Subject: Re: 7pi cabinet plan request
Posted by Wayne Parham on Wed, 12 Oct 2011 04:52:38 GMT
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If you don't have good acoustic measurement gear and experience using it, don't attempt a crossover (re)design. I've put a lot of time into these designs, and the crossovers are optimized to as close to pefection as is possible.

I don't want to discourage experimentation but at the same time, I don't want anyone to think it's a piece of cake to design a crossover. Even with all the best tools, it's a non-trivial exercise. I spend dozens of hours on each crossover - and that's after literally three decades of experience refining this loudspeaker type. So I have a good idea what to do each time, and yet it still takes me dozens of hours.

You can leverage the countless hours I've spent perfecting them by using the crossovers designed for these speakers. Frankly, you're going to be better off that way. In other words, don't take on a crossover redesign unless you have a lot of time to kill or you just want to experiment to see how things work.

See the links below. The first link discusses a two-way crossover, which is one element less complex, and yet you'll see some of the steps involved. It's just not a casual afternoon job. The second link shows an overview of the design goals of the constant directivity cornerhorn, of the matched-directivity two-way loudspeaker and of multiple subwoofers to provide uniform coverage in the modal region.
Crossover optimization for DI-matched two-way speakers
High-Fidelity Uniform-Directivity Loudspeakers