Subject: 4Pi Pro questions for Wayne, et al
Posted by BillEpstein on Tue, 07 Jan 2003 23:25:48 GMT
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The Altec horns I acquired will need the Pro 4 box for the woofer. 1. Is it possible to make the 3.5X6.5X10 port a slot, instead? Say, 10WX3.5HX6.5D?2. I have 2 sets of 1.6k Eminence crossovers, one stock for the PSD-2002's and the other with the 10uF removed for the JBL 2226J/3677s combo. Do I have the parts I need to make an 800Hz X-over? Is there a Pi schematic for an 800 Hz X-over? Should I just get the Altec X-over on E-bay?3. I saw somewhere that the Altec horns were designed to be in free air,not in the box. True? Is it okay to have it in a three-sided box as long as it's not the same box as the woofer? I'm thinking of the way LaScala's are built with the horn and crossover open to the back and separate from the bass reflex boss.

Subject: Re: 4Pi Pro questions for Wayne, et al
Posted by bmar on Wed, 08 Jan 2003 00:06:58 GMT
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a slot is usually only as deep (thick) as the panel and usually put on the baffle. for a 3 cubic foot box, tuned to 40hz. I come up with a 1" x 6" slot in 3/4 material.

Subject: Baffle mounting
Posted by Wayne Parham on Wed, 08 Jan 2003 03:49:24 GMT
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Hi Bill!You wrote:>> 1. Is it possible to make the 3.5X6.5X10 port a slot, instead?>> Say, 10WX3.5HX6.5D?Yes, that will work. You can change port shape slightly and expect it to act pretty similar to another having the same cross-section area and length.>> 2. I have 2 sets of 1.6k Eminence crossovers, one stock for the>> PSD-2002's and the other with the 10uF removed for the JBL>> 2226J/3677s combo. Do I have the parts I need to make an>> 800Hz X-over?No. You'll need to get parts to make an 800Hz crossover, because values for the 1600Hz filter are different.>> Is there a Pi schematic for an 800 Hz X-over?Yes, and I'll send it to you right now.>> Should I just get the Altec X-over on E-bay?It is an option, sure.>> 3. I saw somewhere that the Altec horns were designed to be in>> free air,not in the box. True? Is it okay to have it in a three-sided>> box as long as it's not the same box as the woofer? I'm thinking>> of the way LaScala's are built with the horn and crossover open>> to the back and separate from the bass reflex boss.Actually, most horns are improved by mounting on a baffle, because they are then radiating into halfspace instead of freespace. I think that the Altec's probably don't need baffle mounting, certainly not if crossed over high. That makes horn placement a matter of aesthetics,

really. But I wouldn't hesitate to baffle mount or to put the horns in a cabinet.Take care!Wayne

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Subject: Altec 806A are 16 ohm compression drivers
Posted by spkrman57 on Wed, 08 Jan 2003 16:45:53 GMT
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TillE and Wayne, Since the Altec drivers are 16 ohm, then the 1.6 khz hi-pass crossover from Parts Express will actually be 800 hz, that is due to the difference in the driver impeadance. When TillE came to my house, I had the Altecs running off of my 1.6khz hi pass with 14 ohm for R2 and 30 ohm for R1 with .47 ufd for compensation, for the bottom (using JBL 2226J also 16 ohm) I had 2 mh air-core coil. I had been breadboarding that crossover to put in my Altec A-8's. but have not had time to do so yet. Now Wayne, I have a question for you, What I did using the 16 ohm Altec driver did not make much of a difference to the crossover since using a 8 ohm driver it is still seeing the parallel 14 ohm resistor in parallel with the 30 ohm resistor and 8 ohm driver which bottom line crossover would see minimum of 5 ohms and max of 10.2 ohms depending on frequency because of the compensation cap. If you substitute the 16 ohm driver, the min and max values only change to 7.46 ohms and 10.7 ohms, I see very little change here due to the attenuation ciruit. the only difference I noted was taking the 2418 JBL driver (8 ohm) out and wired the Altec (16 ohm) in, was a tad more efficient, plus the better top octave of the Altec aluminum diaphram versus the JBL titanium. So my question to you is, since a 8 ohm 1.6khz crossover should equal a 800 hz crossover for 16 ohms (and it should), what would the R1 and R2 values be, I already have experimented and found the .47 ufd good for me. Give me your opinions here. The way I described above, I liked with tubed amps, with solid state, I put a 30 ohm resistor across the 16 ohm Altec compression driver, (15 ohm across it took too much off top, 30 ohms seems okay for solid state, the tubed amp liked it wide open) Allright, I am ready for the onslaught of attackers now. thanks for listening to my $0.02 worth gang, Ron

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Subject: Complex reactive/resistive loads
Posted by Wayne Parham on Wed, 08 Jan 2003 17:52:11 GMT
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One must either measure or model the circuit pretty accurately to know what to expect here. To calculate response requires making a virtual circuit of the Altec horn (including the compression driver). In the old days, the best way was to plot a bunch of points by hand, but nowdays it's much easier to do with computers using a program like Spice.You may be surprised at the response curves given when a filter is in the presence of reactive loads. A purely resistive load will provide damping for the filter to provide the smooth rolloff you expect. But a complex load having both resistive and reactive components will modify the filter pretty substantially. And the loudspeaker itself is a complex load, which the compensation circuit modifies. The bottom line is

that the loudspeaker is an integral part of the filter circuit, and all components are inter-related. So you'll need to analyze the circuit in more detail to know its response.

Subject: I'll have what ron's smoking:)
Posted by Sam P. on Wed, 08 Jan 2003 19:33:22 GMT
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OK, time to clarify."since a 8 ohm 1.6khz crossover should equal a 800 hz crossover for 16 ohms (and it should), "Not quite. Using 2nd order BW's for example, the 1.6kHz/8 ohm xover requires 8.8uF and a 1.12mH choke. An 800Hz/16 ohm xover requires 8.8uF cap, YES, BUT the choke needed is 4.5mH...A google search for "crossover calculator" will turn up the web site for "Select Products" on-line applet. Sam

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Subject: Re: Complex reactive/resistive loads
Posted by Charlie on Thu, 09 Jan 2003 00:04:47 GMT
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Can somebody please help out a poor old oil-patch engineer here? I've read dozens of these cross-over design debates and most of it goes over my pipe-and-pumps head (if it ain't Ohm's Law it's beyond me). But what I conclude is that all these debates are eliminated by using an active crossover - no more worries about interaction of the load, etc... Am I way out in left field here? Can it really be that simple? Because if it is, people seem to be working awfully hard to perfect their buggy whips when a new set of sparkplugs would produce better results.

Subject: Re: Complex reactive/resistive loads
Posted by Wayne Parham on Thu, 09 Jan 2003 01:07:05 GMT
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I think the bottom line here is that there's a lot of ways to skin a cat. If you're a tool man, then you can relate this to hydraulic vs. mechanical set packers. If you're going horizontal then you better run hydraulic. Of if you need to set more than one packer, then hydraulic might be a requirement. But if you can twist the tubing string, it's probably just as well either way.The same can be said of crossover technologies. There are pros and cons of most any solution, but it's all just different ways of doing the same stuff. There are definite benefits of running active crossovers and bi-amping. But not everyone can use this solution. As long as the filters are well-formed and use

good parts, you can expect performance of the system to be good, either way.

Subject: different strokes(long)
Posted by Sam P. on Thu, 09 Jan 2003 13:19:20 GMT
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for different tastes and attitudes towards music and gear are what drives the debate. For me, I've settled it, by embracing ANYTHING that sounds good :) I love my single driver TQWT's, and they have seen primary use for maybe 2 years driven by conventional denon electonics. Altec 511's, passive and active amped I've lived with a couple of years in my living room system(s). Can't recall the "birthdate" of my quasi-4 Pi Pro's, but they use passive "Pi Spec" type xovers, but hand built from scratch. As varied as they are, I would not part with any of them. The 4 Pi's are often "in the line-up" situated in front of idle "big gun" systems. And they keep up damn well. Actually, the single jbl2035's are louder per watt than the dual jbl2226J's of the bi-amped systems, even with the "imagined" xover losses :) Big benefit of passive xovers is the simplicity allowed of running a source direct into a power amp, and on to the speaker with minimal wiring and gear involved. Say one IC and some speaker wires. The bi-amped signal chain, at minimum takes THREE IC's, and twice as much speaker wire :(Greater headroom, dynamics, blah, blah, blah. At under 1 watt listening levels? MOVING AIR is the main benefit of biamping. Great bass with the amp and voice coil intimately connected. The higher order active filters reduce interference between the drivers, "clarity" and intelligibilty increase. Love/hate here, cause everytime time I have to power up four or five items at a time, I feel the situation is "an inelegant solution to the problem", which is enjoying the MUSIC. But then the horse drawn sleigh on Roger Waters' "Amused to Death" album crosses the room from left to right and drives well off into the distance thru the wall of my listening room...damn cattle dog keeps chasing it till she hits the wall :(Designs "sans xover" like the 1 and 2 Pi's have a special appeal to the enjoyment of simplicity. Bang for the buck is also a strong inducement. So some of us dig trying to build "the best buggy whip" possible. Others are running NOS under the hood. In the real world, they are both probably driving 55mph (well, maybe 75dB?). Except Wayne in his Olds :) Sam

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