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Subject: Fitting line arrays together

Posted by [SophiaMendoza](#) on Wed, 09 Sep 2009 21:04:11 GMT

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I've seen a lot of line arrays and I've been collecting information. I've been into speaker design for a long time after I took a woodworking course at a local highschool as a way to meet guys(it worked.)

But what I don't understand is how individuals and manufacturers will often make such obvious errors in putting things together.

I'm a fan of Zaph Audio. Most line arrays use ribbons, but John is pretty clear that ribbon speakers are poor performers compared to domes, and that the scintillating performance in the upper range is really just distortion. But people keep using them, and then they cross them at unbelievably low frequencies when Zaph's study has shown that they are very poor compared to even a cheap \$29 ribbon below 4000hz.

Also people will cross these ribbons too low but still used 7-8 inch woofers that are crossed too high, and produce comb filter distortion.

Its amazing to me. I don't expect an answer.

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Subject: Re: Fitting line arrays together

Posted by [darkmoebius2](#) on Wed, 09 Sep 2009 22:18:55 GMT

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SophiaMendoza wrote on Wed, 09 September 2009 16:04 I'm a fan of Zaph Audio. Funny, I was just looking over his review/testing of tweeters two nights ago and was wondering why some many manufacturers choose ribbons at a higher cost.

I'm guess that part of it has to do with the dispersion characteristics of ribbons versus domes.

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Subject: Re: Fitting line arrays together

Posted by [Marlboro](#) on Wed, 09 Sep 2009 23:31:25 GMT

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I've said it before.

At the risk of a flame war, what options does a manufacturer of line arrays have?

Unless they contract with a manufacturer to actually make a dome speaker of their own design that allows very close c-to-c and employs some kind of snap together system they are pretty much limited to ribbons if they follow Griffin's white paper. The way I did it is: a) just too labor intensive, b) doesn't look super professional, c) costs too little(high cost is synonymous with quality).

So they have to use ribbons. Why don't they use the ones that Zaph determines to be the lowest distortion and flattest FR? Got Me!!

Zaph: Bohlender Graebener Neo3 PDR (\$69 w/flange) - This B&G tweeter outperformed everything here, in most cases by a large margin. Response curve is ok, but nonlinear distortion is excellent. This is a very clean and natural sounding tweeter. Note: these were tested with the rear chamber in place. Later, with a different pair, I also tested with the chamber removed. The tweeter was far too overdamped in that case, and I recommend leaving the rear chamber installed.

But even if they did use them they still have to deal with the fact that they are too fragile to handle frequencies adequately below 4000, according to John(Zaph). But they tend to use large 6.5 - 8 inch speakers which start comb filter highfrequency cutoff at 1600 to 1900 hz.

Again I believe its a cost issue. They need to be using a smaller midrange speaker, but there really aren't any expensive small midrange speakers except now the Dayton RS 90.

Its a catch 22. Manufacturers of line arrays want to make some money with their product, but nobody who doesn't know will think its any good if they don't use tweeters which are really expensive, and mid woofers which are really expensive. But really discerning listeners who are not dissuaded by the fact that they paid so much means it must be good scenario will notice the issues developed.

I feel for them. What they really need is that very expensive 3/4 inch dome with the snap together system, and a very expensive 4 inch mid woofer, and both of them have to use lots of brushed aluminum to make them look really expensive.

Marlboro

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Subject: Re: Fitting line arrays together

Posted by [darkmoebius2](#) on Thu, 10 Sep 2009 19:56:06 GMT

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Audience has taken an interesting approach to the HF issue by designing their own 3" fullrange A3 driver(.pdf spec sheet). Their arrays are complemented by subwoofers for the bottom octaves.

Anyway, their A3 drivers have a natural 3-5 dB rise between 1.5kHz and 7kHz, above that it is +5-15dB out to 20kHz. They supposedly run their arrays fullrange w/o any crossover. And the drivers are 85dB/16ohm w/ 12mm of excursion.

My question is if the natural HF rise in their A3 compensates for comb filtering effects as a result of c-to-c distances?

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### File Attachments

1) [a3.jpg](#), downloaded 3741 times

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Subject: Re: Fitting line arrays together  
Posted by [Marlboro](#) on Thu, 10 Sep 2009 20:52:35 GMT  
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If the rise was able to compensate for comb filter distortion, then there would be no such thing as comb filter distortion in any real scenario since all anyone would have to do is connect an equalizer to the system and produce a rise.

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Subject: Re: Fitting line arrays together  
Posted by [AudioFred](#) on Sat, 12 Sep 2009 15:08:03 GMT  
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I'm a fan of Zaph Audio. Most line arrays use ribbons, but John is pretty clear that ribbon speakers are poor performers compared to domes, and that the scintillating performance in the upper range is really just distortion. But people keep using them, and then they cross them at unbelievably low frequencies when Zaph's study has shown that they are very poor compared to even a cheap \$29 ribbon below 4000hz.

Zaph's test results have resulted in the widespread belief that ribbons sound inferior and therefore they aren't a viable tweeter option. Listening conclusions from many experienced listeners say otherwise.

Here's an interesting example of a positive review of a point source speaker using the smaller Fountek ribbon:

<http://www.zaphaudio.com/Givler1.html>

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Subject: Re: Fitting line arrays together  
Posted by [Marlboro](#) on Sat, 12 Sep 2009 16:34:55 GMT  
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He also says that the B&G Neo ribbon beats every other one in the test.

But for a line array it doesn't deny that a 3/4 inch silk dome driven way below its level is exceedingly transparent and smooth.

And if you put 30 of them on a side they will be driving at about 1/10 of a watt each. Believe me when I say that this combination is unbelievable.

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Subject: Re: Fitting line arrays together  
Posted by [SophiaMendoza](#) on Sun, 13 Sep 2009 01:14:41 GMT  
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You built your line array about 4 years ago.

Is there any change you would make now with changes in equipment?

Sophie

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