

Tip #19 What is Clear Filter Technology™?

Yeah, OK, we're guilty of it too. Most hi-tech companies can't resist using those 3-letter acronyms to make every little thing they do sound so impressive. LRT. DVC. MTM. CFT.

However... if there's just one of those 3-letter *initialisms* we'd like you to understand, this is the one: CFT™.

CFT (Clear Filter Technology) makes our subwoofers sound extra sharp, detailed, and articulate. It's one of the main reasons why our subs—which are really great to start with—sound that much better. It's a classic example of Atlantic doing things a little better than most everyone else—clever, practical, and inventive. Makes other people think to themselves, "Why didn't we do that..."

Here's the situation: Any physical object has a resonance, a point (based on dimensions or weight) at which it will ring and emit sound. Bells are a good example: They resonate at a pitch—high or low—depending on their size. Rooms have bass resonances that correspond to their dimensions. These room resonances can work together to either reinforce or cancel out certain bass sounds, usually in ways that degrade the overall sound quality of the playback system.

Another very important element has a direct influence on bass sound quality: The subwoofer's enclosure. Other manufacturers won't say so, but to avoid having refrigerator-sized cabinets, subwoofers must use cabinets that are smaller than the driver requires for best performance. To compensate, speaker designers electronically boost ("equalize" or EQ) the extremely low frequencies to "trick" the driver into thinking it's playing in a larger enclosure. That's how small powered subwoofers produce deep bass. (See figures 1 and 2)

Ah, but no free lunch! If simply boosting low frequencies solved this problem, wouldn't that be nice. Unfortunately, that's not the case. In fact, the small cabinet itself has a deleterious effect on the subwoofer's sound. Without getting into a lot of technical mumbo-jumbo, the small dimensions of the cabinet conspire to produce audibly intrusive interference.

However, a powered subwoofer is what engineers call a "closed system." We control all the variables—the woofer, the amplifier/equalization, and the enclosure. So if we know how the enclosure affects the sound (and we do), we can correct it in the amplifier's EQ—because we control the amp's design. (See figure 3)

That's Clear Filter Technology™. It filters out the enclosure's bad effects, assuring clean, articulate bass reproduction at all times. Don't be fooled by other companies' "limiters," "feedback loops" or other distortion-reducing circuits. These work fine as far as they go, but they don't go far enough.

That's why other subwoofers, regardless of their power ratings or limiters, can't match the detailed, musical sound of an Atlantic subwoofer.

Clear Filter Technology (CFT) was developed for our award-winning THX Ultra2 System 8200, but is now found in all Atlantic subwoofers, regardless of price.

Other Tech Tips:

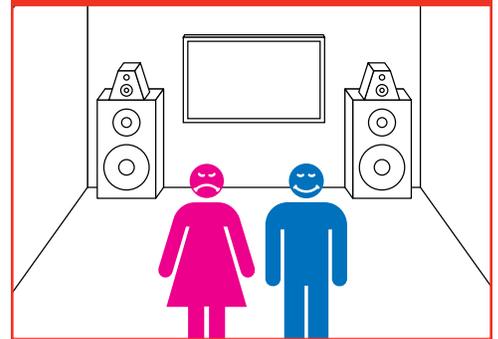
Tip 15: Subwoofer Placement

Tip 16: Why MDF?

Tip 17: Mix 'n Match

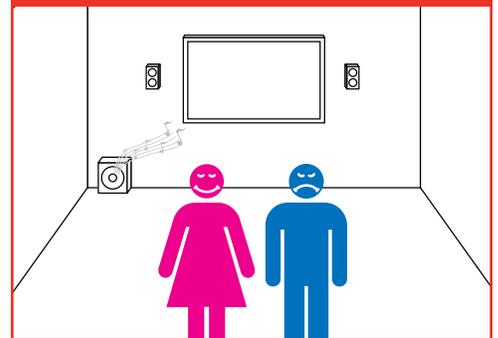
Tip 18: Difference from 8200 to 8200e

Figure 1



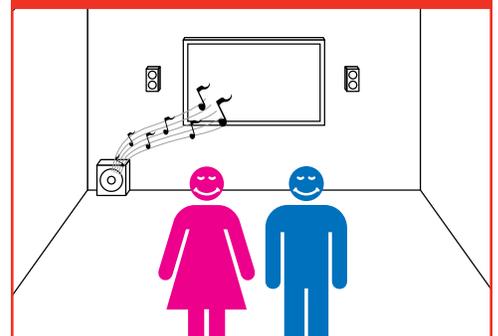
Big bass normally requires huge, ugly speakers

Figure 2



Conventional subs can sound muddy

Figure 3



Atlantic's Clear Filter Technology produces great bass sound