Subject: Re: As an aside,
Posted by Wayne Parham on Mon, 11 Apr 2005 16:47:27 GMT
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I haven't tried a 2123 in a midhorn, but I have used the 2120. It has less output above 1kHz, but it has enough that summing is good with the tweeter at 1.6kHz. I found the 2012 sums best with a 2426 tweeter when the 2012 has a 1mH coil in series and the tweeter polarity is reversed. With a PSD2002 driver, you want the mid run flat out without a coil.When you use the 2123 as a direct

point is not terribly critical, since the wavelength of 200Hz is nearly 6 feet. If the woofer is within about a foot and a half of the mid, front to back, you're in good shape. Just put a 6mH coil on the

crossover point is a little more critical. We want the midrange to cover the entire vocal range, so it is doing just about the whole 200-2kHz decade, just a little shy at 1.6kHz. The midrange driver is 10" diameter, so DI matching occurs between 1.2kHz and 2.4kHz, even without a horn. At 1.6kHz, wavelength is about nine inches. We don't want to be a half wavelength apart electrically or acoustically or we'll have a summing problem. Closer or further, either one is better. The midhorn helps efficiency, directing the pattern into a 90x40 spread. Instead of collapsing DI it stays pretty constant through the midrange. The horizontal directivity is set by the flare and when used in corners, also by the room's walls, particularly at lower frequencies where the horn loses directional control. So the midhorn and tweeter have the same efficiency. But the midhorn upper limit is generally between 1kHz and 2kHz for best performance. There is usually some output above 2kHz, but in hifi situations, I usually shave this with a coil, if it appears in the response.The midhorn and tweeter were a little tricky to get good summing. It's nice that everything worked out, and that was one of my main design criteria. I wanted a horn that was large enough to be used at low frequency to cover the entire midrange band. But I didn't want it so large that it was unattractive. I also wanted a horn that would sum well with the 1" compression tweeters, and preferred if I could retain the 1.6kHz crossover point. This was beneficial for many reasons. So it was nice that it worked out. But it doesn't work out for every midrange driver and in combination with every compression horn tweeter.