Subject: 2 Pi Towers and thwack
Posted by Barryso on Fri, 04 Jan 2019 17:21:46 GMT
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Had an interesting fix it session with the stereo. One of the channels wasn't working so there was a flurry of cable swaps to figure out which component was broken and the problem turned out to be in the preamp. A capacitor had come loose and soldering it back into position fixed it. Easy.

In the process of troubleshooting, though, the subs were turned off and the sub wires were removed. The 2 Pi Towers were moved from 15 or 20 inches away from the wall to right up against the wall. Their native environment.

Listening to the towers against the wall was enlightening. It's been while since they were in that spot and they do sound fine by themselves. They were delivering the dynamics that seems to have gotten lost with the subs turned on. And when you lose dynamics with subs that generally means there's too much sub.

Don't know why but I always figured the REL sub in the back of the room had a 24 db crossover, probably because most subs do. Searching the net for the actual slope didn't turn up anything specific but a mention on REL's site about having a gradual rather than a steep cutoff. That means the sub crossover has to go much lower.

Crossed the sub at a much lower frequency and it worked. The towers remain dynamic even with the REL on. Piano once again has the percussive quality that was missing when the crossover was too high.

The towers are once again thwack monsters. All thanks to a loose capacitor.

Subject: Re: 2 Pi Towers and thwack
Posted by Wayne Parham on Fri, 04 Jan 2019 18:45:57 GMT
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Good to know! I learned a couple things from your comments:

1. Your room was overdriven with bass, possibly midbass, when the towers were supplemented with REL subs. Better to omit the subs in that case.

2. The REL subs have a gentle-slope crossover, so they may be suitable for flanking subs. I understand from your comments that they overdrive your room in some way when combined with two Pi towers, but they may still work very well as flanking subs in other setups.

Subject: Re: 2 Pi Towers and thwack
Posted by Barryso on Fri, 04 Jan 2019 23:57:47 GMT

Hi Wayne,

Wish there were 2 REL's in the house but there's just the one.

When the crossover frequency is set really low it seems to add a nice bit to the low end without messing with the mids or the dynamics.

Here was my thinking ...

You've said that a good setup for a distributed sub would be a 4th order crossover set around 60 hz (give or take). That slope would be down 24 db at about 120 hz.

Assuming the REL has a 2nd order crossover and it was set at 60 hz before. The slope would be down 12 db at 120 hz, hence there was too much energy from the rear sub.

Setting the REL to crossover at 30 hz would make the slope down 24 db at 120 hz. Similar to a 4th order sub crossed over at 60 hz.

Sure, there will be a difference between the energy output of the 2nd order slope and the 4th order slope over the same frequency range. But by 120 hz wouldn't they both be reaching the point of no return?

Is this a correct interpretation of what's happening?

Thanks,

Barry

Subject: Re: 2 Pi Towers and thwack
Posted by Wayne Parham on Sat, 05 Jan 2019 17:31:30 GMT

Oh, that's right. You only have one REL subwoofer. I think we discussed that before. So that makes a flanking sub setup with the REL impossible or at least very compromised.

But as far as using as one of a group of distributed subs, you have thought it through the same way I would. If I were working with a gentle crossover slope, I'd simply crossover lower.

You're analyzing the situation very well - Think of the energy that exists in the stop band, visualizing the response curve. At crossover and through the octave or two above crossover. With a second-order crossover, we are only 12dB down an octave above the crossover frequency. It's 6dB down and quite audible for a half-octave above the "crossover point." So if we have an 80Hz second-order crossover, we still have plenty of output at 120Hz where it's only 6dB down. A 100Hz second-order crossover is pretty loud to around 150Hz. These are good audio range

values for a flanking sub.

But for a distant subwoofer, I'd want it to be inaudible by 60Hz to 80Hz. To do that with a second-order slope, I'd choose a crossover between 40Hz and 50Hz.