Subject: Subwoofer amp and crossover
Posted by Ybolg on Sat, 24 Sep 2022 20:14:43 GMT
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Hi,
I'm really interested in building a pair of 8pis with a pair of 3pi subwoofers. I've done a light search of the forum and haven't found much on subwoofer amp recommendations.
Also, what crossover frequency would be recommended for such a setup? Am I correct in assuming that a matching high-pass filter is not recommended?

I'm planning to use these alongside an EL34/KT88/KT120 amp based on the Oddwatt designs.

Subject: Re: Subwoofer amp and crossover
Posted by Wayne Parham on Sat, 24 Sep 2022 20:51:38 GMT
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I would suggest using a flanking sub approach. Do a search for "flanking subs" here and on the internet at large. Lots of good information about it.

To describe in a nutshell, flanking subs are basically stereo subs with specific placement and crossover slope. Each sub is placed a couple feet beside, behind and below the main speaker it's flanking. The mains are run full range and the subs are crossed relatively high - generally 100Hz second-order - so they blend with the mains in the 80-150Hz region. They blend lower too, but at deep bass frequencies, flanking subs are acoustically close to the mains, so we aren't getting anything "special" from them. It's the upper midbass and lower midrange that is significant to flanking subs, because they provide modal smoothing and mitigation of SBIR in this region.

Also search for "multisubs." These are placed further away from the mains and they smooth lower frequency room modes. Multisubs can be used with flanking subs for the smoothest in-room response.

Subject: Re: Subwoofer amp and crossover
Posted by Ybolg on Thu, 29 Sep 2022 13:19:19 GMT
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Wayne,
Thanks for the tip. Now I've gotten the deep dive on flanking subs and have a better idea of what I'm doing. With the idea of blending in that range I can understand the 12dB instead of 24dB taper.

My understanding is the subwoofer Amp isn't super critical. So something like a Dayton plate amp is probably ok. Looks like the DSP is preferred as hopefully it'll allow for crossover slope control as well as frequency. Do you have any suggestions on power? I don't know if I need to match/go

over the 400W rating on the 3pi, or if 250W is fine. I'd be running flanking 3pi subs on a pair of 8pi horns powered by KT120 PP amps (oddwatt style) running 30-50W.

Subject: Re: Subwoofer amp and crossover
Posted by Wayne Parham on Thu, 29 Sep 2022 13:30:44 GMT
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The mains are about 8dB louder than the subs, given the same power. So you'll ideally want 8dB more gain and power available for the subs. That's about six times the power applied to the mains.

Subject: Re: Subwoofer amp and crossover
Posted by Ybolg on Thu, 29 Sep 2022 13:49:20 GMT
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So a 250W sub amp matches to about 40W on the mains. Next real step up on the amp is 500W, so I'd be capping the 400W sub giving me headroom for 66.7W from the mains. Makes sense, and that about matches the max I'd be trying to push through my mains with my experimentation.

Thanks!!

Subject: Re: Subwoofer amp and crossover
Posted by Wayne Parham on Thu, 29 Sep 2022 14:17:33 GMT
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Yes, I agree.

In addition to increasing power to the subs, don't forget to also increase gain. That may have been obvious to you, but maybe not, so I thought I would mention it. You can either increase gain at the sub amp or attenuate the mains with a preamp-level voltage divider on the main amp.
