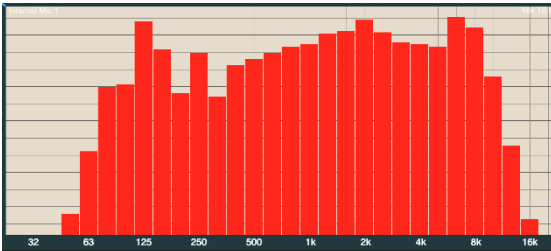


Pink Noise vs White Noise – Which works best with Audio?

Pink Noise consists of equal energy per octave – while White Noise consists of equal energy per frequency. Human hearing perceives frequencies and sound intensity on a “Logarithmic Base 10” scale where the threshold of perception occurs at a “doubling” of levels – rather than on a “Linear” type of scale. This makes the Logarithmic scale an excellent “means” to represent the broad range the human ear can perceive in terms of loudness. With this being said - Pink Noise is best suited for Audio System Tuning / Acoustical Measurements due to how humans perceive sound on a Logarithmic scale. System tuning (referred to as tuning a room), acoustical measurements, and testing the Frequency Response of individual speakers are types of measurements performed by Audio Technicians with many years of training and experience.



This is an example of what a Spectrum Analyzer display looks like with Pink Noise running through a sound system. This is a typical view of a system prior to starting the “tuning” process.

Pink Noise is also used to test the Frequency response of speakers as well. The Frequency response curve to the right is from an individual speaker measured with Pink Noise. You want to get as close to a “Flat” response as possible with any equipment you are measuring or system tuning using pink noise.

Important Note: If the musicians are out of tune or hitting the wrong notes, the instruments are of low quality, or the singers are singing out of tune – no amount of system tuning or Equalization setting can fix it.

Garbage In – Garbage Out

Tuning a Room – Basic Example

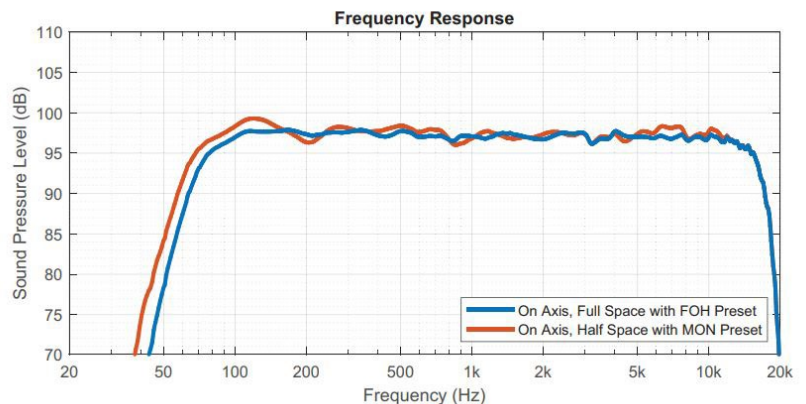
In order to “Tune” a room properly, you will need the following: Pink Noise Generator, Measurement Microphone, a Spectrum Analyzer, and a 31-Band Graphic Equalizer (or a computer that is loaded with a Spectrum Analyzer / EQ based Software).

While running pink noise through your sound system, you will notice on your Analyzer where there are “nulls” (quiet spots) or “boosts” (louder areas) within the frequency range. You would next raise or lower the frequencies (adjust your 31-Band EQ) until you get as close as you can to a “Flat” response.

Once satisfied with the flat response curve (shown below), you will use your “ears” to finish tuning the room. When finished and the Equalizer is all set, you need to “Lock Out” the Equalizer so no one can tamper with it or adjust it. Now you will need to use your “ears” when adjusting individual Music Tracks (Stems) or Microphones, and only adjust the “individual channel” EQs on the mixing board from this point on.

Frequency response:

ElectroVoice
MFX-12MC



Courtesy of ElectroVoice

AVCSS Tech World
Basic Audio & Technical Information