Subject: Flanking subs with multi-sub optimizer, and other questions
Posted by ooheadsoo on Thu, 24 Dec 2020 01:19:21 GMT
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I intend to mate my mains (ported, tuned around 50hz) with an old Hsu Research vtf-2 (ported, tuned around 25hz). For use as flanking subs, I currently have two Dayton RSS265HF-8 woofers on each side, each pair of woofers in a Linkwitz specified W-frame cabinet, i.e., dipole.

My plan A is to do the least amount of work (and spend the least amount of money) and use the W frames as is - 4th order high passed around 35-40hz and low passed at 120-150hz, 2nd order. They will be placed as close to the wall as possible with the cancellation axis perpendicular to that wall. I have no measurements to support the viability of placing low frequency dipoles against the wall in this manner, but Linkwitz recommended this placement as a potentially useful one in his build plans. The mains will be around 2 feet from the front wall, to keep the front wall cancellation away from the ~50hz crossover to the subwoofer and closer to the passband of the flanking subs. This also keeps the mains closer to the wall and out of the way of mischievous toddlers. I intend to flip the mains upside down so that the center of the woofer is around 48" from the ground. I figure this gives a little better separation from the flanking subs. I have a minidsp nanodigi 2x8, as well as 2x4hd available for DSP duties.

I guess here are my very long-winded questions:

1. Any opinions on using the dipole bass cabinets as flanking subs? I'm not very well versed, technically, but SPL spreadsheets seem to indicate to me that I shouldn't have spl or excursion issues at 90-95ish db, which I don't exceed. That said, it's feasible for me to (perhaps in a couple months when a birthday comes by) move to plan B and pick up a pair of inexpensive car subwoofer cabinets and convert the low frequency dipoles to a pair of standard dual 10" monopole sealed subwoofers. I can find a pair of these assembled cabinets shipped to my door for under $200, with minimal modifications to fit my drivers. The benefit I see to that is being able to apply linkwitz transform and get somewhat distributed sub-30hz performance at the cost of some wattage, but I'm not sure if it is worth it. The Hsu sub already delivers sub 30hz performance, and I'm not sure it would be easy to integrate the ported Hsu with 2 sealed sources within such a small frequency range. Should I try to LT with a target q=1 to better match the Hsu?

2. Modelling in WinISD shows that the phase is likely all over the place since the flanking subs have such gradual crossover slopes, while the mains have a vented enclosure. It really looks like the flanking subs will be 140-180 degrees out of phase with the mains. (Again, I'm not technically savvy, I'm just trying to make sense of the graphs that WinISD is throwing at me.) I know Wayne has said many times elsewhere that the 3D offset is intended and dense interference is the ultimate goal, but should I be worried at all that it looks like the flanking subs could be 180deg out of phase around the frequency range I most want it to fill in the gaps? I will play with taking measurements and for sure try inverting polarity if I see a FR issue, but was curious if there was a best practice when mixing and matching different slopes, 2nd order in particular, I suppose.

3. In the vein of taking measurements, does anyone have experience using multi-sub optimizer to optimize flanking subs, or is it considered not worth the effort? I have the minidsp units already, so it wouldn't cost anything to implement it other than time the kids aren't making a ruckus. Which is precious.

Subject: Re: Flanking subs with multi-sub optimizer, and other questions
Posted by Wayne Parham on Thu, 24 Dec 2020 02:52:51 GMT
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Dipole subs will give more than one phase - which is actually good for breaking up the room modes - so I would expect good things from this kind of setup.

Please report back what you find.

Subject: Re: Flanking subs with multi-sub optimizer, and other questions
Posted by ooheadsoo on Thu, 24 Dec 2020 05:56:16 GMT
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I'll start assembling the mains next week and see if I can report back with listening impressions after some time.

Subject: Re: Flanking subs with multi-sub optimizer, and other questions
Posted by Wayne Parham on Thu, 24 Dec 2020 15:38:06 GMT
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Sounds good. I've always used monopole direct-radiating subs for flanking subs and multisubs. Hornsubs are just too large and dipoles aren't in my wheelhouse. But I would think dipoles might just work very well for various flavors of multisub setups, so I'm interested to hear what you discover.

Subject: Re: Flanking subs with multi-sub optimizer, and other questions
Posted by ooheadsoo on Thu, 24 Dec 2020 18:13:49 GMT
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I have proven to myself over and over again that my short term listening impressions are laughably unreliable. I also appear to have a challenging room. I will try not to post anything within a month or so of initial system setup, particularly as the mains (I chose diysg htm-12s over 4Pis solely for reasons of budget and still got into trouble :?) will be brand new to me.