and reflected) to flat would give a strongly rising character to the important direct sound and an overall bright sound quality.

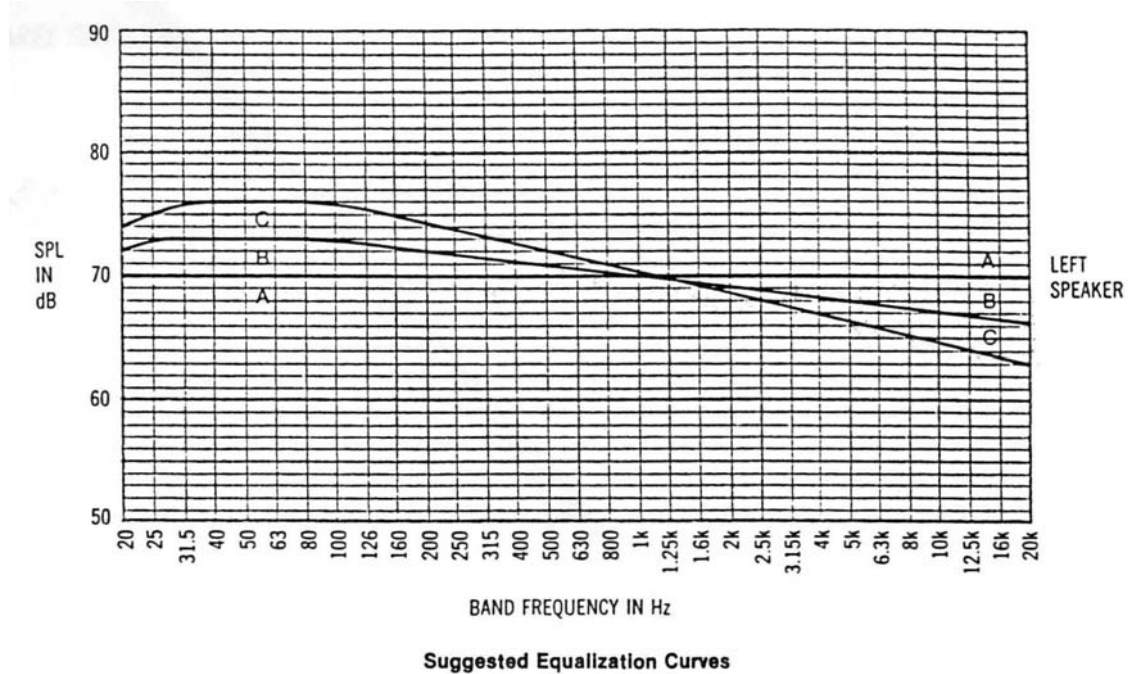
Additionally, most recordings are usually made with the microphones relatively close to the instruments. This is done to avoid including too much of the ambience of the recording studio or concert hall acoustics in the original recording. However, it is common practice in recording classical music to place additional microphones well back from the instruments in order to intentionally pick up a certain amount of the concert hall reverberation. The outputs from these "Far" microphones in then blended in a precise amount with the output from these "Near" microphones to add a desired degree of liveness and realism to the recording.

Concert hall acoustics will modify live sound and cause a gradual rolloff in high frequencies. This reduction of high frequencies is due to the absorption and losses in air, and increases as the distance from the instruments increases.

Typically home listening rooms are much smaller than a concert hall and the loudspeakers are much closer to the listener than the instruments in the concert hall. These smaller room dimensions result in much less high frequency attenuation from the loudspeakers to the listeners. The effects of reflected sound are also more pronounced in the smaller listening room.

When recordings made with mostly "Near" microphone techniques are reproduced in a home stereo system, they produce a much brighter sound than that heard in the original concert hall. The listening room does not furnish the gradual high frequency rolloff that occurs in the larger concert hall.

Room equalization therefore involves elimination of the most obvious peaks and dips in response, as well as a general contouring of the overall frequency response. The curves in the graph below have been compiled from listening tests, room measurements and concert hall measurements. These curves are intended only as a guide to establishing the desired system response in the listening area.



Generally, a person who listens to classical music will prefer a response between curves B and C. A person who likes contemporary or rock music may prefer a response between A and B. A person who listens to both rock and classical will usually prefer curve B."

Keith