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Subject: Radian 475PB

Posted by [gofar99](#) on Sat, 05 Sep 2020 21:58:00 GMT

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Hi, has anyone used these on a Seas 15 inch horn and what did you think of the sound. I'm fiddling with a pair and trying to settle on a crossover. It seems that somewhere in the 2500-3000 range with 12 db/oct works well even though Radian says to use 1200 at 12db. Any thoughts? I have had to pad them down about 14 db to match with a Great Plains 15 inch (416-8B alnico)woofer. It is quite linear to nearly 4K HZ.

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Subject: Re: Radian 475PB

Posted by [Wayne Parham](#) on Mon, 07 Sep 2020 17:48:52 GMT

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The biggest thing is to provide the proper SPL level matching and to get the waveguide and midwoofer to sum properly in the crossover region. Here's how I do it:

Crossover optimization for DI-matched two-way speakers

In addition to that, you'll need to add notch filters to tame the peaks inherent to the SEOS waveguide profile. The biggest one is at 3kHz. I'd check with Bill Waslo, who posts as "bwaslo" on various forums. He's very familiar with that device and can probably give you some great advice to dial it in perfectly.

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Subject: Re: Radian 475PB

Posted by [gofar99](#) on Tue, 08 Sep 2020 01:35:52 GMT

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Hi Wayne, thanks for the information. I'm sending a PM.

BTW it is SEOS not SEAS.

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Subject: Re: Radian 475PB

Posted by [Wayne Parham](#) on Tue, 08 Sep 2020 15:03:04 GMT

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I knew you were talking about the SEOS horn/waveguide. I'm familiar with it.

You've got mail! I think between that PM and the "Vertical Nulls" video in the "Crossover Optimization" link above, you'll have all the information needed to optimize the crossover for your speaker very nicely.

Keep us posted!

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Subject: Re: Radian 475PB

Posted by [gofar99](#) on Tue, 08 Sep 2020 16:49:57 GMT

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Hi Wayne, I watched the video. I tested the speakers. Good news. The lower vertical is on the floor 1m in front and the high is roughly 30 degrees above the speaker cabinet center. Well out of the listening area range at my normal position. These speakers they are about 11 feet apart and 14 feet from the listening position. Both unfortunately need to be near the side walls and are against the rear wall. There are just so many places you can put monsters. Fortunately for me they work there and there is a significant amount of damping stuff in the room to cut down on unwanted side reflections. This was for the benefit of the ESLs.

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Subject: Re: Radian 475PB

Posted by [Wayne Parham](#) on Tue, 08 Sep 2020 18:02:52 GMT

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That's awesome, Bruce! The forward lobe is right where you want it to be! Nulls roughly equally spaced and far apart, outside the vertical beam.

As for the nearby boundaries - side and rear wall - give a helper woofer setup a try. It will provide two or three useful benefits for you:

1. Provide baffle step compensation. Down at the frequency where the baffle stops providing forward directivity for the woofer, on-axis (and off-axis everywhere in front of the speaker) will drop in amplitude because half the sound will radiate behind the speaker. So bring in the helper woofer with a gentle slope to augment that region. This is what the helper woofer does in a 2.5-way speaker like the JBL 4435.
2. Mitigate SBIR and higher-frequency room modes. At the same time the helper woofer is augmenting the lower midrange and upper midbass, it can be used to reduce the self-interference notches from nearby reflections. To gain this benefit, position the helper woofer two to three feet below, beside and behind the main midwoofer.

The JBL 4435 sets the helper woofer directly beside the main woofer. So it reduces SBIR from a nearby side wall because of the woofers' different locations in the horizontal plane. A reflection from the main woofer to the side wall reaches the listener at a different time than the reflection from the helper woofer. So the self-interference notches are also different for each woofer. Each woofer "fills in the hole" from the other.

But that only works on the side walls in the 4435. By placing a helper woofer slightly below and behind the main woofer, we can gain this same benefit in the vertical plane as well as the fore/aft plane. That will reduce SBIR from the wall behind the speakers, which is the strongest one. It will also reduce floor bounce in the overlap region, below baffle step.

3. If the helper woofer is capable of subwoofer frequencies, it will provide deep bass extension. In this case, I call it a flanking sub. It can also be part of a multisub setup, which mitigates room

modes in the deep bass range.

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