Subject: NooBee Question
Posted by Dean Kukral on Thu, 27 May 2004 20:01:57 GMT
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I am planning on building a Pi-seven using a JBL woofer and BMS 4592 compression driver and horn.So if I buy (or design, but I would prefer to buy) an 800Hz crossover, then I assume the two should work together, but how does one balance the two drivers sound-level wise? (I assume that this is what is meant by using compensation.) Is it simply a matter of experimentation by adding resistance in series with the 4592? If so, do I just order some resistors from Parts Express and then try them? If so, what wattage should they be, and what variation of ohmage? I have quite a few large ceramic resistors left over from my slot-car days; I suspect that I could experiment with these.I know that this has already been done with the kits that Wayne sells, but how does this get done from scratch?(My original plans were different or I would just buy a kit.)

Subject: Re: NooBee Question
Posted by GarMan on Thu, 27 May 2004 20:45:54 GMT
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This is where a tool like SPICE becomes handy as it allows you to design a attenuation/compensation network specifically for your driver. Wayne's network attenuates the HF driver to match the LF, but the level of attenuation decreases in the upper frequencies, to compensate for the rolloff of the driver after 16KHz.I'm not familiar with the the driver you're planning to use, but if it doesn't have the rolloff at the top end, a straightforward L-Pad configuration might do. Below is a link to help you calculate the values.Gar.
Loudspeakers101 Lpad

Subject: Re: NooBee Question
Posted by Dean Kukral on Thu, 27 May 2004 21:17:52 GMT
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Thanks.I got to thinking that a resistor in series and one in parallel would attenuate the level of the drivers without changing the resistance in the crossover design. I did not know what the design of an "l-pad," was, but the reference you gave makes that obvious!I wonder what the mathematical model is that they use to make the calculation to figure the drop in acoustic power. They probably ignore frequency.

Subject: Re: NooBee Question

Posted by GarMan on Thu, 27 May 2004 22:32:57 GMT
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In a straightforward L-pad with just two resistors, the attenuation is frequency independent. However, Wayne's compensation network incorporates a capacitor in parallel with the series resistor, and this in turn adjusts the level of attenuation by frequency.Since you asked for mathematical models, everytime you reduce the voltage to a driver by half, you attenuate by 6dB. Level of attenuation is calulated by: dB = 20*log(Vo/Vi)where Vo/Vi is the percentage of the original voltage.I think the easiest thing to do is to just use one of Wayne's crossover networks that he developed for his PI 18" speakers.Gar.

Subject: Re: NooBee Question
Posted by steve f on Fri, 28 May 2004 01:28:57 GMT
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I believe Bill Martinelli sells BMS drivers for his wood horns. I'd ask him about your problem. www.woodhorn.comSteve

Subject: Re: NooBee Question
Posted by ToFo on Fri, 28 May 2004 09:26:30 GMT
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I'm with GarMan on the idea of using a Pi 800 Crossover. You may have to fiddle with the attenuation a bit, but that is good fun. You will learn stuff about your speakers that you might never imagine a couple of dB's had anything to do with. What horn are you using? There may be someone here who has run the BMS in a similar setup.Thomas

Subject: Re: NooBee Question
Posted by Dean Kukral on Fri, 28 May 2004 15:04:44 GMT
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Thanks for the suggestion. I did ask Bill and he gave me some great advice. The guys on this forum are really great about helping out!!

Subject: Re: NooBee Question
Posted by Dean Kukral on Fri, 28 May 2004 15:20:42 GMT
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Thanks for the advice from all. I had intended to do a seven - Pi 18", but just as I made up my mind,WAYNE POSTED NEW KITS ON HIS WEB SITEfor the pro series using his new midrange. I have fallen to the siren song of the new midrange, but, unfortunately, that has upped the cost of the project for a temporary setback. However, I consider it my patriotic duty to help President Bush get the economy going again, so I will proceed undaunted.My inclinations at this time are to put a 2226 into a Klipsch-style folded corner horn. (BTW, Wayne has great prices posted for this driver on his web site.) Then use Wayne's midrange design with a 2012. Tnen use my BMS 4592's for the higher end. The only issue that I have to resolve [other than money :( ] is the crossover points and crossover. I would like to crossover at about 400 or 500 Hz and, maybe, 1600 Hz.I think that this would be a nice system, and if I don't like it, the parts are good parts and I can build something else, eh?

Subject: Re: NooBee Question
Posted by GrantMarshall on Fri, 28 May 2004 16:05:52 GMT
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Hi Dean.You're right the resistors are the compensation and they are cheap to buy.You may want to check 1) if the horn you are using is meant to go to 800 hz and if it does is it 2) a smoother response curve if you crossover higher and 3) if it's kinder to the compression driver to cross at 1600. Many of Waynes designs use the JBL's to 1600 hz. I've been around this forum long enough to know he usually does things intentionally.Enjoy.Grant.