Subject: Pi 500 Hz Xover for 515B/511B???
Posted by AstroSonic on Fri, 30 May 2003 14:49:47 GMT
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I am currently trying to crossover an Altec 515B in a BR to an Altec 511B/Iconic Model 102-16. The Iconic driver is very similar to the Altec 902, including its sensitivity (106 db/w/m) and impedance (16 ohms). Iconic has said (email to me) that the Model 102 can be used in-home (i.e., at low power) down to 500 Hz with a 2nd order network. The 511B/102 combo works very well together with a straight 2nd order Butterworth with a zobel on the woofer, but needs a little HF EQ. After de-ringing the 511B, I decided to try adding some HF EQ. My attempts at adding the EQ have produced mixed results. The EQ happens (good) but peaking in the 4-7 kHz range also occurs. Crude measurements using a RS SLM and the warbble tone sequence on the Stereophile CD2 Test CD show 1 1/2 to 4 db of rise in the 4-7 kHz range. The peaking is clearly audible, produces an unnaturally detailed sound and distorts the soundstage. The sound without the EQ is much more natural, but lacks a little air. I suspect that the peaking may be due to resonant interaction between the horn driver and crossover, as described in the Pi Crossover document. Damping is probably needed and it appears that the optimum damping is best determined using a modeling program like SPICE. I am hoping that this problem has already been solved. Has a Pi type network been developed that is suitable for this combination of drivers?Regards,AstroSonic

Subject: You've got mail!
Posted by Wayne Parham on Fri, 30 May 2003 16:44:49 GMT
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are crossovers listed with 500Hz, 600Hz, 800Hz and 1.6kHz crossover points. You'll find a chart of values for different amounts of attenuation/augmentation included with each schematic, and all

version be used for flattest on-axis response, but that usually leaves the HF horn about 4dB louder than the LF subsystem, if it is a direct radiator or undersized horn. One way to get around

Subject: Re: Thanks! and a ?
Posted by AstroSonic on Fri, 30 May 2003 22:58:17 GMT
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Wayne,Thanks for the help! My drivers are all 16 ohms. Are these designs for 16 or 8 ohms?Regards,AstroSonic

Subject: 8 ohm and 16 ohm drivers
Posted by Wayne Parham on Sat, 31 May 2003 04:29:30 GMT
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Sorry, they're all for drivers having 8 ohms advertised impedance.To develop a crossover for 16 ohm drivers, you can scale the components L1, C2, C3, L2 and C4. The Zobel damper for the woofer is comprised of R3 and C5 so it can be scaled too. But I'd run Spice to find the HF compensation components R1, R2 and C1 if I were you. It's not terribly difficult - Just use the models included in the Spice distribution archive at the preceding link. You can change the values easily enough and see the response curve. You'll find that you are able to find the proper values for R1, R2 and C1 in no time - and you'll know what is "proper" by the response curve being free of peaks, and just having a nice flat response from the crossover point up about 2 1/2 octaves and then starting to rise at 6dB/octave.

Subject: all "will robinson" needs to calculate values
Posted by Sam P. on Sat, 31 May 2003 12:27:24 GMT
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can be found at www.selectproducts.com/calculators.html There are diagrams showing where c1, c2, etc go. The calculator lets you specify the Z of YOUR driver, at YOUR chosen crossover freq., in up to 3rd order configurations. Don't be lame and just input 16 ohms, MEASURE the things at 500Hz., or whatever. For the HF, you need to consider what Z the "Pi Pad" is letting the xover see. Sam

Subject: Re: Pi 500 Hz Xover for 515B/511B???ATTN Wayne!
Posted by Russellc on Sat, 31 May 2003 15:44:50 GMT
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Wayne,As an altec man my self wanting to utilize my 511B/902 horns with either 515 8g or 416-8b in a Pi speaker, could I also have these schematics, I sure would like to try to tame my horn's high end response with your Pi crossover's compensation circuitry. You have sent me already a crossover document along with the 7Pi plans. Are these circuits you are talking about already in these documents? Or are they something else entirely? Thanks, Russellc

Subject: You've got mail!
Posted by Wayne Parham on Sat, 31 May 2003 19:56:02 GMT
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It's the same crossover document, but I already sent you another anyway.