Subject: New Cheap Quasi Line Array
Posted by FredT on Tue, 29 Nov 2005 14:42:38 GMT
View Forum Message <> Reply to Message

No new messages in more than 20 days, so I'll break the silence with some info on the new quasi line array I'm building. Each sealed enclosure will have sixteen 3.5" Bravox woofers ($3.99ea from Parts Express) and a single tweeter in the middle (probably a Vifa DX25 if it's sensitive enough). This one will definitely require a subwoofer.
The AnorexiArray II

Subject: Re: New Cheap Quasi Line Array
Posted by Wayne Parham on Tue, 29 Nov 2005 15:01:15 GMT
View Forum Message <> Reply to Message

I'm anxious to see that speaker. I was real impressed with your last array, so I'm eager to hear this one too.

Subject: Re: New Cheap Quasi Line Array
Posted by Mike T. on Tue, 29 Nov 2005 16:44:30 GMT
View Forum Message <> Reply to Message

Looks like another great build Fred- would love to hear some of your many designs/projects. When is the next get together of the audio club? I am working on a set of the Axon 8-12's at the moment as I have for many many "moments". You are a building machine!

Subject: Re: New Cheap Quasi Line Array
Posted by Tom R. on Tue, 29 Nov 2005 18:21:47 GMT
View Forum Message <> Reply to Message

I am new to the forum, but have been reviewing posts, and researching line arrays for a few months, and am looking for a inexpensive project to start with. I have the sub to go with the array, so now just waiting on more input from you on the project. Please post more information when possible.Tom R.

Subject: My Advice About DIY Line Arrays
Posted by FredT on Tue, 29 Nov 2005 20:31:31 GMT
View Forum Message <> Reply to Message

People often express interest in my diy line arrays because they are really kewl looking, inexpensive to build, and sometimes they don't sound too bad either. But I don't want anyone to get the impression that a $250 line array will provide anything approaching "high end" sound. Folks who know me are aware that I'm retired and build speakers for fun because after 30 years working for big oil I found I can't just watch TV all day. The speakers fall into two categories: 1) Budget speakers (under $500 total) I build as fun projects and then sell to friends to cover my costs and finance the next project, and 2) Serious speakers I build to keep.If you are looking for a project in the first category and they aren't going to be your main speakers a quasi line array (woofer array with a single tweeter) can be a rewarding project, and the final product, even with $4 buyout drivers, will provide sensitivity, dynamics and a soundstage you can't get with most smaller two or three way point source speakers. But almost any speaker built around cheap drivers will display some serious compromises in its octave-to-octave tonal balance (there will be some clearly audible peaks and nulls) and detail resolution. They definitely will not be high end speakers. If you are looking for a pair of speakers in the second category (serious, high end "keepers") a budget line array is not the best choice. My guideline minimum expenditure is $1,000 because that's about the least you will spend for 16 to 20 quality woofers, two ribbon tweeters, and all the other parts plus enclosure construction and finishing costs. If your budget is less than $1K I believe you will get much better sound from a conventional point source two or three way pair using good quality $30-$60 drivers like GR Reserach M130 woofers, Dayton Audio RS series drivers, and many others. Also, if you don't have testing equipment it's impossible to design and tweak a crossover that will provide the sound a good quality set of drivers is capable of achieving, and it's best to get a speaker "kit" from one of the non mainstream companies who offer them, like Selah Audio, GR Reserach, RAW Acoustics, Pi Speakers, etc. With their designs the drivers have been selected by knowledgable people and the crossovers have been competently designed and tested.

Subject: Re: My Advice About DIY Line Arrays
Posted by Tom R. on Wed, 30 Nov 2005 15:54:46 GMT
View Forum Message <> Reply to Message

Thanks for the candid advise. Question: While looking at different line arrays or quasi arrays, it would seam like a line array with high quality full range drivers covering 100Hz to 12-15k, topped with a super tweeter may sound better than a woofer/Ribbon line array with a high order crossover in the 2.5 to 3K range, as the full range drivers would cover the most important frequency ranges, and keepthe crossover out of the midrange area. Please adviseThen again, if the crossover is well implamented, it may be a wash?Tom R.

Subject: Woofer Array Crossover Frequency Limitations
Posted by FredT on Wed, 30 Nov 2005 17:22:41 GMT
View Forum Message <> Reply to Message

Woofer arrays must be crossed over a fairly low frequencies because of the comb effect above the frequency where the driver starts beaming. I'll refer you to Jim Griffin's nearfield line array white paper for an explanation. See the section on center-to-center driver separation for circular drivers starting on page eleven.
Nearfield Line Array White Paper

Subject: Re: My Advice About DIY Line Arrays
Posted by Anonymous on Wed, 30 Nov 2005 17:43:09 GMT
View Forum Message <> Reply to Message

To add;I built a NSB/PT2 line array last summer. 49 cent midwoofers thatwere modified, 16 per tower and 10 Dayton PT2 planars per tower{$25 ea.)While I consider this a budget line array, the plan was to make'high end' sound and I think I achieved this as I auditioned high end store speakers and I wasn't too thrilled. The point is, whilethe system is using 49 cent midwoofers and $25 tweeters, what reallygets you cost-wise is all the misc. costs that add up.I itemized about 95% of the project on a spreadsheet counting everyscrew, rags, gloves, nails, tools, glue, stain, magnets, plywood,mdf, solid oak pieces, sandpaper, terminals, wire, solder,chemicals, Acousta-stuf, poly batting, turntable, skidpads,rope caulk, sanding sealer, liquid nails, bondo, etc., and theproject cost about $2k to make from scratch taking into account allthe stuff needed.While DIY is cool, driver cost alone will not be a good judge onproject cost. Driver cost for this project was;midwoofer = 32 * 49 cents {plus $1 shipping per driver} = $47.68tweeter = 20 * ~$25 = $500Driver cost = ~$547.58Materials = ~ $1450 If I went 'cheap' on material costs, then the sound I get out ofthe system would not be as good. 'Sum of all parts' is what makes it sound good including construction method and materials used.

Subject: Re: Woofer Array Crossover Frequency Limitations
Posted by Tom R. on Wed, 30 Nov 2005 18:11:46 GMT
View Forum Message <> Reply to Message

I down loaded the white paper the other day, but have only readthe first few pages. When I read the entire paper, I may have a few more questions - Thanks again.Tom R

Subject: NSB/PT2 Line Array
Posted by FredT on Wed, 30 Nov 2005 18:34:12 GMT

You are not the only one who disagrees with me, and maybe I should listen to some more arrays using "budget" speakers. I am familiar with the PT2 and it's a good sounding tweeter, easily the equivalent of dome tweeters selling in the same price range or possibly a bit more, and a much better choice than an array of 25 cent domes for use in a line array. But as you indicated, 20 of them will set you back $500. I haven't heard the NSB's so I can't comment about them.

Subject: Another Thought
Posted by FredT on Thu, 01 Dec 2005 12:23:42 GMT

As I re-read my "advice" post it occurred to me that some might conclude I was suggesting a line array built for under $1K wouldn't sound good. Not so. Even an array like the one I'm building with $3.99 woofers will sound better than much of the stuff you hear at Best Buy. The issue I was addressing is: At what price level is it better to build a non-array speaker using better quality drivers than you could afford to incorporate into a similarly priced line array? Instead of talking in generalities I'll offer two examples of exceptional under-$1K two way monitor designs, the Selah Audio SA-1 and the Ellis Audio 1801B. The Selah kit incorporates a 7" Vifa XT series woofer and a Fountek ribbon tweeter and sells for $595 with deluxe crossover parts. The Ellis kit uses a 7" Seas Excel magnesium cone woofer and a Hypquphon dome tweeter with deluxe crossover parts and sells for $750. I have heard the Vifa/Fountek combination in another speaker and the difference between these drivers and all the under $30 drivers I have heard is HUGE / ENORMOUS /AWE INSPIRING. I have not heard the Seas/Hyquphon combination, but I would expect it to be even better.So assuming I know I will be using a good quality 50 watt or greater tube amp or a 100 watt solid state (eliminating the need for a high sensitivity speaker), would a line array or one of the two monitor speakers offer better bass control, midrange clarity, soundstage, imaging, resolution, musicality, air, PRT, or whatever criteria I use to define "high end"? At the $600-$750 price point a quasi line array would offer greater sensitivity and dynamic range plus a larger soundstage, but I still believe either of the two monitor speakers (linked below) would be the better choice for my listening preferences.http://www.selahaudio.com/id46.htmlhttp://www.ellisaudio.com/1801.htm

Subject: Re: Another Thought
Posted by Renato on Mon, 05 Dec 2005 22:45:50 GMT

Fred,My english is too poor...but, I will try... The questiion is, in my opinion a cheaper Line Array is better thanthe simple speaker. I finished a LA with equivalent US$ 300,00 (see athttp://www.mrweb.com.br/fvm/laf2/) and this have a sound much betherthan a B&W DM series for example (US$ 800,00 in Brazil).I will try make a Ribbon tweeter because in Brazil, do not have

Ribbonfor sale and the cost for import is very high.[]'sRenato

---

Subject: Array driver response
Posted by Bill Fitzmaurice on Fri, 09 Dec 2005 14:33:53 GMT
View Forum Message <> Reply to Message

When considering drivers for use in an array an often overlooked factor is that the response of a speaker utilizing multiple drivers is not necessarily linear with respect to the response of a single driver. In fact, as more drivers are added the system response becomes significantly flatter, especially in the upper frequencies. This is a result of the limitations of mutual coupling vis a vis the ka=.02 upper response frequency corner. The NSB presents a very good example of this. Because of the NSBs pronounced response spike at 7kHz many designers dismissed the driver out of hand as unsuitable for hi-fidelity applications. While that judgement was true with respect to one or two drivers, it was incorrect when applied to a line array of at least four drivers. As more drivers are added and the upper response frequency corner goes lower the response peaks and valleys flatten out quite nicely, starting at the high end of the spectrum, working their way down as more drive elements are added to the array. In the case of the NSB a six driver array exhibits no unusual spiking at 7kHz.

Subject: Re: New Cheap Quasi Line Array
Posted by scoolman on Thu, 19 Jan 2006 10:58:02 GMT
View Forum Message <> Reply to Message

Fred,Any updates on this ineresting project?Thanks
