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Subject: Re: second array already in the works  
Posted by [Eric J](#) on Mon, 31 Aug 2009 21:32:27 GMT  
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I'd be concerned about comb filter distortion with a crossover of 3000 for those Vifa's. It would seem that 3000 is a bit high for them. I have a Vifa BC14SG49-08 sitting right here in front of me, and unless you cut THEIR flanges(4.75 cut), they are 5.75 inches center to center. The ones they are selling have a truncated edge coming to 5.12, but that means that comb filter distortion starts at 2660. Going to 3000 is too high.

I have an excell database with every c-to-c from .6 inches to 113 feet listed for the start of comb filter distortion, in fractions of an inch. I email it to you if you want it.

Going down to 3000 is too low for the TB's. They drop like a rock after 3000. Below 3000 they are going to screech. You don't say how many you are going to use. To have any hope of using them you would have to be using a 48 db per octave crossover. Look at it this way. The crossover doesn't simply cut the tweeter off at 3000. You need to be able to deal with one octave below where the cutoff is. If you drop 12 db, you pretty much can't hear it. Every 3 db down cuts the sound volume in 1/2.

So if you put in thirty tweeters like I did, then the volume at full power is already cut to 1/30 of the sound that one would have to put out. A simple 6 db octave crossover will cut below the cut off so that each one puts out 120th of the amount of the original sound. But while the recommended range for the Neo 20FA's is 3500, their FS is 2000. The TB's have a lower range of 3000, but their FS is also 3000.

It could work but you better be using a lot of them. The problem is that you really don't want to be crossing them below their FS or you're going to get screeching from them at that frequency no matter how many you use. And it still doesn't help you with the problem with the mid ranges and their comb distortion.

So this combination gives you a double whammy. The frequency range between 2500 and 3000 is going to have your tweeters screeching like chalk on a board, and the woofers are going to give you dropped frequencies between 2500 and 3000. If you want to use the Vifa's you'll have to use planars or ribbons unless you are willing to use a 3/4 inch dome that can go that low. If you want to use the 1/2 inch domes, then you are going to have to use a fullrange that will go as high as say 3300 but at the same time can be close enough together to not produce comb filter distortion.

I've said before that the only usable dome tweeter on the market is the 3/4 Dayton Neo 20A. And then you have to use the TB 3 inchers.

What you are setting yourself up for in the speaker category is not going to give you something that you like, I suspect. You'll be complaining about the lower harmonics.

Eric/Marlboro

