



## Tip #21 Always Set the Speaker Size to 'Small'

Don't confuse 'Speaker size' with the adjustable subwoofer crossover frequency of your receiver. Regardless of the actual size of your main speakers, ALWAYS set the speaker size selector on your receiver to 'SMALL.'

Trust us on this one—ALWAYS set it to 'SMALL.' By doing so, you will ensure that all the bass in the front, center and surround channels is directed to the subwoofer—where it belongs. An 80 Hz subwoofer crossover is a good place to start. Most high-quality speakers will work nicely with this crossover.

Most receivers have user-selectable crossover frequencies, from perhaps 40-160 Hz. If you are using large main left-right speakers, you could set the crossover to 50 or 60 Hz so your main speakers will contribute some bass (still set the Left-Right speakers as "small," however). This really frees up subwoofer placement, since very low bass frequencies (below 60 Hz) are virtually impossible to locate by ear. (See Figure 1)

However, if you have one of those "mini" satellite systems where their little 2" drivers couldn't reach down to 80 Hz in their dreams, you'll have to set the crossover to the upper end of its range—about 160 Hz—to relieve the sats of the strain of trying to reproduce frequencies in the 80-160 Hz range. By setting the subwoofer's crossover to 160 Hz, you avoid the dreaded "acoustic hole," which robs music and dialogue of its weight and body.

The bad thing is the higher you set the subwoofer's crossover frequency, the easier it is to "localize" (detect its location by ear), greatly reducing your sub placement flexibility. *That's why those cutesy-little micro-sats are a bad choice for serious home theater.*

Since most powered subwoofers also have crossovers built into them, it's best to bypass their internal crossover and avoid "competing crossovers" between the subwoofer and receiver, because overlapping crossovers will cause all kinds of electrical/acoustic "interference."

For those hotshots who think their main speakers are so good you don't need no stinkin' subwoofer (in other words, you selected "Subwoofer-No," and "Left-Right speakers-Large" from your receiver's set-up menu):

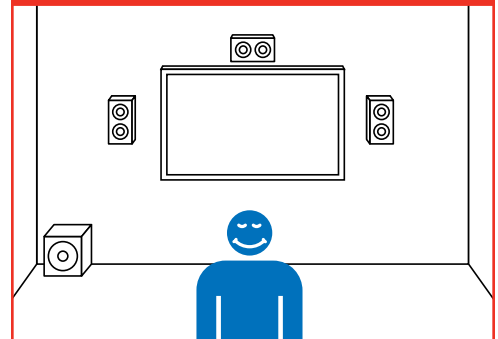
**Bad move! Always use a Sub!**

Two **very** bad things happen when you select "Subwoofer-No" from your set-up menu:

1. You lose the ability to control the LFE/Sub level from your listening chair. One of the best things about using a powered sub is that your receiver's remote lets you adjust the sub level from your seat, while the program is playing. Very handy.
2. When you select "Subwoofer-No," the LFE bass channel is folded back into the L/R channel signal, but it could be at a -10dB level compared to the separate ".1" channel. In other words, depending on how the receiver manufacturer chooses to handle this scenario, the really impressive bass effects might be **CUT IN HALF** in loudness by the receiver. And to make matters even more confusing, the typical receiver's owner's manual completely ignores the subject of how to set the LFE level when you've chosen "Subwoofer-No." (See Figure 2)

The "Subwoofer-no" setting is **NOT DESIGNED** to feed your 7-foot tall audiophile speakers with a full-range signal so you can show them off. For the best home theater bass, select 'Subwoofer=yes,' and 'Speakers=small.'

**Figure 1 A low crossover to the sub is good**



With a low sub crossover, all the sound, including the bass, seems to come from the satellite speakers.

**Figure 2 Selecting 'Speakers-Large' and 'SUB-NO' is a BAD IDEA!**



LFE bass is cut in half, no remote control—that's not what you wanted!

### Other Tech Tips:

Tip 17: Mix 'n Match

Tip 18: Difference from 8200 to 8200e

Tip 19: What is Clear Filter Technology™?

Tip 20: Surround without Speakers