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Subject: Re: 4 A.M. on Sunday morning

Posted by [Wayne Parham](#) on Mon, 28 Jul 2008 06:35:46 GMT

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That's good to hear, Bill. Glad it is sounding good to you. My experience mirrors yours. It's a smoother sounding speaker. Not light and day smoother, subtle but enough to notice. But just like any other change like that, once you go forward going back becomes pretty noticeable. The first thing I did in this latest incremental upgrade was to go through the speaker with the S&L system and see what I could see, with the idea that if I found anything worth upgrading, I would. There was a little more peaking at the crossover frequency than I wanted, so the underdamping from R1/R2/C1 was working well but could stand to be reduced just a smidge. That's why I reduced the 8.2uF capacitor to 6.8uF. It makes the midrange and overtones smoother, silky smooth with the DE250 and 2226. The second thing I noticed was the null angles with the 2nd/3rd crossover were shifted up so that the bottom null was just below the forward axis and the upper one was way up over your head. The forward axis wasn't straight forward. This crossover was done purely with calculations and math models. It was pretty good, but with better visibility could be improved so I did. What results is a much better speaker, with a more usable pattern. The 1st/3rd network required the woofer polarity to be swapped, which worked pretty well, but here again, the 3rd/3rd network with staggered crossover points worked better. With this new network, summing is constructive through a wide 90° horizontal arc and about a 50° vertical arc. Within this range, the response is very smooth. Outside this range, response doesn't get wildly peaky like some other speakers, rather, it has a smooth graceful rolloff at HF. In particular, the troublesome vertical angles are well-behaved, with limited HF at large vertical angles to reduce reflections off the floors and ceiling. It does everything I want it to do. The speaker was designed to specs, which is how I always work. I always design "by the numbers" rather than voicing a speaker by ear. If I were to find a speaker sounded bad when the design looked like it should sound good, I'd go back to the drawing board to see what I missed. But by using good components and an implementation that works, I've always found that to be a winning combination that gives good sound. This case was no exception - after setting up everything for smoothest response through the 90x40 coverage angle, the end result was a very natural sounding speaker. To me, it just melts in the room, just exactly what I want my speakers to do. You know, your title for this thread reminds me of an old Simon and Garfunkel album.

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