Subject: anyone in the NY/NJ/CT area familiar with Pi Horn concepts?
Posted by artsybrute on Mon, 25 Aug 2003 15:20:22 GMT
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Hi all,Well, finally got the preamp working (with a lot of help from my friends).The next project is to build the Pi Seven Theater Series cornerhorns. Since I do my sanding outside, it's time to get started.Before ordering Eminence drivers, I'd like to determine if any of the woofers I have would sound better. I have a pair of 15" paper cone woofers from a pair of old Magnavox consoles and a pair of 1961 Jantzen hybrid electrostatics that use a very nice pair of red 11" woofers that sound really nice. I've tried to figure out the Pi software and methods used to measure speaker attributes, but I cry uncle. Anyone in the area who'd like to help out?

Subject: Re: anyone in the NY/NJ/CT area familiar with Pi Horn concepts?
Posted by Wayne Parham on Mon, 25 Aug 2003 17:15:07 GMT
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What exactly are you having trouble with? Are you having trouble obtaining parameters or using them in the PiAlign program to design with?

Subject: obtaining
Posted by artsybrute on Mon, 25 Aug 2003 17:20:31 GMT
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I just don't know how to obtain the measurement parameters:1. What tools or equipment I need2. How to use them3. What to input into which programIn other words, the whole thing.

Subject: Re: obtaining driver parameters
Posted by Wayne Parham on Mon, 25 Aug 2003 17:58:02 GMT
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You'll need a good DVM or an oscilloscope, a signal generator and a resistor to make measurements. The documentation included with the PiAlign program describes how to make measurements with these instruments. You can also use specialized test equipment made specifically to obtain T/S specs. Or you can use a computer-based measurement system.Prices of each of the computer-based systems are varied. Some are pretty expensive but one of the

popular freeware programs is Audia's Speaker Workshop. This system is popular because it measures system response. Another program that is popular for finding driver parameters is Claus Futtrup's Driver Parameter Calculator. This program is made specifically for obtaining the parameters you need. If you already own a computer and sound card, then use of these PC-based systems might be the most attractive option for you.In any case, after you've obtained Frd, Vas and Qts, you'll enter these values into PiAlign. Actually, you'll want to enter the reciprocal (1/Qts) of Qts as Qd, Vas as Vad and Fts as Frd. The program will then recommend cabinet and port dimensions for you. For more information, please read the "readme.txt" file in the PiAlign distribution archive.

Subject: Re: obtaining driver parameters
Posted by artsybrute on Mon, 25 Aug 2003 18:17:40 GMT
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Thanks Wayne,I have a scope, but my signal generator took a dive this weekend. I was going to order an inexpensive Temna (sine only) or Allied Electronics (sine and square wave) to replace it.For these tests, what do I need? Can I get away with just 1 Khz or do I need a range? Also, what size and value resistor?I'm accustomed to chasing a circuit with a scope, just by checking if the sine is oscillating or clipping. Do I need to do anything more sophisticated?At this point, I know nothing of speaker testing.Thanks.

Subject: Re: obtaining driver parameters
Posted by Wayne Parham on Mon, 25 Aug 2003 19:06:43 GMT
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To measure woofer parameters, you'll use a sweep in the bass range. You'll measure the impedance at various frequencies, and that will indirectly tell you the electro-mechanical parameters. To find impedance, use a series resistor of 10 to 100 ohms. This forms a voltage divider with the speaker motor. You can measure voltage across the resistor and the motor and use these values to calculate current and impedance. You can also calculate power and phase angle if you are interested, but they aren't needed for finding compliance, resonance or Q.

Subject: phase angle?
Posted by toxicport.e on Mon, 25 Aug 2003 22:35:10 GMT

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so how to find phase angle-do use the above equation??at polytech we are doing series/parallel resonance, I phase angle wrt to Vs etc..i actualy enjoy it!if u know R and reactive part? u can find angle?this will depend on frequency? eg at resonance.below,above.that speaker measureing site is quite comprehensive i likethe manual!mmmmmm trig! :-):^)

http://homepages.slingshot.co.nz/~mike.e/Z.bmp

Subject: Thanks and a question
Posted by artsybrute on Mon, 25 Aug 2003 23:05:22 GMT
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Thanks Wayne.I'll order the generator tomorrow.One last question: Once I measure the parameters of the woofers, I will be able to determine enclosure volume. But then how would I determine which woofer would work best in the seven cornerhorn, and if the choice would be better than the Eminence woofer?

Subject: Re: phase angle
Posted by Wayne Parham on Mon, 25 Aug 2003 23:08:02 GMT
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The formula you cited will give you the impedance of a series circuit containing R, L and C. To

Subject: Keep us posted!
Posted by Wayne Parham on Mon, 25 Aug 2003 23:14:35 GMT
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specific for the woofer chosen. Basically, what you'll do is to design a cabinet that is tailor-made for your driver based on its parameters. The PiAlign program will recommend dimensions for the box and the port, and the system will be aligned precisely for your driver.Please keep us posted with your progress!

Subject: will do <nt>
Posted by artsybrute on Mon, 25 Aug 2003 23:21:37 GMT
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Subject: Wonderful!
Posted by toxicport.e on Wed, 27 Aug 2003 17:04:24 GMT
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i actualy love AC theory now,when it all starts coming together:-D