Subject: Line Array versus Point Source Kits
Posted by FredT on Fri, 30 Jun 2006 18:34:23 GMT
View Forum Message <> Reply to Message

Manualblock asked me this question on another forum, but I decided to answer it here because the topic is line arrays:Q. In simple terms the Selah that you like and use as your reference are 4K$ in kit form. To a guy looking to spend 4K$; there are vast possibilities of some great speakers. The comparisons you made were with much less expensive offerings. Out of curiousity I just wondered whether you had any thoughts about comparing examples of kits in that same price range and how they stacked up in terms of sound quality. I like the array presentation; but in the 4K$ range it would be a difficult descision for me. I wondered how you felt about that.A. You pay a substantial premium for a line array because the number of drivers is a large multiple of the number in a comparable quality two or three way point soruce speaker. Here's an example of two speakers that use the same quality drivers: The $515 Selah Audio SA-1, a two-way using the Viva XT woofer and a Fountek ribbon tweeter, versus the $3,650 XT-8, using eight Vifa XT woofers and eight Fountek ribbon tweeters (the XT-8 uses the larger $118 tweeter versus the smaller $88 tweeter used in the SA-1, but theyre the same quality). I was willing to pay the line array premium because I like the sound and sensitivity of line arrays and happen to have an understanding and indulgent wife. Johnathan Valine described another array, the Epiphany 12/12 in TAS this way: "At their best, the Epiphanies make most other speakers sound the way the world looks through one eye---relatively flat and dimensionless. They are the aural equivalents of binocular vision". I agree - line arrays are in a different league from point source speakers.Your question asked about my impressions of point source speakers kits in the same price range as the XT-8. I can't respond because I don't know of any three- or even four-way point source kits in that price range. If, like most people, I had a smaller budget for buying a speaker kit, I could have gotten a world class quality speaker for quite a bit less. For example, the $2,450 Selah RC-4 four-way uses some of the best drivers available (Seas Excel) woofers and midrange plus your choice of a Fountek ribbon or a Hyquphon dome tweeter) and includes an integral powered subwoofer. It's comparable to the $20K Joseph Audio Pearl, except the Pearl doesn't include a powered sub. The bottom line is if you buy a kit, line array or point source, and build the enclosures yourself you get a speaker for a small fraction of the equivalent cost of a brand name mainstream retail speaker. Even if you buy the non mainstream speaker completely assembled, finished, and shipped to your door you still pay less than half of the equivalent mainstream speaker.I used Selah Audio examples because that's what I have and am most familiar with, but there are several other manufacturers of kits who offer comparable value for the money. For example, GR Research plans to introduce a nine woofer seven foot line array kit that will sell in the low $2K's. This speaker will also be offered by AV123 completed for $4K. WOW! RAW Acoustics, Pi Speakers, plus some others I'm not familiar with also offer very good value in their kits.Here are some links:http://www.selahaudio.com/http://www.gr-research.com/http://www.rawacoustics.com/http://www.pispeakers.com/

Subject: Re: Line Array versus Point Source Kits
Posted by Manualblock on Fri, 30 Jun 2006 20:49:47 GMT
View Forum Message <> Reply to Message

Thanks Fred; good reply. My original intention in bringing this up was to open a dialogue regarding the sound of Array speakers and whether the premium price due to the use of many quality drivers would be acceptable to people with that amount of money to spend.The lIne Array concept has been around for a while; I remmember the old Infinity's were always an excellent sound. The price was always the deterent. Look at the AudioeXpress article this month; he uses a similar design and spends considerably more money on it.

Subject: Re: Line Array versus Point Source Kits
Posted by Manualblock on Fri, 30 Jun 2006 21:46:24 GMT
View Forum Message <> Reply to Message

Thanks Fred; good reply. My original intention in bringing this up was to open a dialogue regarding the sound of Array speakers and whether the premium price due to the use of many quality drivers would be acceptable to people with that amount of money to spend.The lIne Array concept has been around for a while; I remmember the old Infinity's were always an excellent sound. The price was always the deterent. Look at the AudioeXpress article this month; he uses a similar design and spends considerably more money on it.

Subject: Re: Line Array versus Point Source Kits
Posted by Jim Griffin on Sat, 01 Jul 2006 01:30:37 GMT
View Forum Message <> Reply to Message

Manualblock,Yes line arrays with premium drivers cost a premium price but you'll never know how well they sound until you listen to them. The Selah Audio designs use very good drivers--Vifa or Seas cones and Fountek true ribbons. Now you can build lower cost line arrays with lower cost woofers and planar tweeters but you may not realize the optimal sound that you might desire. As you likely realize, a near field line array offers at least 10 dB more sensitivity, dynamic range, power handling than a point source speaker. Hence, it is no contest if you wish for a replica of live concert hall experience. You'll never get close with a point source but a line array would be your ticket to success. My recent near field array using 12 Creative Sound Solutions WR125S mid-woofers and 9 Aurum Cantus G3i-130 ribbons per side runs $4300 for the drivers from CSS. I'm using a fancy digital crossover so you'll have to add in its cost to the mix. The sound? Impressive. Bottom line is that going with a line array made with quality drivers provides to me the nearest to ultimate sound as you can get. A comparable commercial line array would be easily 10 times the cost of these kits. While you can enjoy line arrays which cost less money, a premium array will slay the competition.Jim

---

Subject: Re: To: Fred and Jim comment on Line Array
Posted by ttan98 on Sat, 01 Jul 2006 02:00:28 GMT
View Forum Message <> Reply to Message

I have not listened to Line array before, from your descriptions I envisage that the soundstage of this type of speaker must be huge due to employment of multiple drivers, and with its increased in effciency it can be driven be most valve amplifiers except for lowered wattage SET amps. This is another point that makes attractive to valve amp lovers.My query is that with its use multiple point sources to create the huge sound stage does it lose out on its musical coherency when compared to full range driver...Both of you have listened to many speakers from both types any comments. There must be a downside(ie musical output) to Line array speakers besides the price point..

Subject: Re: To: Fred and Jim comment on Line Array
Posted by FredT on Sat, 01 Jul 2006 10:39:19 GMT
View Forum Message <> Reply to Message

I believe the line array soundstage is both bigger and more realistic. A large line array doesn't offer the precise soundstage of the typical mini monitor, but the sound it does offer is more like the sound you hear at a live music event. When you walk by a room at a public place like a hotel, and there's a live band playing in that room, you can tell it's live music without going into the room. The reason you know it's live is because of the dynamics and scale of the sound, not the precise soundstage. However, with all that said, the soundstage of a line array isn't imprecise at all. On small scale recordings done in intimate surroundings, like a jazz trio or a solo singer, you do hear the individual voices and instruments where they're supposed to be. They're just positioned more within three dimensions instead of two.

Subject: Re: To: Fred and Jim comment on Line Array
Posted by FredT on Sat, 01 Jul 2006 10:39:19 GMT
View Forum Message <> Reply to Message

I believe the line array soundstage is both bigger and more realistic. A large line array doesn't offer the precise soundstage of the typical mini monitor, but the sound it does offer is more like the sound you hear at a live music event. When you walk by a room at a public place like a hotel, and there's a live band playing in that room, you can tell it's live music without going into the room. The reason you know it's live is because of the dynamics and scale of the sound, not the precise soundstage. However, with all that said, the soundstage of a line array isn't imprecise at all. On small scale recordings done in intimate surroundings, like a jazz trio or a solo singer, you do hear the individual voices and instruments where they're supposed to be. They're just positioned more within three dimensions instead of two.

Subject: Re: To: Fred and Jim comment on Line Array
Posted by ttan98 on Sat, 01 Jul 2006 11:04:18 GMT
View Forum Message <> Reply to Message

Many thanks Fred...

Subject: Re: Line Array versus Point Source Kits
Posted by Manualblock on Sat, 01 Jul 2006 12:06:41 GMT
View Forum Message <> Reply to Message

Yes absolutely; if you remmember the Infinity IRS betas, that was really the reference speaker to own in the mid eighties. I think they sold then for about 18K$. Very large scale sound; nothing did orchestral music like they did. 3D presentation in spades. I envy those with the rooms to accomodate this style of design.

Subject: Re: To: Fred and Jim comment on Line Array
Posted by GarMan on Tue, 04 Jul 2006 14:50:47 GMT
View Forum Message <> Reply to Message

Hi Fred,You mentioned dynamics and scale of sound as two characteristics of line arrays, two characteristics that I highly value in a set of speakers. For myself, I was able to find it in a two-way approach similar to PI-speakers (i.e. high efficiency, high power handling pro woofer and compression driver with horns). Since you have experience with both of these approaches, how would you compare the dynamics and presence of arrays vs high-eff 2-ways?I've also notices that premium arrays typically employ drivers that are low/mid sensitivity and, when used as singles, are relatively low in dynamics. The line array format appears to improve on these otherwise smooth, flat and neutral drivers by bringing dynamics and scale to the table. Do you have any experience or thoughts on starting with drivers that already high sensitivity and dynamic in an array?Gar.

Subject: Re: To: Fred and Jim comment on Line Array
Posted by Jim Griffin on Thu, 06 Jul 2006 20:42:40 GMT
View Forum Message <> Reply to Message

Gar,I'll let Fred address your question on comparison of a line array to the Pi-speaker design. I'll try to help you on line array dynamics and driver selection. Line arrays increase the sensitivity, dynamic range and power handling of the individual drivers in the array. The amount of sensitivity

change depends on the rated sensitivity of the individual driver, the number of drivers arrayed, and the resultant array impedance. Essentially, the number of drivers arrayed increase the efficiency 10 log (N) where N is the number of drivers. For example, for 10 drivers in the array you realize a 10 dB increase in the efficiency. If you maintain the same impedance as for the individual driver, then you realize no impedance sensitivity gain. But if the array impedance is 4 ohms and the individual driver is an ohms impedance, then you get a 3 dB sensitivity increase. Bottom line on array sensitivity would be the addition of the array efficiency gain plus the impedance sensitivity change. Thus for a nominal 87 dB SPL (1 w/1m) 8 ohms driver you would achieve a 13 dB increase in sensitivity if the array is a 4 ohms nominal impedance. Thus a 100 dB SPL array source would be attained. There are caveats on spacing and such to achieve the aforementioned sensitivity increase but you get the picture than those relatively moderate sensitivity drivers have become much more formidable.Now on the dynamics side of the ledger you significantly reduce the thermal (heating effects) and mechanical compression (linear cone travel extension) as you array the drivers. The dispersal of power among the drivers yields exceptional dynamic range and linearity as you have essentially a 10 log (N) lower driver level than before. Of course power handling increases as you spread the power to all of the drivers in the connection. Those 10 arrayed drivers which are rated at 50 watts each are now 500 watts capable. Thus, turn up the power and your ears will wear out before you distort the sound. The driver selection choice for line arrays is a vast subject and it depends on your goals an well as the physics of arrays. Generally, the mid ranges in line arrays are in the 3" to 7" diameter range while in high efficiency audio 12" or even 15" drivers are often considered to be mid range drivers. Other considerations for driver selection are the smoothness of their response (ease of crossover), driver distortion, inherent sound quality, driver specs, etc. Jim

---

Subject: Re: To: Fred and Jim comment on Line Array
Posted by GarMan on Fri, 07 Jul 2006 12:31:08 GMT
View Forum Message <> Reply to Message

Hi Jim,Thanks for the detailed response. The benefits of multiple drivers seem obvious to me. Even if there's no increase in system sensitivity, spreading power out to multiple drivers allows each until to operate at a lower level, in a more linear region, reduces distortion level, and more headroom leading to better dynamics.From my end, I also see the same results achieved with the use of high-eff prosound drivers. Essentially, we're taking drivers designed to handle 500W to 1000W of power and operating them with a fraction of a watt in a (smaller) home environment. These unit rarely break a sweat in home environments and the results are, drivers operating a low level linear region with incredible headroom and dynamics.I have absolutely zero experience with line array and would love to hear how the results of these two different approaches compare in real listening situations.thx,Gar.
