Subject: New Speaker with Deltalite
Posted by SvenC on Wed, 04 Jun 2003 15:10:50 GMT
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Hi:I finally decided to build a set of pi aligned speakers. Space being an issue, I used the new Eminence Deltalite 12", (Vd=5.42, Frd=42, Ots=0.36) and the Esg2 Ribbon tweeter (100db). The Pi program calculated Encl=1.98, Fr=43.625, and Q is 13.4. I had to manually calculate the port for the Q, which came out to 9.4" by 2.9" dia. The crossover is the 12db low and 18db high at 1.6khz with 2db attenuation (used from the crossover doc). I still have to put in the zobel, the parts are on order. Right now the housings are temporary.Powered by a set amp, the speakers sound great. I'm really enjoying them with all kinds of music. Good enough that I'm designing permanent cabinet for them.I do have a question. The Deltalite is flat until 1.5Khz @ 98db then it rises to a peak of 106db at 2.5 khz and then drops off. Is this the crossover going to remove enough of this peak? I did a search but did not find much on this.Regards. Sven

Subject: Re: New Speaker with Deltalite
Posted by Wayne Parham on Wed, 04 Jun 2003 16:36:10 GMT
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Midwoofer response above 1.6kHz is greatly attenuated by the crossover so I don't expect any peaking at 2.5kHz, if the appropriate Zobel is used. However, running this network without a Zobel will introduce a midrange peak, so you'll notice the difference when you install it.Top-octave compensation as is described in the crossover document is intended for use only with compression horns that rolloff at high frequencies. I understand that your network is setup for only 2dB, so that's practically nothing, but I wouldn't suggest this kind of passive EQ with ribbons.

Subject: Re: New Speaker with Deltalite
Posted by SvenC on Wed, 04 Jun 2003 17:21:22 GMT
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I forgot to state that I did remove the top-octave compensation and only attenuated the signal on the tweeter (Its actually an Esg3, typo - oops). The response graph does show a small drop of 2-3dbs at 17K or so. I really haven't noticed it in reality though.The Esg really sounds wonderfull. Very smooth and natural, the air on cymbals is very close to live in my opinion. I did use an Eminence PSD2002 with their horn (using the pi compensation network) for a couple of days before the Esgs arrived. While this was at work, before I moved the speakers home, I found the ribbons more refined overall with a wider soundstage. I could really live with the PSD2002. The crossover is external so I can change it quickly - I may have to try the compression drivers at home to hear the difference again, but right now the ribbons sound so good its a low

priority.Hopefully I'll have the components soon for the zobel. The midrange sounds good right now even without it, the woofer's Le is .71mh with a 58 ohm Zo, so maybe the crossover's inductor is damping the peak a bit? I was going to run a spice sim. but haven't yet.

Subject: Re: New Speaker with Deltalite
Posted by Wayne Parham on Wed, 04 Jun 2003 19:34:58 GMT
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Ribbons are direct radiators and behave quite differently than horns. They don't have the dynamic range of horns but they sure sound nice.About your midrange, you'll probably want a Zobel or possibly just shunt resistance without the cap. Second order and higher crossovers usually need a damper resistor. Check it out with Spice and you'll see what I mean.

Subject: Re: New Speaker with Deltalite
Posted by SvenC on Wed, 04 Jun 2003 20:30:43 GMT
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Yup, you are right. Simulated the speaker and crossovoer, 6db peak. So I made a zobel with some old Solens that are close enough, sounds much better! The speakers are singing sweet at the moment.
