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Subject: SB34NRX75-6 for Three Pi?

Posted by [audiothings](#) on Wed, 22 Jun 2011 11:57:14 GMT

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In my ongoing quest to economically build two way large format speakers that can reproduce the entire frequency range (20 Hz - 20 KHz) I have encountered the SB Acoustics SB34NRX75-6. It has a free air resonance of 19 Hz and models very well in WinISD, as far as the LF response goes.

If I were to meet with the approval of the experienced, I would consider incorporating the following design aspects from the tried and tested Three Pi:

- \* Choice of horn (H290)
- \* Woofer-horn spacing
- \* Crossover point

The differences will be that I will

- \* Use the aforementioned SB Acoustics woofer
- \* Use an external crossover with several bands of fully parametric equalization
- \* Tune the system (digitally) to compensate for room loading (they will most likely go in-wall... i.e. half space mounting)
- \* Optimize the volume of the cabinet and the ports, for maximum low end extension (while keeping woofer-horn spacing intact). WinISD recommends 250L (!)... I am willing to go that far because I make a living out of understanding what my speakers are telling me... And I really want to hear the ultra lows with total clarity and lack of clutter...

What I can see from the response graph of the woofer is that there is, like an 8 dB drop in response between 1 KHz and 2 KHz... probably 3 dB down at 1.3 K Hz... I am hoping that I can compensate for this, if necessary with a tiny bit of equalization...

Thoughts anyone? Is this a good idea? Any better way to get this sort of low end extension in a two way design?

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### File Attachments

1) [SB34NRX75-6.jpg](#), downloaded 328 times

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Subject: Re: SB34NRX75-6 for Three Pi?

Posted by [audiothings](#) on Wed, 22 Jun 2011 12:43:38 GMT

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Took another look at the SB Acoustics page and found that its recommended for use up to 1 KHz... My immediate thought is... "what if we change the crossover to 1 KHz, with a BMS 4550 CD playing through a H290 Horn?"

Because of the new crossover point, the spacing between the woofer and horn will now have change for optimal response in the vertical plane, is it not? Can this optimal spacing be reasonably predicted without extensive testing?

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Subject: Re: SB34NRX75-6 for Three Pi?

Posted by [Wayne Parham](#) on Wed, 22 Jun 2011 12:46:16 GMT

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Here's the crossover design process:

Crossover optimization for DI-matched two-way speakers For box tuning, use any of the box modeling programs to select a box size and Helmholtz frequency appropriate for the midwoofer you'll be using. You'll also need to analyze and test the cabinet for internal standing waves, which may cause ripples in response in the lower midrange. That can be done with some modeling programs, but there are few that will do this part.

The position of the midwoofer and port in relation to the internal boundaries of the cabinet are largely what determine the standing waves and how they line up. I also have found that the insulation matters a lot, and a sheet spanning the cross-section is very helpful to damp the midrange standing waves, in addition to the insulation that lines the cabinet walls.

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