Subject: Subwoofer Setup
Posted by Barryso on Sun, 08 Jul 2018 13:34:43 GMT
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My high school photography instructor was the one that got me into audio. Don't know if he did me a great favor or not but ...

His audio room is particularly boomy. He's been running his system with several subs for a few years ever since he heard what multiple subs could do to help reduce room modes.

The trouble is that he's just added subs and set them up in a conventional manner. Everything below 80 hz to the subs and everything above 80 hz to the speakers. The one sub in the rear was way too high in it's crossover point. There was one seat in the room where it all came together reasonably but the rest of the room was just a mess.

He's said on many occasions that running the speakers full range with the front subs was too boomy so he's been hesitant to let me try the sub setup Wayne suggests. But he finally gave in and last night we went to work.

The speakers are now running full range. The front subs are at 90 hz with the volume down a bit from where they had been. The back sub is now at 40 or 50hz which is much lower than he had it set. We had to jump through a few hoops to get the phase setup right and once that was done the whole thing just snapped into place.

He was pretty skeptical before we started as he's been fighting the room for decades. But he was stunned at the change. You should have seen the look on his face.

There are still differences between the different seats in the room but they are all far better than with the old setup. The seat in the sweet spot is better, too. The huge boom you'd hear when you walked toward the speakers is gone. It's a major improvement no matter where you sit in the room.

We spent hours going through all sorts of music and he's pretty happy.

Congrats Wayne, you've fixed another room.

Subject: Re: Subwoofer Setup
Posted by Wayne Parham on Sun, 08 Jul 2018 16:57:59 GMT
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That's great to hear, Barry. Thanks for the feedback!

As you and I have discussed, I'm a big proponent of multisubs but I consider the flanking sub aspect to be an additional requirement. I think that distributed multisubs by themselves only solve part of the problem. Actually, I don't just think that, I can see it in measurements.

Some would say the upper end of the modal region - the top octave or so - is less problematic than the lower end. Their argument is usually that the modes are becoming closer and closer together, acting more like the reverberent field.

But this transition region is where I would argue is the most troublesome range. It's not just room modes that are a problem in the transition region but also self-interference, which is similar to room modes but not exactly the same. They occur in the lower vocal range, where our ears are becoming more sensitive. And because of that, we can't just put sound sources anywhere like we can with the distributed multisubs. The higher frequency is more localizable and our ears are more sensitive to anomalies in this range. So it's a tough frequency range to address, but one that's very important to do.

That's why I love the flanking sub + distributed multisub configuration. The flanking subs are two of the multisubs, but their more tightly coupled relationship with the mains allows them to mitigate problems above 80Hz as well as to smooth room modes below 80Hz.
Room modes, multisubs and flanking subs
