Subject: Flanking subs
Posted by jon anderson on Tue, 14 Jan 2020 21:20:14 GMT
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Wayne,

I know this has been rehashed a lot but I am a newbe so to speak. My plan is to build 2 of the 3 subs for the 4's that I am building right now. My plan is to put them in my spare rectangular bedroom that is approx 14x18. I was going to put them in the corners, and run the 4's on stands about 3' from the side walls. From the reading that I have done on the subject here, am I correct to assume that I can run plate amps with DSP on each sub, and cross them over at about 100 hz?

Also, you guys seem to all be looking at graphs and freq responses etc. Forgive me for being ignorant, but is there an easy way to read the graphs? All I have ever known is if a speaker goes from say 25 hz to 30 khz? You don't have these written like this on the site. How do I read what a speaker can do from these impedance graphs?

I would almost bet that I am not the only ones that wants to know this but was afraid to ask?

Thanks in advance for your help.

Jon

Subject: Re: Flanking subs
Posted by Wayne Parham on Tue, 14 Jan 2020 23:40:45 GMT
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Your flanking subs should work well there. I visualize the mains on stands, toed-in 45°. The flanking subs are just outside, on the floor. Each of the mains and its flanking sub are pushed out nearly to the side wall. This is a good setup. Then put the other sub far from the mains, maybe at the opposite wall midpoint or in a random location in the room. Make it a coffee table, perhaps.

If that's what you are going to do, I think your setup will sound quite nice. Run the mains full range, with no crossover at all. Send each flanking sub a low-passed copy of the signal sent to the main speaker it is flanking. The low-pass should be 100Hz, second order. A miniDSP does this very easily, and it can be connected to a plate amp. But if you have an external crossover - the miniDSP - be sure that you can disable any crossover in the plate amp. You don't want two crossover filters in line.

If you have a sound processor of some sort, the distant multisub can be sent the LFE channel. If not, send it a summed signal that is low-passed at 50Hz, fourth-order.

Understanding loudspeaker charts isn't hard, but interpreting the data can be. The ideal speaker given a set drive voltage would provide equal SPL from a very low frequency, say 20Hz, and it would generate the same SPL all the way up past 20kHz. It would provide this over a specific

horizontal and vertical angle, say 90° x 40°. Outside that, the speaker would not geneate sound, so you could put the sound exactly where you wanted it without unwanted reflections. The ideal impedance chart would be a flat line of fixed impedance from DC (0Hz) all the way up in frequency beyond audibility. There is also distortion to consider - various kinds of distortion, actually - and ideally the loudspeaker would have no distortion of any kind.

You can find a write-up about what I think matters most in loudspeakers in the whitepaper called "High-Fidelity Uniform-Directivity Loudspeakers." Also, you might search this forum (and the internet) for threads on the audibility of distortion, constant directivity, and loudspeaker impedance fluctuation. There is a lot to learn about what matters most in each of these aspects.

Subject: Re: Flanking subs
Posted by jon anderson on Wed, 15 Jan 2020 00:02:24 GMT
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Ok, I have a plate amp in mind that has DSP built in, can that be used? also, am I understanding that there
are 3 subwoofers total, 2 on each side of the subs and another one on the other side of the room?

Subject: Re: Flanking subs
Posted by jon anderson on Wed, 15 Jan 2020 00:04:13 GMT
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Is the 3rd sub the multi sub?

Subject: Re: Flanking subs
Posted by Wayne Parham on Wed, 15 Jan 2020 00:39:27 GMT
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All three subs are multisubs. The two nearest the mains are flanking subs and the distant one is a distributed multisub.

Check that your plate amp DSP can support 100Hz second-order and 50Hz fourth-order Butterworth slopes. I'm sure it does, but check it out before buying. Setup the flanking subs with 100Hz second-order and the distant subs with 50Hz fourth-order.
Multisubs and flanking subs

Subject: Re: Flanking subs
Posted by jon anderson on Wed, 15 Jan 2020 01:22:09 GMT

Perfect!

Got it now, sorry for the confusion.

Appreciate all the help.

Will let you know when I get it all set up, should be prodigious!

Jon