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Subject: Re: Amp for 4pi speakers

Posted by [Wayne Parham](#) on Tue, 27 Nov 2018 18:21:45 GMT

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It looks like you've done a very good job already, and I have no doubt you'll tweak your system further to make it even better still.

Congratulations!

You're "working with what you've got," which is what 90% of us have to do. High-quality uniform-directivity loudspeakers help a great deal here, but we're still hostage to room acoustics. That's what you're fighting, but you've done a great job.

I'm not particularly concerned with the amplifier you choose. It will serve you well provided it is a good quality unit that is used within its operating range, e.g. not overdriven and pushed into clipping. So choose your amplifier based on quality and features.

I see you're having the most trouble below 100Hz, and flanking subs aren't effective in that range. They can increase extension but cannot smooth room modes below 80Hz. The flanking sub configuration is intended to smooth the upper midbass and lower midrange, which is partly influenced by high-frequency modes but mostly affected by self-interference from the wall behind the speakers and side walls that are very near. Those boundaries cause a deep notch, usually in the 100Hz to 150Hz region, and this is too high for more distant multisubs to mitigate.

You may find that you do have a notch or two above 100Hz, and that a higher-resolution measurement would expose them. In fact, I think I see evidence of that in the dip around 120Hz. The measurement system likely smoothed a deep notch there, making it appear to be wider but less deep than it really is. Flanking subs would smooth that.

But for the region below 100Hz, distributed mutisubs are the best cure. You'll want to place subs far from the mains, and low-pass deep enough to prevent localization. Of course, the farther away they are, the more important it will be that low-pass be deep and steep. This, of course, limits their ability to smooth the higher-frequency room modes. You may have to limit the distributed subs to 60Hz to 80Hz, and that leaves the range above 80Hz unmitigated.

This is why I find a blended approach to be the best solution. Funny, I'm proposing a "blended approach to subwoofer blending." :lol:

Use flanking subs and distributed multisubs. The flanking subs can't smooth the modes below 100Hz by themselves, but when combined with a couple distributed subs placed some distance away, smoothing is very effective. Distributed subs are limited by localization problems, and so must be low-passed too low to smooth modes above 80Hz or so. Flanking subs are limited by close proximity to the mains, and so cannot achieve effective smoothing below 80Hz or so. But together, they can smooth the whole modal region.

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