



## Tip #25 Do It 'till It Hertz

The consumer electronics business is famous for throwing around all kinds of industry-specific terms. We love that, don't we? Admit it: When you're at your sister's house for Sunday dinner and your brother-in-law—that wise-guy-lawyer—comes up to you with yet another tale of how much money he just made on his last case, isn't it great fun to send him off with his eyes spinning as you tell him:

"Well that's great. But I have to tell you, your plasma TV's aspect ratio setting is incorrect at 4:3—it should be 16:9. Oh, and by the way, your receiver isn't set correctly for .1 LFE operation. There's a very high level of THD coming from your subwoofer. Also, your bass crossover is too high at the factory-default 120 Hz. It's misadjusted by an octave. That means your sub-harmonic fundamental frequencies are highly localizable, which really ruins your imaging across the front L-C-R stage.

Apparently since you're not a particularly experienced listener, none of this bothers you too much, does it?"

Wow. That'll shut him up. Now, we're going to give you a few definitions of basic audio terms, just in case he comes back with some more questions.

### Crossover (or Crossover Network)

A circuit that directs high, mid, and low frequencies to a specific driver. Loudspeakers employ an internal crossover to send the highs and lows to the correct driver.

A-V receivers have what's called a bass management crossover that sends low frequencies to the subwoofer, and the higher frequencies to the main speakers.

### Frequency and Hertz (Hz)

The rate of vibration or oscillation of sound waves in the air, measured in Cycles per Second (Cycles per

Second is commonly abbreviated "Hertz," or Hz.). The frequencies audible to humans range from 20 Hz in the bass to 20,000 Hz (20kHz) in the treble.

### LFE (Low Frequency Effects) Channel

This is the ".1"-channel in a 5.1 or 7.1 Home Theater System. The LFE channel contains only very low bass effects, such as explosions and collisions. The .1 channel is typically reproduced by a powered subwoofer.

### Octave

A change in frequency in a ratio of 1:2 or 2:1. Middle C on a piano keyboard is 440 Hertz. The C one octave higher is 880 Hertz; the C one octave lower is 220

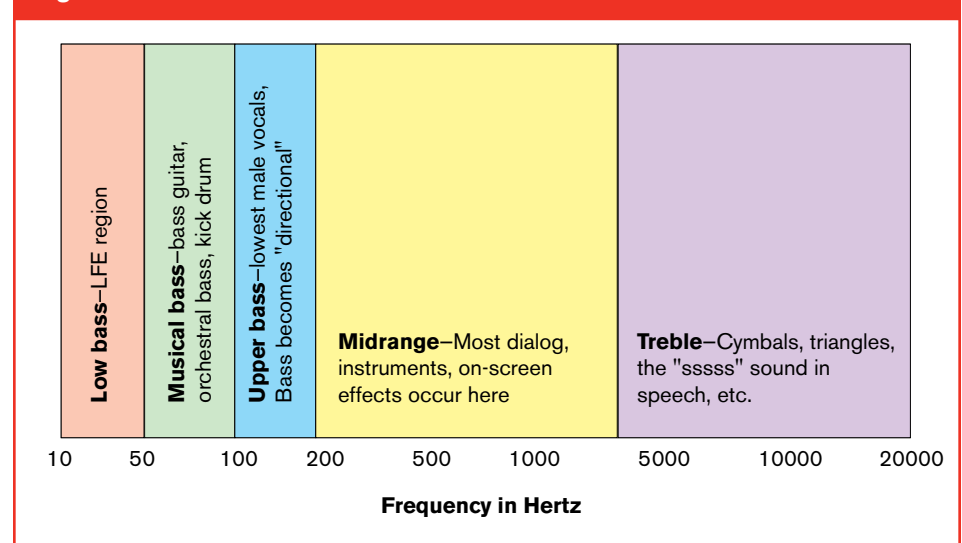
Hertz. There are approximately 10 octaves that are audible to the human ear.

### Total Harmonic Distortion (THD or % THD)

Unintended signal products generated by an audio device such as a speaker or amplifier that are whole number multiples of the original signal. THD is the sum total of all harmonic distortion products in the output of an audio device, measured as a percentage of the original signal.

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Figure 1



Audible frequency Range

### Other Tech Tips:

Tip 21: Always set to small

Tip 22: Difference from 6200 to 6200e

Tip 23: The Devil's in the Details

Tip 24: How much power do I need?